In various embodiments of this invention, a suite of customized computer software applications, a linked or wireless computer network and accessory components cooperate to enhance and extend customer and employee resource management in the casino/gaming environment.

50 Claims, 95 Drawing Sheets
Virtual Poker Gaming on Internet

“LVOV”
Electronic Gaming Network
- No “physical casino / poker room”
- No “public / marquee display”
- No “real time operational support”
- No “player wait-list”
- No “player seating”

NYC: Central node for the virtual system e.g. New York City

Player #1
via personal computer
w/Internet connection

Player #3
via home computer
w/Internet connection

Player #2
via portable computer
w/Internet connection

Figure 1
Wait-list Entry Station

Public/Marquee Display

"QueueOS"
"Products and Processes for Operations Management of Casinos"

One physical casino location, e.g. Las Vegas

Tournament Clock

Actual photo of Ameranth products in use on 50+ tables in a major Poker Room

Figure 2
"QueueOS"

"Products and Processes for Operations Management of Casinos"

Wait-list Entry Station

Public/Marquee Display

Player Seating / Wait-listing

Dealing rotation

Poker Tables

Tournament Clock

Lemke

small ONE table display

'single table' for purposes of player tracking only

Figure 3
Figure 4

TABLETRON Network Infrastructure

Application Tier

Middle Tier

Back Office Tier

Wireless Handheld PDA

PC Client Station

Wireless Handheld PDA

Application Server

Database Server

Database

Database
TableTron offers a multitude of processes of which certain Actors can utilize. Depending on the function at hand Actors will initiate, monitor, and react to certain product processes.
Figure 6
### Hold'em / Omaha Poker Tournament - July 1, 2002

**Start Time:** 8:00 PM  
**Buy-In:** $30.00  
**Entry** **$:** 20.00  
**Re-Buy** **$:** 10.00  
**Total Players:** 135  
**Seats Available:** 15  
**Total Purse:** $2700.00

#### Winner's Circle
- **1st Place:** $1809.00 (67%)  
- **2nd Place:** $405.00 (15%)  
- **3rd Place:** $270.00 (10%)  
- **4th Place:** $135.00 (5%)  
- **4th Place:** $135.00 (5%)

**Tables Remaining:** 14  
**Players Remaining:** 135  
**Re-Buys:** 0/2

---

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Figure 8

Tournament Manager - Delete Tournament

START

Casino personnel desires to delete a scheduled tournament

Select "Delete Tournament"

Is Database Alive? (DBConnect)

Database Alive? (DBConnect)

False

Output to Screen "No Database Connection Exists"

True

Query Database for scheduled tournaments from greater than current date/time

getRecord for matching criteria of scheduled tournaments

Do any scheduled tournaments exist?

False

Output to Screen "No Scheduled Tournaments Found"

True

Return: tournamentID();
TypeOfGame ();
VenueDate ();
VenueTime ();

Does the desired tournament exist?

False

Cancel Operation

True

Output tournament values to screen (Summary)

Select tournament to be deleted

Would you like to delete this tournament?

False

Exit

True

CONFIRM TOURNAMENT DELETION

Flag Database Record for Deletion

Return To Delete Tournament

Advanced Flow
Figure 10

Poker Room - QueueS

REPORT MANAGER

Historical Real-Time Help Exit

Pit 2 Real-Time Reports

<table>
<thead>
<tr>
<th>Most Popular Game</th>
<th>Most Active Floor</th>
<th>Total Pit Drop</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blackjack $25</td>
<td>Sean McCauley</td>
<td>$13,750</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Open Credits</th>
<th>Open Fills</th>
<th>Open Markers</th>
<th>Total Credits</th>
<th>Total Fills</th>
<th>Total Markers</th>
<th>Active Tables</th>
<th>Average Duration</th>
<th>Hit Count</th>
<th>Average Wager</th>
<th>Total Check-Ins</th>
<th>Total Check-Outs</th>
<th>Avg. Rating Interval</th>
<th>Open Seats</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>00:55</td>
<td>2</td>
<td>$75</td>
<td>125</td>
<td>125</td>
<td>00:23</td>
<td>2</td>
</tr>
</tbody>
</table>

Change Pit

Last update: 6:23:23 PM EDT

Current User: smcccauley

Powered by QueueOS, LLC ** Patent Pending Copyright 2002
Figure 11

![TableTron System Login]

Please swipe or scan employee card

Powered by QueueOS, LLC * Patent Pending * Copyright 2002

August 7, 2002 7:07:26 PM EDT
Figure 12

TableTron - Login

System
User
Casino Floor Person
Administrator

LOGIN
Figure 13

TableTron® Login

START

User starts application

User scans their employee ID card

Client sends AppServer User ID

AppServer receives login request from client

AppServer queries LDAP Server

Does the User have permission? True

LDAP returns permission granted authentication to AppServer

LDAP returns permission denied to AppServer

Client displays login failure error

Client sends login location selection to AppServer

AppServer sends SQL insert statement to database for entry into user session table.

AppServer returns to Client vector with times, dates, Time, and login location.

Client displays user session information

AppServer returns to Client vector for login locations

AppServer returns permission denied to Client

Client displays login failure error

AppServer returns to Client

Does the User have permission? False

AppServer returns to Client

Client displays login failure error

END
Figure 15

Poker Room QueueOS Poker Room
CASINO MANAGER

| 1 | 8 | 3 | 5 | 7 | 7 | 26 | 30 |

Please select a table

$0.25 | 0 | - | 0 | 0 | 0 | 7 | - | $5
$0.25 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | $25
0 | 7 | - | 300 | 0 | 0 | 0 | 0 | $100
$1T | 7 | $1T | 0 | 3500 | 7 | - | $100
0 | + | - | 0 | $100 | + | 0 | $1000

$8800

Next
Casino Manager allows certain actors to perform day-to-day operational functions. Functions include creating, modifying, and tracking of table inventories, table roadmaps, credits, fills, and dealer schedules.
Figure 17

<table>
<thead>
<tr>
<th>Player wager</th>
<th>0</th>
<th>X</th>
<th>$10</th>
<th>+</th>
<th>-</th>
<th>0</th>
<th>X</th>
<th>$100</th>
<th>+</th>
<th>-</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>X</td>
<td>$50</td>
<td>+</td>
<td>-</td>
<td>0</td>
<td>X</td>
<td>$100</td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>X</td>
<td>$25</td>
<td>+</td>
<td>-</td>
<td>0</td>
<td>X</td>
<td>$1000</td>
<td>+</td>
<td>-</td>
</tr>
</tbody>
</table>

Duration: 0 Hours 5 Minutes
Average Bet: 75
Figure 19

Player Check-Out

START

Player desires to checkout of comp system.

Player leaves Table

Player goes to Checkout System

Player swipes their player card

Player Checkout System verifies player

Player Checkout System returns player information

Player Checkout System confirms player checkout

Player checkout complete

END
Figure 20

**Player Check-Out**

**Player Comp Information Needed:**
- Player Name
- Card #
- Date
- Start Time
- Finish Time
- Table #
- Rating
- Accrued Time
- Accrued Comp Points

START

- Player desires to sell-checkout of comp system

- Player goes to Player Checkout system

- Checkout System requires player to swipe player's card

- Does Player have & Comp Card?
  - YES: Player swipes player card
  - NO: Player Comp Information Needed

- Database returns Player Card comp information

- Database records transaction

- Output to screen Player comp information

- Clear comp confirmation box

- Return to Main Player Checkout Screen

- END

Advanced Flow
Figure 21

**Player Check-Out**

**Player**
- Player desires to self-checkout
- Player goes to Player Checkout System
  - Player swipes card
  - Create the player ID from the card

**Player/Checkout System**
- Player Card required
- Player required to swipe card
- Checkout System records card swipe
- Checkout System calls getRecord

**Application/Server**
- Receives getRecord Request
- Calls Database passes SQL Statement
  - Pass Output Stream

**Database Server**
- Database retrieves data from comp table
- Database returns selected query data
  - Database records transaction

Flowchart:
1. **START**
2. Player desires to self-checkout
3. Player goes to Player Checkout System
4. Player swipes card
5. Create the player ID from the card
6. Player Card required
7. Player required to swipe card
8. Checkout System records card swipe
9. Checkout System calls getRecord
10. Receives getRecord Request
11. Calls Database passes SQL Statement
12. Pass Output Stream
13. Database retrieves data from comp table
14. Database returns selected query data
15. Database records transaction
16. **END**
Figure 22

<table>
<thead>
<tr>
<th>TableTron™ Check-In Ticket</th>
<th>TableTron™ Check-Out Ticket</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>QueueOS Rating Card</strong></td>
<td><strong>QueueOS Rating Card</strong></td>
</tr>
<tr>
<td>Card # 12345678</td>
<td>Card # 12345678</td>
</tr>
<tr>
<td>Last Name</td>
<td>Last Name</td>
</tr>
<tr>
<td>First Name</td>
<td>First Name</td>
</tr>
<tr>
<td>M.I.</td>
<td>M.I.</td>
</tr>
<tr>
<td>Pit #</td>
<td>Pit #</td>
</tr>
<tr>
<td>Game</td>
<td>Game</td>
</tr>
<tr>
<td>Table # 25</td>
<td>Table # 25</td>
</tr>
<tr>
<td>Date July 29, 2002</td>
<td>Date July 29, 2002</td>
</tr>
<tr>
<td>Start Time 14:00:00 EDT</td>
<td>Start Time 14:00:00 EDT</td>
</tr>
<tr>
<td>Finish Time 15:30:00 EDT</td>
<td>Finish Time 15:30:00 EDT</td>
</tr>
<tr>
<td>Average Bet Level 2</td>
<td>Average Bet Level 2</td>
</tr>
<tr>
<td>Cash In</td>
<td>Cash In</td>
</tr>
<tr>
<td>Chips Out</td>
<td>Chips Out</td>
</tr>
<tr>
<td>Credit/Cash Advance Win/Loss</td>
<td>Credit/Cash Advance Win/Loss</td>
</tr>
<tr>
<td>Comments:</td>
<td>Comments:</td>
</tr>
<tr>
<td></td>
<td>Game Type: Texas Holdem</td>
</tr>
<tr>
<td>Rating Amount: $ 1.00 / hour</td>
<td>Rating Amount: $ 1.00 / hour</td>
</tr>
<tr>
<td>Rated By: Sean McCauley</td>
<td>Rated By: Sean McCauley</td>
</tr>
<tr>
<td>License # 595555</td>
<td>License # 595555</td>
</tr>
<tr>
<td>Entered By:</td>
<td>Entered By:</td>
</tr>
<tr>
<td>Terminal #: TT-5</td>
<td>Terminal #: TT-5</td>
</tr>
</tbody>
</table>

Powered by QueueOS, LLC
Game Manager allows certain actors to perform game and table functions. Functions include opening a new game, closing an existing game, and modifying an active game. Game Manager functions directly update List Manager.
Figure 25

GAME MANAGER - OPEN TABLE

- Clerk
- Supervisor
- Floor
- System

OPEN TABLE

USE CASE
Figure 30

GAME MANAGER - CLOSE TABLE

START

Floor Sup/Other Clk requests Datab. Manager

Do List Entries exist?

Floor Sup/Other Clk requests Datab. Manager

Close Confirmation Box

List entries exist for this Game. If you proceed
the entries will be removed. Would you like to
proceed?

No

Database removes Table Entry for specific
Game

Game Manager removes
Table Entry for specific
Game

Game Manager updates
GUI removing Table
number for Table
Button

TRUE

FALSE

Database searches
Table Entry for specific
Game

Database searches
Table Entry for specified
game

Database searches
Table Entry for specified
Game

Game Manager shows
Table as inactive

Game Manager shows
Table as inactive

Game Manager shows
Table as inactive

End

TRUE

FALSE

FALSE

TRUE

FALSE
Figure 31
Figure 33
Figure 34
List Manager Process

List Manager allows certain actors to perform list or queue functions. Functions affecting players include adding, modifying, deleting, phone-in, activating, inserting, open seat, rollover, lockup, public seat, and multiple.
ADD PLAYER - USE CASE

CLIENT

AppServer

PLAYER

CLERK

LIST MANAGER

FLOOR

SUPERVISOR

Database

ADD PLAYER
LIST MANAGER - ADD PLAYER

START

Player desires to be added on the list of their chosen game.

Player contacts Clerk/Itor

Clerk/Itor requires Game, Stake, Player info

Player supplies the info

Does the Specified Game exist?

TRUE

Clerk/Itor selects the specified Game

Clerk/Itor enters the given Player information

Does the player wish to be on another Game List?

TRUE

Clerk/Itor confirms entry to Player

Player waits for available spot

FALSE

Player waits for available spot

Basic Flow

END
A player is called to an Open Seat

Is the Player Present?

True

The Player being called is present and wishes to take the seat

Does the Player want the seat?

False

Next Player is Called

False

Next Player is Called

Clerk/Floor Admin selects the player from the List of the Game being called

Clerk/Floor Admin selects Lockup function

Player's seat is Locked Up

Open Seat Call is removed

End
Figure 46C

List Manager - Lockup Player

Start

Multiple Players are being called for Open Seat

A Player desires to be Locked Up for the specific Game

Clerk / Floor / Admin selects the Player initials from the Game being called

Clerk / Floor / Admin selects the Lockup function

Client sends Lockup method to AppServer with Player Initials, Coordinates

AppServer sends SQL select statement to Database

Database returns confirmation of Player existence

AppServer SQL statement to database to delete Player from Open Seat where Player = Player Initials, Entrylist ID, coordinates, Player Key

Database deletes Player record from Open Seat

Database sends confirmation to AppServer

AppServer sends Delete Player method where Player = selected player

Database deletes Player record from Entrylist

Player does not exist in Open Seat table - Cannot be Locked Up

Database returns Entrylist

AppServer sends vector to Client

Client Repaints List

End
Figure 46D

List Manager - Lockup Player

Activity Diagram
Figure 46E

List Manager - Lockup Public Seat

Start

A Public Seat is being called

A Player declines the available seat

The Player notifies the Clerk/Floor/Admin

Does the Player want the seat?

TRUE

The Player notifies the Clerk/Floor/Admin

FALSE

Public Seat continues to Call

End

Clerk/Floor/Admin selects the Game of the Public Seat being called

Clerk/Floor/Admin selects Lockup function

Public Seat has been locked up

Do additional Public Seats Exist?

TRUE

FALSE

Basic Flow
Figure 46F

**List Manager - Lockup Public Seat**

- **Start**
  - **Public Seat is being called for a Game**
    - **A Player declines to take the seat for the specific Game**
    - **Clerk / Floor / Admin selects the Game being called**
    - **Clerk / Floor / Admin selects the Lockup function**
    - **Client sends Lockup method to AppServer with GameID, Game Name, Page, Column & in Vector**
    - **AppServer parses vector for specified Game**

- **AppServer sends SQL select statement to Database**
  - **Database returns confirmation of Game existence**
    - **Player is Locked Up**
      - **True**
        - **Player is Locked Up**
          - **Additional Public Seat entry exists for the specified Game?**
            - **False**
              - **Public Seat notification Ends**
            - **True**
              - **AppServer sends SQL statement to database to delete Public Seat Entry where Game = chosen Game**
        - **False**
          - **Database deletes record from Public Seat table**
          - **Database sends confirmation to AppServer**
          - **AppServer returns vector to Client**
          - **Client repainst list**
    - **False**
      - **Game does not exist in Public Seat table - Cannot be Locked Up**

- **Advanced Flow**
Figure 46G

List Manager - Lockup Public Seat

Clerk / Floor / Admin

Start

Public Seat is being called for a Game

Client

Client sends Lockup method to AppServer with GameID, Game Name, Page, Column & in Vector

AppServer

AppServer parses vector for specified Game

AppServer sends SQL select statement to Database

AppServer returns vector to Client

Database

Does the Game exist in Public Seat table?

Game does not exist in Public Seat table. Cannot be Locked Up

Database returns confirmation of Game existence

Database sends confirmation to AppServer

Database deletes record from Public Seat table

Do additional Public Seat entries exist for the specified Game?

AppServer returns vector to Client

End

Public Seat notification Ends

Game names Lockup function

Clerk / Floor / Admin selects the Game being called

Clerk / Floor / Admin selects the Lockup function

Client Re-paints List

AppServer SQL statement to database to delete Public Seat Entry where Game = chosen Game

AppServer returns vector to Client

AppServer sends SQL select statement to Database

Database returns confirmation of Game existence

Database deletes record from Public Seat table

Do additional Public Seat entries exist for the specified Game?

True

Activity Diagram
Figure 47

MULTIPLE ADD - USE CASE

CLIENT

AppServer

PLAYER

CLERK

Multiple Add

FLOOR

LIST MANAGER

SUPERVISOR

Database
Figure 48

LIST MANAGER - MULTIPLE ADD

START

Player decides to be added on the list of their chosen Games

Player contacts Client/Server

Client/Server receives Games, Games, Player, tables

Player supplies the data

On the specified Games side?

TRUE

Client/Server selects the specified Games

Client/Server verifies the game/Player information

Client/Server verifies the specified Games

Player waits for available seat

END

Basic Flow
Figure 49

**LIST MANAGER - MULTIPLE ADD**

START

- Client/Server requests Client information (initial)
- Client/Server selects the Games for which Client will be added
- Records GameID entered
- Client/Server enters Player's info via keyboard
- Server logs entered
- Client/Server selects additional Games
- Entered data (Player ID, Game ID) transmitted to AppServer

Does the desired Game(s) exist?

- True
  - AppServer calls AppServer with SQL statement to Database
  - Database server receives SQL statement
  - Database server processes the request for each Game ID
  - Database returns confirmation to AppServer
- Server logs entry type
- AppServer calls AppServer with SQL statement to Database
  - AppServer returns vector to Client

- False
  - AppServer sends database to Client
  - Client logs (Player) for monitoring
  - AppServer returns vector to Client

Advanced Flow
Figure 51

List Manager - Marquee Use Case

Marquee Display

Client

System

List Manager
Figure 52

List Manager - Marquee Display Basic Flow

START

Supervisor wishes to add a scrolling Marquee to List Manager view

Supervisor enters Marquee information

Table Ten saves Marquee into database

Client requests Marquee information to display

Client displays Marquee on List Manager view

Client connects for List Manager update

Does the client have "marquee" license?

True

False

Basic Flow

END
Figure 53

List Manager - Marquee Display Advanced Flow

START

Client starts up TradeTron

Client searches for installed business

Does the Marquee license exist?

True

Check for new Marquee - 6 minutes

Clients requests Marquee information from AppServer

AppServer queries database for contents of Marquee table

Database returns Marquee string to AppServer

AppServer sends Client Marquee string

False

Advanced Flow

END
Figure 54

CLIENT

START

Client starts up TableTop

Client searches for installed license

Does the Marquee license exist?

True

False

CLIENT

Client requests Marquee information from AppServer

AppServer queries Database for contents of Marquee table

Marquee sent Client Marquee string

Does the Marquee license exist?

True

False

CLIENT

Check for new Marquee: 5 minutes

AppServer sends Client Marquee string

DATABASE

Database returns Marquee string to AppServer

END
Figure 55

List Manager - Profanity Checker

Profanity Checker

- Casino Clerk
- Floor Person
- System
- Player

Use Case
Figure 56

List Manager - Profanity Checker

START

A player desires to be added to the list for a specific game(s)

Clk/Floor person gathers the player identification information

Clk/Floor attempts to add the player to the list

Does the player identification information violate the profanity rule?

True

Clk/Floor is notified that a profanity match exists

Clk/Floor asks the player for alternate identification information

Player provides new identification information

False

Player is added to the list

END

Basic Flow
A player desires to be added to the list for a specific game(s)

Clerk/Floor person gathers the player identification information

Clerk/Floor selects the desired game(s)

Clerk/Floor selects an addition function

Request is sent to AppServer

AppServer queries Database for profanity check

AppServer returns profanity match to client

Client displays profanity error notification

Clerk/Floor asks the player for alternate identification information

Player provides new identification information

Clerk/Floor enters new player identification information

Client repaints GUI with player added

End
A player desires to be added to the list for a specific game(s).

Player provides new identification information.

Client displays profanity error notification.

Client repaints GUI with player added.

AppServer returns vector to client.
Figure 59

List Manager - Duplicate Entry

Casino Clerk

System

Floor Person

Player

Duplicate Entry

LIST MANAGER

Use Case
A player desires to be added to the list for a specific game(s)

Clerk/Floor person gathers the player identification information

Clerk/Floor attempts to add the player to the list

Does another player with the same identification information reside on the list?

True

Clerk/Floor is notified that a duplicate entry exists

False

Player is added to the list

Clerk/Floor asks the player for alternate identification information

Player provides new identification information

END

Figure 60

List Manager - Duplicate Entry
Figure 61

**List Manager - Duplicate Entry**

```
START

A player desires to be added to the list for a specific game(s)

Clerk / Floor person gathers the player identification information

Clerk / Floor selects the desired game(s)

Clerk / Floor selects an addition function

Request is sent to AppServer

AppServer queries Database for duplicate list entries

Do any duplicates exist?

True

AppServer returns duplicate entry to client

Client displays duplicate error notification

Clerk / Floor asks the player for alternate identification information

False

AppServer continues player addition function

Database inserts new record

AppServer returns vector to client

Clerk / Floor selects an addition function

AppServer queries Database for duplicate list entries

Request is sent to AppServer

Client repaints GUI with player added

END
```
A player desires to be added to the list for a specific game(s)

Clerk/Floor person gathers the player identification information
Clerk/Floor selects the desired game(s)
Clerk/Floor selects an addition function
Player provides new identification information

Clerk/Floor asks the player for alternate identification information
Clerk/Floor enters new player identification information
Clerk/Floor selects an addition function

Client displays duplicate error notification
Request is sent to AppServer

Client repaints GUI with player added

AppServer queries Database for duplicate list entries
AppServer returns duplicate entry to client

AppServer continues player addition function
AppServer returns vector to client

Do any duplicates exist?
True

Database inserts new record

END
Figure 67

<table>
<thead>
<tr>
<th>DATE</th>
<th>TIME</th>
<th>USER</th>
<th>SEVERITY</th>
<th>EVENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>10/14/2002</td>
<td>14:32:43 PM EDT</td>
<td>smith</td>
<td>Info (7)</td>
<td>User login successful</td>
</tr>
<tr>
<td>10/14/2002</td>
<td>13:18:33 PM EDT</td>
<td>smcCauley</td>
<td>Info (7)</td>
<td>User login successful</td>
</tr>
<tr>
<td>10/14/2002</td>
<td>12:23:13 PM EDT</td>
<td>smcCauley</td>
<td>Security (2)</td>
<td>User login failed</td>
</tr>
<tr>
<td>10/14/2002</td>
<td>11:32:43 PM EDT</td>
<td>craith</td>
<td>Info (7)</td>
<td>User logout successful</td>
</tr>
<tr>
<td>10/14/2002</td>
<td>09:02:03 AM EDT</td>
<td>sysadmin</td>
<td>Info (7)</td>
<td>Device - PDA-4 - online</td>
</tr>
<tr>
<td>10/14/2002</td>
<td>08:57:51 AM EDT</td>
<td>smcCauley</td>
<td>Info (7)</td>
<td>User logout successful</td>
</tr>
<tr>
<td>10/14/2002</td>
<td>08:22:31 AM EDT</td>
<td>djohnson</td>
<td>Critical (1)</td>
<td>User login failed - insufficient privileges</td>
</tr>
<tr>
<td>10/14/2002</td>
<td>03:04:40 AM EDT</td>
<td>sysadmin</td>
<td>Critical (1)</td>
<td>Device - (PDA-4) - online</td>
</tr>
<tr>
<td>10/14/2002</td>
<td>03:04:48 AM EDT</td>
<td>sysadmin</td>
<td>Error (3)</td>
<td>Device - (TicketPrint) - offline</td>
</tr>
</tbody>
</table>
Figure 68
Figure 69
**Figure 70**

![QueueOS Notification Manager Interface](image)

**QueueOS**

**Notification Manager**

**Send To:**
- All Users
- All Nodes
- Waitress Station
- Chip Runner
- Smcauley
- Djohnson
- Clerk-1
- PDA-1

**Customize Message:**

```
1 2 3 4 5 6 7 8 9 0
Q W E R T Y U I O P
A S D F G H J K L
Z X C V B N M
```

**Messages:**
- Waitress Request
- Chip Request
- Manager Request
- Dealer Request
- Monitor Table
- VIP Present
- Player Inquiry
- Security Alert

Waitress request - Table 5

SEND  CANCEL
Figure 71

List Manager - Initials Search

Start

A Player's Information is desired

System User gathers the Player's Initials

System User selects any Game

System User enters the Player's Initials

System User selects the Search function

Client sends Search Player method with Player Initials as a vector to AppServer

AppServer receives vector from Client

AppServer runs SQL search statement to Database

Database searches action history table for Player Initials where Player Initials = chosen Initials

Does the player exist?

TRUE

AppServer returns vector to Client

Client Displays Player History Report

FALSE

AppServer returns vector to Client

Client Displays No Registration Error Message

End

Advanced Flow

Player History Table Values

- Player Initials
- Current Registered Games
- Current List Position (Rank)
- Last 10 System Actions
  * Date
  * Time
  * User
  * Event Code
Figure 72

List Manager - Initials Search

System User:
- Start
- A Player's Information is desired
- System User enters the Player's Initials
- System User selects any Game
- System User selects the Search function

Client:
- Client sends Search Player method with Player Initials in vector to AppServer
- Client displays no Registration Error Message
- Client displays Player History Report

AppServer:
- AppServer receives vector from Client
- AppServer runs SQL search statement to Database
- AppServer returns vector to Client
- AppServer returns history values vector to Client

Database:
- Database searches action history table for Player Initials where Player Initials = chosen initials
- Does the Player exist?
  - FALSE
  - TRUE
- Database searches history table where player initials = chosen player

Activity Diagram
Figure 73
Figure 74

Start

A Player's wishes to be added to the List as a Reserve Player

System User gathers the Player's Initials

System User selects the desired Game(s)

System User enters the Player's Initials

System User selects the Reserve function

Client sends Reserve Player method with Player Initials in vector to AppServer

AppServer receives vector from Client

AppServer runs SQL statement to Add the Reserve Player to Database

Database Inserts Reserve Player record

AppServer returns vector to client

Client display Reserve Player on List

System User calls Open Seat for specified Game

Client sends Open Seat method to AppServer

AppServer checks next available Player

Is next available Player a Reserve Player?

TRUE

AppServer runs SQL statement to Database into Lockup Player table

Database inserts Reserve Player into Lockup table

AppServer returns vector to client

Client display Reserve Player with "Lockup" color code

Is Reserve Player present?

FALSE

End

TRUE

AppServer sends update record to Database

Database removes Player from Lockup table

Client calls Open Seat for next available Player
Figure 75

List Manager - Reserve Player

System User

Client

AppServer

Database

System User enters the Player's Initials

System User selects the desired Game(s)

System User selects the Reserve function

System User calls Open Seat for specified Game

Client sends Reserve Player method with Player Initials in vector to AppServer

Client displays Reserve Player on List

Client sends Open Seat method to AppServer

Client displays Reserve Player with "Lockup" (call) code

Is Reserve Player present?

FALSE

Client Locks up Player

FALSE

Has the Reserve Player time expired?

FALSE

AppServer receives vector from Client

AppServer sends SQL Insert statement to Add Reserve Player to Database

AppServer returns vector to client

AppServer checks next available Player

AppServer inserts Reserve Player in Lookup table

AppServer returns vector to Client

AppServer returns SQL statement to Database into Look up Player table

AppServer sends update vector to Database

End

Activity Diagram
Figure 76

The image shows a user interface for a poker game. The interface is titled "LIST MANAGER" and displays a 7 Card Stud game with the bet range of $1-$3. The screen shows a grid with various symbols and numbers, indicating the steps involved in the game:

1. **Step 1:** System User enters the Player's initials.
2. **Step 2:** System User selects the Reserve function.

There are also options for various games and bet amounts, such as "Texas Holdem $3-$6" and "Texas Holdem $5-$10." The interface includes buttons for "Exit," "< Back," and "Next."
Figure 77

List Manager - Average Wait Time

Start

Client calls Average Wait Time method

Application Server receives Client request

Application Server calls SQL statement to Database

Database searches Entry List History table for Entry List History variables where Game Status = Active (*)

Database selects all GameIDs where Game Type does not equal null

Database selects Entry List History ID where Requested Action equals (Add, Activate, Insert, Link) and Date = current Date

Database selects Entry List History ID where Requested Action equals (Lockup) and Date = current Date

Database selects Entry List History ID where Requested Action includes Lockup

Database selects Date & Time where Entry List History ID and Requested Action equals (Add, Activate, Insert, Link)

Database selects Date & Time where Entry List History ID and Requested Action equals (Lockup)

Database selects Date & Time where Entry List History ID and Requested Action equals Lockup

Database calculates Time difference between Requested Action (Add, Activate, Insert, Link) and Requested Action (Lockup) where Entry List History ID equals same

Database takes average of time difference values and number of Entry List History IDs where Requested Action equals Lockup for Game Type

Database returns vector to Application Server with GameID, Game Type, and Average Wait Time Integer.

Note: Average Wait Time Integer = 0 when Game is Non Active

Application Server receives Average Wait Time vector

Client receives Average Wait Time vector from Application Server

Client displays Average Wait Time values from vector

Advanced Flow

End
Figure 78

List Manager - Average Wait Time

Client

Start

Application Server receives Client request

Application Server calls SQL statement to Database

Database Server

Database searches Entry List History table for Entry List variables where Game Status = Active (**) and Date = current Date

Database selects Entry List History ID where Requested Action equals (Add, Activate, Insert, Link) and Date = current Date

Database selects Date & Time where Entry List History ID and Requested Action equals (LockUp) and Date = current Date

Database selects Date & Time where Entry List History ID and Requested Action equals (LockUp) where Entry List History ID equals same

Database calculates Time difference between Requested Action (Add, Activate, Insert, Link) and Requested Action (LockUp) where Entry List History ID equals same

Database returns vector to Application Server with GameID, Game Type, and Average Wait Time integer.

Note: Average Wait Time Integer = 0 then Game is Non Active

Activity Diagram
Figure 79

<table>
<thead>
<tr>
<th>7 Card Stud</th>
<th>7 Card Stud</th>
<th>Texas Holdem</th>
<th>7 Card Stud</th>
<th>Texas Holdem</th>
<th>7 Card Stud</th>
</tr>
</thead>
<tbody>
<tr>
<td>$1 - $3</td>
<td>$1 - $5</td>
<td>$3 - $6</td>
<td>$5 - $10</td>
<td>$5 - $10</td>
<td>$10 - $20</td>
</tr>
<tr>
<td>1, 4,</td>
<td></td>
<td>8,</td>
<td></td>
<td>8,</td>
<td></td>
</tr>
</tbody>
</table>

- AQW
- QW
- OP
- 12Q

Average Wait: 00:05:00
Average Wait: 00:05:00
Average Wait: 00:05:00
Average Wait: 00:05:00
Average Wait: 00:05:00

Feel free to test drive our system
As seen 1st in Card Player Magazine
Thank you for visiting.
Figure 80

MonitorEntryList - extends a thread implements runnable

Class Variables
- private static int threadNumber = 0;
- private int currentThreadNumber = 0;
- private connection connection = new clientConnection();
- private Vector avVector = new Vector();
- private Vector rvVector = new Vector();
- private thread runner;

Constructor
- super("MonitorEntryList");
- threadNumber ++
- currentThreadNumber = threadNumber;

run ( ) method
- thread this thread = thread.currentThread();
- if (runner == this thread)
- thread sleep (1000)
- Catch Interrupted Exception

END

END
Start

AppServ listens on designated port

Client Queries cache/properties file for AppServ details

Client tests connectivity to AppServ (3 Retries)

Is AppServ Alive?

TRUE

OUTPUT to Screen "AppServ Cannot be reached"

FALSE

Client attempts to Open Socket on specified port

Does available Socket exist?

TRUE

Client registers with AppServ

AppServ receives client parameters (FQDN, IP, Data/Time)

AppServ starts Thread to client

AppServ output FQDN, IP, Data/Time

Client Stops thread

AppServ stops Thread

AppServ output Connection closed with Thread info

END

FALSE

Loop

AppServ output to console Connection Timeout with Date & Time

Thread remains active

Loop
Figure 82

Dealer Coordinator Actors

POKER ROOM
- Dealers
- Dealer Coordinators
- Floor

TABLE GAMES
- Pit Managers

ADMINISTRATION GROUPS
- Re-Assignment Group
- Training
- Managers

TABLETRON
- Dealer Coordination

Dealer Coordinator Features

Dealer Profiling
- Name
- Employee ID
- License #
- Contact Information
- Skill Set
- Qualified Games
- Preferred Games
- Cultural Level

Rotation
- Table Assignments
- Table Re-Assignments
- Dealer Assignments
- Dealer Re-Assignments
- Dealer Extras

Administrative
- Schedule Dealers
- Request Dealers
- Relieve Dealers
- Track Dealers
- Re-Assignment Pool
- Contact Dealers
- Table Breakdown
Figure 83
Rotation Process
Figure 84

![Image of a screen from QueueOS]

**QueueOS**

**Dealer Coordinator**

<table>
<thead>
<tr>
<th>Rotation Name</th>
<th>Order</th>
<th>Current Game</th>
<th>Current Dealer</th>
<th>Next Dealer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Friday Low Side</td>
<td></td>
<td>7 Card Stud $1-$3</td>
<td>mccauley, s.</td>
<td>perry, r.</td>
</tr>
<tr>
<td>Friday Low Side</td>
<td></td>
<td>7 Card Stud $1-$3</td>
<td>kessman, m.</td>
<td>mccauley, s.</td>
</tr>
<tr>
<td>Friday Low Side</td>
<td></td>
<td>7 Card Stud $1-$3</td>
<td>smith, t.</td>
<td>kessman, m.</td>
</tr>
<tr>
<td>Friday Low Side</td>
<td></td>
<td>7 Card Stud $1-$3</td>
<td>perry, r.</td>
<td>smith, t.</td>
</tr>
<tr>
<td>Friday Low Side</td>
<td></td>
<td>7 Card Stud $1-$3</td>
<td>smith, t.</td>
<td>jones, s.</td>
</tr>
</tbody>
</table>

**Shift Change 00:4:37**

[Buttons: Clock-In, Clock-Out, View Rotation, BACK, EXIT, NEXT]
Figure 85

**TABLETron**
Rating Manager

Select a seat:

3  4  5

TABLE 5

---

**TABLETron**
Rating Manager

Table: 5
Game: Blackjack $25
Player: 12345678
Duration: 0 Hours 30 Minutes
Average Bet: 100

<table>
<thead>
<tr>
<th>Bet Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>$110</td>
</tr>
</tbody>
</table>

Submit
Cancel
Figure 86
Figure 87

March 11, 2003  5:49:25 PM EST

QucucOS

DEALER COORDINATOR

DEALERS  SCHEDULE  ROTATION  RE-ASSIGN  TOURNAMENT  EXIT

Create  Modify  Delete

Available Tables
TABLE 5
TABLE 5
TABLE 5
TABLE 5
TABLE 5
TABLE 5
TABLE 5
TABLE 10

Rotation Tables
TABLE 1
TABLE 5
TABLE 3
TABLE 4

Select Break Tables
TABLE 4

STEP TWO:

BACK  CANCEL  NEXT

Patent Pending * Powered By QucucOS, LLC * Copyright 2002
Figure 89

Player - Work Flow

Players asks clerks to add their names or initials to the list of their desired game

Clerks add the player(s) to their selected game list

Players await their name or initials to be called for an open seat at the game of their choice

Does an open table exist for the desired stakes?

YES

Next Player on list for the specific game type is called for an open seat

NO

Does an available seat exist?

YES

Player is seated at the table game

NO

Floor Person or Pit Boss records Player’s name and amount of Cash In, Chips In, Start Time, and Stake Level

Player leaves game

Floor Person or Pit Boss records Stop Time & enters player session statistics for compensation.

Seat becomes available

Game - Work Flow

Clerks, Floor Person, or Pit Boss decides to open a new table game

Floor Person, or Pit Boss assign a Dealer to the table

Floor Person, or Pit Boss and Dealer take Table Inventory

Floor Person, or Pit Boss declares the table open and notifies the list

Does the player accept the seat?

YES

NO

Floor Person or Pit Boss records Stop Time & enters player session statistics for compensation.
This application claims the benefit of priority of:
Provisional Patent Application No. 60/384,565, filed on May 30, 2002, entitled “Products and processes for operations management of casino, leisure and hospitality industry”;
and
Provisional Patent Application No. 60/429,383, filed on Nov. 25, 2002, entitled “Products and processes for operations management of casino, leisure and hospitality industry”. Each of these provisional applications is in this application incorporated by reference.

COMPUTER PROGRAM LISTING APPENDIX

The source code files listed below are in this application incorporated by reference, and are stored on two compact discs (one original compact disc and one duplicate) filed herewith.

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A casino or other gaming environment can have poker rooms, table games (e.g., Blackjack, Roulette, Craps), slot machines and other gaming devices which customers pay to play. Casino games usually involve a Dealer, one or more Player(s), and some oversight by a person such as Floor Person, Shift Manager, and/or Pit Boss. Poker rooms are frequented by Players who play poker at tables against other Players. To play a game at a table in a poker room, Players are placed upon waiting lists by Clerks and are called (by voice, or microphone) once their opportunity to enter a game arises. Clerks maintain a waiting list via pencil, pen, and paper methodology.

Casinos sometimes offer Players compensation for playing. Floor Persons are responsible for oversight of Players’ durations and level of play. At times, the table at which a game is being played may require support. Some forms of support include: restocking betting chips, recording financial standings, security monitoring, and closing down games. Support operations may require the assistance of the Floor Person. Dealers may deal the playing cards for a specified duration. Dealers often participate in rotations that require them to shift tables of service. Dealer rotation scheduling, maintenance, and oversight are provided by the Dealer Coordinator (DC).

Table Games (e.g., Blackjack, Roulette, Craps), much like poker games, involve a Dealer, Player(s), and some level of supervisory oversight by a person such as a Pit Boss. Table games also operate similar to poker rooms in that players receive compensation for play. Such dealers likewise engage in rotations, and Tables where the table games are played require support.

FIGURES

FIG. 1 is an illustration of a graphical user interface, shown at an initial display in accordance with an embodiment.
FIG. 2 is a Use Case Diagram of an overview of an embodiment.
FIG. 3 is a schematic illustration of the Application Service Provider architecture of an embodiment.
FIG. 4 is a schematic illustration of the network architecture of an embodiment.
FIG. 5 is a flow chart of a process of an overview of an embodiment.
FIG. 6 is a set of examples of how various embodiments of this invention may operate.
FIG. 7 is an illustration of a graphical user interface, shown at the View Tournament feature of the embodiment.
FIG. 8 is a flowchart illustrating an embodiment of a process for deleting a tournament.
FIG. 9 is an illustration of an example of graphical user interface for Network Manager module.

FIG. 10 is an illustration of an example of graphical user interface for Report Manager module.
FIG. 11 is an illustration of an example of graphical user interface for Security Manager module.
FIG. 12 is a Use Case Diagram of a System Login operation.
FIG. 13 is a flowchart illustrating an embodiment of a process for a System Login operation.
FIG. 14 is an Activity Diagram for an embodiment of a process for a System Login operation.
FIG. 15 is an illustration of an example of graphical user interface for Casino Manager module.
FIG. 16 is a flowchart of a process for initiating Casino Manager functions.
FIG. 17 is an illustration of an example of graphical user interface for Rating Manager module.
FIG. 18 is an illustration of an example of graphical user interface for Player Manager module.
FIG. 19 is a flowchart illustrating an embodiment of a process for a Player Check Out function.
FIG. 20 is another flowchart illustrating an embodiment of a process for a Player Check Out function.
FIG. 21 is an Activity Diagram for an embodiment of a process for a Player Check Out function.
FIG. 22 is an illustration of an example of graphical user interface for Game Manager module.
FIG. 23 is an illustration of an example of graphical user interface for Game Manager module.
FIG. 24 is a flowchart illustrating an overview of an embodiment for Game Manager.
FIG. 25 is a Use Case Diagram of an Open Table operation.
FIG. 26 is a flowchart illustrating an embodiment of a process for an Open Table operation.
FIG. 27 is another flowchart illustrating an embodiment of a process for an Open Table operation.
FIG. 28 is an Activity Diagram for an embodiment of a process for an Open Table operation.
FIG. 29 is a Use Case Diagram of a Close Table operation.
FIG. 30 is a flowchart illustrating an embodiment of a process for a Close Table operation.
FIG. 31 is another flowchart illustrating an embodiment of a process for a Close Table operation.
FIG. 32 is an Activity Diagram for an embodiment of a process for a Close Table operation.
FIG. 33 is an illustration of an example of graphical user interface for List Manager module.
FIG. 34 is an illustration of an example of graphical user interface for List Manager module.
FIG. 35 is a flowchart illustrating an overview of an embodiment for List Manager.
FIG. 36 is a Use Case Diagram of an Add Player operation.
FIG. 37 is a flowchart illustrating an embodiment of a process for an Add Player operation.
FIG. 38 is another flowchart illustrating an embodiment of a process for an Add Player operation.
FIG. 39 is an Activity Diagram for an embodiment of a process for an Add Player operation.
FIG. 40 is a flowchart illustrating an embodiment of a process for a Delete Player operation.
FIG. 41 is another flowchart illustrating an embodiment of a process for a Delete Player operation.
FIG. 42 is an Activity Diagram for an embodiment of a process for a Delete Player operation.
FIG. 43 is a Use Case Diagram of an Insert Player operation.
FIG. 44 is a flowchart illustrating an embodiment of a process for an Insert Player operation.
FIG. 45 is another flowchart illustrating an embodiment of a process for an Insert Player operation.
FIG. 46A is an Activity Diagram for an embodiment of a process for an Insert Player operation.
FIG. 46B is a flowchart illustrating an embodiment of a process for a Lockup Player operation.
FIG. 46C is another flowchart illustrating an embodiment of a process for a Lockup Player operation.
FIG. 46D is an Activity Diagram for an embodiment of a process for a Lockup Player operation.
FIG. 46E is a flowchart illustrating an embodiment of a process for a Lockup Public Seat operation.
FIG. 46F is another flowchart illustrating an embodiment of a process for a Lockup Public Seat operation.
FIG. 46G is an Activity Diagram for an embodiment of a process for a Lockup Public Seat operation.
FIG. 47 is a Use Case Diagram of a Multiple Add operation.
FIG. 48 is a flowchart illustrating an embodiment of a process for a Multiple Add operation.
FIG. 49 is another flowchart illustrating an embodiment of a process for a Multiple Add operation.
FIG. 50 is an Activity Diagram for an embodiment of a process for a Multiple Add operation.
FIG. 51 is a Use Case Diagram of a Marquee Display operation.
FIG. 52 is a flowchart illustrating an embodiment of a process for a Marquee Display operation.
FIG. 53 is another flowchart illustrating an embodiment of a process for a Marquee Display operation.
FIG. 54 is an Activity Diagram for an embodiment of a process for a Marquee Display operation.
FIG. 55 is a Use Case Diagram of a Profanity Checker operation.
FIG. 56 is a flowchart illustrating an embodiment of a process for a Profanity Checker operation.
FIG. 57 is another flowchart illustrating an embodiment of a process for a Profanity Checker operation.
FIG. 58 is an Activity Diagram for an embodiment of a process for a Profanity Checker operation.
FIG. 59 is a Use Case Diagram of a Duplicate Checker operation.
FIG. 60 is a flowchart illustrating an embodiment of a process for a Duplicate Checker operation.
FIG. 61 is another flowchart illustrating an embodiment of a process for a Duplicate Checker operation.
FIG. 62 is an Activity Diagram for an embodiment of a process for a Duplicate Checker operation.
FIG. 63 is a Use Case Diagram of a Public Seating operation.
FIG. 64 is a flowchart illustrating an embodiment of a process for a Public Seating operation.
FIG. 65 is another flowchart illustrating an embodiment of a process for a Public Seating operation.
FIG. 66 is an Activity Diagram for an embodiment of a process for a Public Seating operation.
FIG. 67 is an illustration of a graphical user interface, shown at the Security Manager Logs screen.
FIG. 68 is an illustration of a graphical user interface, shown at the PDA Notification screen.
FIG. 69 is an illustration of a graphical user interface, shown at the Network Manager screen.
FIG. 70 is an illustration of a graphical user interface, shown at the Notification Manager Send screen.
FIG. 71 is a flowchart illustrating an embodiment of a process for an Initials Search operation.
FIG. 72 is an Activity Diagram for an embodiment of a process for an Initials Search operation.
FIG. 73 is an illustration of a graphical user interface, shown at the Initials Search result screen.
FIG. 74 is a flowchart illustrating an embodiment of a process for a Reserve Player operation.
FIG. 75 is an Activity Diagram for an embodiment of a process for a Reserve Player operation.
FIG. 76 is an illustration of a graphical user interface, shown at the Reserve Player function screen.
FIG. 77 is a flowchart illustrating an embodiment of a process for Average Wait Time operation.
FIG. 78 is an Activity Diagram for an embodiment of a process for Average Wait Time operation.
FIG. 79 is an illustration of a graphical user interface, showing Average Wait Time displays.
FIG. 80 is a class diagram of the process for Monitoring List & Queue updates.
FIG. 81 is a flowchart illustrating the process for client socket communications to the application server.
FIG. 82 is an illustration showing the Dealer Coordinator actors and functions.
FIG. 83 is a diagram of the process for Dealer Rotation.
FIG. 84 is an illustration of a graphical user interface, showing the View Rotation screen.
FIG. 85 is an illustration of a graphical user interface which shows Rating Manager displays on PDAs.
FIG. 86 is an illustration of a graphical user interface, showing the Player Manager Expert View screen.
FIG. 87 is an illustration of a graphical user interface, showing the Dealer Coordinator Create Rotation screen.
FIG. 88 is an illustration of a graphical user interface, showing the Dealer Coordinator Re-Assign screen.
FIG. 89 is an overview of a process according to an embodiment of this invention.

DETAILED DESCRIPTION

Some embodiments of this invention enable a casino or other establishment to implement, manage, and/or report on crucial operations involved in the casino or gaming environment. The term “casino” is used in this application as a convenient description of an environment in which embodiments of the invention may be deployed. However it will be apparent that many other, non-casino environments are suitable as well.

Terms used in this application include:
Player: any person who plays a game.
Dealer: someone, such as a casino employee, who services one or more Player(s) at a game table.
Floor Person: someone, such as a casino employee, who supervises the overall play and operation of a table or group of tables where games are played.

Clerk: someone, such as a casino employee, who operates and manages the placement of Player(s) for games, e.g., with waiting lists.

Cage: a location for storing, e.g., cash, chips, tokens, and other valuables.

Pit: The name designated for a group of tables.

System: a device according to one or more embodiments of this invention.

Embodiments of this invention may be implemented as a suite of computerized software tools linked together to provide real-time operational support for casino or gaming hospitality functions through the use of electronic devices. The electronic devices can include devices in fixed locations and/or wireless devices which are more mobile. The electronic devices selectively communicate with each other and with centralized electronic devices, including servers.

The software and electronic devices are referred to collectively as the “system”, for convenience. In some embodiments of this invention, the system can provide electronic interfaces and reporting capability. It will be apparent that, although certain types of devices are described in this application, many other types are appropriate for implementing embodiments of this invention.

This invention may be implemented in any of a large number of embodiments, some of which are described below, and others of which will be apparent to the reader. Some embodiments of the invention may provide some or all of the following benefits:

(1) Displaying the availability and location of games, such as table games in a casino.

(2) Facilitating the creation, modification and visual display of tournament games, such as poker or other tournaments in a casino or other venue. In tournaments, which employ tickets (e.g. to identify players), randomized tickets can be automatically generated. In tournaments where money or other tokens of value are employed, entry fees, rebuys, payouts, awards and other uses of such tokens of value may be calculated according specified business rules.

(3) Facilitating the registration of players for table games. Customers or customer data may be identified through various known mechanisms, including barcode reading and/or magnetic stripe scanning, thus allowing customer resource management data to be received and processed (e.g. by casino management or other interested parties).

(4) Maintaining, processing and displaying sets of data about customers, such as customer lists and queues of customers waiting for various games, tables for games, or other resources. Players may be dynamically added, deleted and moved on lists at the request of various authorized users of the system. Such data may be processed to yield information, including estimated, predicted or actual wait times for games, tables or other resources, as well as types of customers represented by the lists.

(5) Facilitating the calculation of compensation points and providing persistent and/or temporary storage of this information. This information may be utilized in various ways, including displayed at the request of a customer, game manager, or other entity, emailed to the customer or printed for verification.

(6) Providing a visual display of game information, including active and inactive tables, the current dealer at an active game, which registered players are sitting at specific seats and win/loss statistics for tables. Such information may be utilized by, e.g. casino management and regulatory authorities. This allows players to see this information easier, and does not require casino employee interaction.

(7) Automating manual accounting processes, such as table credits, table fills and customer markers, thus increasing accuracy and allowing other processing of such information.

Some embodiments of this invention use wireless technology, hand-held computers, networking and persistent storage in a relational database to facilitate or perform various functions.

The method and apparatus of various embodiments may employ the Internet as well as conventional communications systems such as Integrated Voice Response (IVR), self-service environments (kiosks) and cross-marketing opportunities.

Embodiments of this invention may be implemented as a suite of object-oriented software applications, using open software standards and compatible with open computer hardware platforms and architectures. When implemented in a modular nature, solutions for individual entities (e.g. casinos and hospitality operations) may be customized more easily. Further, as is well known, portions of a modular system may more easily be used separately from other portions. Therefore, various modules described in this application may be used alone, or in conjunction with other modules.

In some embodiments, various activities of a casino or hospitality establishment may be managed. Many other environments are equally suitable to this invention.

Benefits of certain embodiments are increased customer satisfaction, increased employee accountability, increased operational efficiency and reduced incidence of fraud.

The description in this application provides sufficient information for a person of ordinary skill in the art to implement a great many embodiments of the invention. In particular, this application uses standard industry notation such as Unified Modeling Language (UML), Use Case diagrams, Process Charts and Activity Diagrams in order to provide detailed guidance on design and implementation. Further, the functionality and architecture of various modules is also decomposed and described in terms of subparts to facilitate understanding, replication and customization.

The enclosed source code, which may be used to practice embodiments of this invention, is described in detail below.

Several system modules (also referred to as “Managers”) are described in this application. Each module supports different features, and any or all of the modules may be organized and run as a single program, if desirable. The modules can interact with each other to ensure real-time functionality. The program can be accessed from several different computing platforms, including: a personal computer, wireless hand-held device or PDA (personal digital assistants including the PALMPILOT™ by Palm Inc., the BLACKBERRY™ by Research In Motion Limited, the iPaq PocketPC™ by Hewlett-Packard Company), computer tablet, and a traditional or cellular telephone. Data may be input using known devices and methods such as touch screen, keyboard, buttons, mouse, voice recognition, and stylus pen. The system can record transactions that the system processes. This recording of transactional data can permit the generation of historical reports, as well as operate in real-time mode.

FIG. 1 shows a user interface, which is displayable on a display device (e.g., computer monitor) in a well known manner. The user interface includes twelve buttons, six on the left and six on the right. Each button (when activated by a user in a manner which is well known) initiates the functions of one of the managers. Of course, more or less than twelve buttons could be included in the user interface. Similarly, the
functions of any of the managers could be initiated in many other ways using known graphical user interface techniques.

FIG. 2 shows a Use Case Diagram in which a program (referred to as “TableIron”) according to an embodiment of this invention communicates with six other actors, or entities. One such actor is a player. Other entities are typically casino employees (or others responsible for related operations), such as an administrator, a floor manager, a casino clerk and a shift manager. Another entity, the system, can refer to one or more other software and/or hardware systems. For example, the program may communicate with other casino computer devices, such as hotel devices, restaurant devices, and devices that calculate player compensation. In other embodiments, however, the embodiments that are described in this application can actually constitute a part of such devices.

The system may be organized in a three-tiered architecture consisting of an application tier, middle tier, and back office tier. For redundancy, there may be redundant application servers and redundant copies of databases. FIGS. 3 and 4 show possible configurations of a three-tier architecture. However, many other configurations will be readily apparent, and as is well known software can be efficiently run on many other architectures, such as single tier and double tier architectures.

In an Application Tier, a client environment runs on, e.g., standalone personal computers or handheld mobile wireless devices (“PDAs”—Personal Digital Assistants). In a Middle Tier, application main services run on dedicated computers referred to as Application servers. The application servers act as the main engine serving the requests of the clients and handling communication to the database servers in a well known manner. In a Back Office Tier, data resides in databases on database servers. The database servers are computer devices that store the data used in the program.

The Back Office Tier and Middle Tier can implement redundancy by performing data copying, synchronization and load balancing, as is well known. The Application Servers and Database Servers can be run separately (i.e. Application Server communicating with a dedicated Database Server), or the database can be embedded within the program itself where the system will run on a combined Application/Database Server. In some embodiments, data copying, synchronization and load balancing can be performed at the Application Server level.

The software described in this application can be run, accessed, and managed in a standalone fashion. In such a standalone setup, the computer equipment which is involved with running, accessing, and managing the program resides in a single location, such as in-house at a casino or otherwise on the customer’s premises.

The software may also be run and executed by using an Application Service Provider. As is well known, this type of infrastructure permits users of the software program to run the application tier without incurring the cost or maintenance of the middle and back office tiers. Clients (e.g., PDAs and other computer devices in a casino) connect to the middle and back office tiers via the Internet, private communication line, or wireless satellite access. The connections can utilize enhanced security methods such as VPN (Virtual Private Network) and CA (Certificate Authority) technologies. Virtual Private Network are described in “VPNs: A Beginner’s Guide” by John Mairs and Michael Mueller. Certificate Authority is described in “Digital Certificates: Applied Internet Security” by Jalal Feghhi and Peter Williams.

The Application Service Provider controls the maintenance and monitoring of the three tiers. The Application Service Provider can maintain an enhanced data center that provides redundancy and security for connecting clients.

FIG. 5 illustrates a process for using the program to initiate any of a number of the managers. As is from the top portion of FIG. 5, an actor who starts the program may select any of a number of options to initiate one of the managers. As is seen from the bottom portion of FIG. 5, various actors may interact with the managers as previously described with respect to FIG. 2.

FIG. 6 illustrates several examples of different actors interacting with different managers. Text beneath each of the examples describes precisely how the actor is interacting with the specified manager.

**DETAILED MODULE DESCRIPTIONS**

Below several managers are described, as are functions which constitute parts of those managers. The functions may be activated in many known ways (e.g., when a user presses a particular physical or graphical button).

**Tournament Manager**

Tournament Manager is a module which allows certain personnel to create, delete, modify, and view tournaments. Tournament Manager interacts with a database (which stores tournament information) to edit and update data in real-time. Many system features of tournament manager run behind the scenes away from the view of common users, players, and casino patrons. Tournament Manager can utilize wired devices and/or wireless network devices, as well as other peripherals to perform the following functions.

“Create Tournament”

Create gaming tournaments based on a set of parameters that are chosen during the creation process. Such parameters may be, for example, date and time, entry fee amount, number of tables, number of players. The system stores all tournament information and generates a unique identifier (ID) for each tournament. The tournament data is stored in the database.

“Modify Tournament”

Modify any existing tournaments that have previously been saved to the system. Modify values such as number of tables, seats, buy-ins, re-buys, entry fee, date, etc.

“View Tournament”

FIG. 7 shows a graphical user interface which is presented to a user when the View Tournament feature of the Tournament Manager is initiated. As seen in this graphical user interface, various data related to the tournament may be displayed to the user. Such data includes, for example, start time of the tournament, buy-in, entry fee, rebuys, total number of players in the tournament, seats available in the tournament, and total purse of the tournament. Other data which can be displayed may include, for example, the prizes won by various winners, the tables remaining for the tournament, and break time remaining for the tournament.

The “View Tournament” function can display active, past, and/or future tournaments. The “View Tournament” function also displays data such as tournament start time, number of tables in tournament, seats available/not available for this tournament, buy-ins, re-buys, entry fee, winners, payout calculator and date of tournament. The “View Tournament” function also serves as a visual guide for players throughout the tournament, allowing players to track their process and the progress of other players. Both players and operational personnel of the tournament can have a graphical view of the tournaments status from start to finish.
“Delete Tournament”
Delete any specified tournaments in the system. Deleting tournaments deletes the tournament from an active or pending play status. The tournament will now be recognized as appropriate for use with such printers or PRACTICAL AUTOMATON thermal printers. Similarly, many types of papers will be recognized as appropriate for use with such printers and for such a purpose, including “thermal tag stock” paper.

Unique system IDs and barcodes may be printed on the tickets, which can render duplicated tickets ineffective, and which can therefore help verify legitimate players’ claims to specified tournament prizes or tournament entries. Tournament tickets may also be used to present promotions and marketing material printed on the tickets. For example, many types of offers and advertisements may be printed on the tickets, and the types of offers/advertisements can change with time, be different for different players, for different tournaments, for different types of players, etc.

“Tournament Up-Sell”
A marketing feature that permits the up-sell of establishment goods and services to be presented to tournament contestants. The up-sell may be used on tournament tickets or in the registration process of a tournament.

“Tournament Bracket Display”
A visual display of all registered contestants, seating assignments, and tournament statistics. Allowing contestants to view current tournament progress. The visual display of active players, seating arrangements, and which players are leading the tournament.

“Free Roll Transfers”
A method for transferring free-roll applicants of a desired tournament. Free-roll tournaments are those in which there is no buy-in or entry fee. The system allows players to qualify and be transferred to tournaments via free-roll.

“Convergence of Tournament Tables”
Calculates the number of contestants remaining in the tournament and automatically moves contestants to new tables to ensure table capacity and free up unused table space for non-tournament patrons. While a tournament is active, the system can modify the tournament by selecting how many and which players remain in the tournament. Once the system collects this information, it can automatically adjust the seating arrangement of players to conserve seats.

“Tournament Tickets”
A function that allows the printing of specialized unique tournament tickets for given tournaments. Replaces the method of ordering bulk tickets and carbon copy forms. This feature gives the establishment the ability to create custom tickets on demand.

Many types of printers will be recognized as appropriate to print such tickets, including BOCA or PRACTICAL AUTOMATON thermal printers. Similarly, many types of papers will be recognized as appropriate for use with such printers and for such a purpose, including “thermal tag stock” paper.

Unique system IDs and barcodes may be printed on the tickets, which can render duplicated tickets ineffective, and which can therefore help verify legitimate players’ claims to specified tournament prizes or tournament entries. Tournament tickets may also be used to present promotions and marketing material printed on the tickets. For example, many types of offers and advertisements may be printed on the tickets, and the types of offers/advertisements can change with time, be different for different players, for different tournaments, for different types of players, etc.

“Tournament Payout Algorithm”
Calculates the running total of the tournament payouts based upon number of entries in the tournament and any desired payout algorithms for specific winning placements. Management and system users may modify payout algorithms as they see fit by storing rules/data which define the payout algorithm.

“Satellite and Double Elimination Tournament Support”
Satellites are tournaments in which the winner earns a buy-in into a larger tournament. The system automatically registers the winners of satellites with the desired tournament of choice.

System Manager
The System Manager includes features by which administrators can set certain parameters which instruct the system how to respond and run under certain circumstances. The System Manager allows establishments to customize the program directly to their needs. By providing a centralized management console, System Manager provides the basic structure for the deployment.

“Help Menu”
An interactive help menu system designed to give users of the system assistance to all available modules and features. The help menu is designed to be accessible from any point in the program. The help menu incorporates both text assistance as well as recorded animation of the procedures to run the system. Users can search for help via text, voice, or video.

“View System Status”
A visual display for system administrators to determine the system’s status. Allows administrator to see on- or off-line statuses of devices, users, and features. System administrator may also view licensing, contact, and support information.

“Set System Parameters”
Permits administrators to set specific business rules within the system such as notifications, displays, table rules, etc. These system parameters are used throughout the system to assist the automated functions that the system performs such as payouts, compensation points, etc.

“Set Marketing Parameters”
Helps administrators set marketing and up-sell parameters for the system to use for specific dates and times. Setting these parameters and values tells the system when and where to display the marketing information and for how long.

“Security Parameters”
Permits system administrators to set the security parameters for the system in regards to user access, data encryption, network device access, and notification procedures.

“View System Contacts”
A comprehensive list of system and vendor contacts, emergency contact procedures, and support contact procedures.

“QueueCache”
QueueCache is a data-buffering feature which enables all three tiers (in a three-tiered embodiment) to utilize an enhanced fail-safe software measure. QueueCache allows the buffering of data to provide performance and recovery from potential communication outages. QueueCache uses various known algorithms that protect against the potential loss of data. Both the clients and application servers consistently monitor and communicate the status of the communications network. In the event of a communications failure at any point in the network, the clients and application servers buffer or store their data locally to that device. Upon communication re-establishment the systems transmit their buffered or stored data first to ensure no data loss and correct sequencing of data.

“Web Connector”
A method for posting designated internal system parameters (e.g., List Manager View Display) to an internet/intranet website or forum. Web Connector is utilized for the technical support of the program. The program is designed to generate proactive system monitor logs and using the web connector
can send the specified logs automatically without user intervention to the program support group. The industry standard protocols used for the Web Connector are SMTP (Simple Mail Transport Protocol—for email) and HTTP/S (Hyper Text Transfer Protocol/Secure). The Web Connector enables the system to gather custom specified data and send or transfer that data to desired users, groups, or other email systems. The Web Connector may be constructed using industry standard protocols as the network transports. An example use of the Web Connector would be: if a computing device had a communications failure, the application server would use the Web Connector to gather, format, and send the alert data to pre-specified destinations.

“Web Publisher”
A design template for preparing specified internal system information such as player information & game information to be posted to the web connector agent for intranet/extranet viewing. The Web Publisher acts as the gathering and formatting tool for the Web Connector. The Web Publisher job is to gather the data from the database, format the data into the correct structure for transmission, and handoff the packet to the Web Connector for transport. Web Publisher defines a set of rules that tell the system when, where, and how to get the information prepared for transit.

“Electronic Display Driver Support”
A specialized serial interface to communicate directly to electronic displays, such as the Trans-Lux™ electronic display. The system contains software drivers that allow displayed data to be viewed on different hardware appliances. The program detects which display hardware is being used, and performs formatting of the data to be displayed correctly on the type of display being used. The system also provides an interface mechanism to “write” the data to the display in the correct manner since different displays may require a different manner to which data is received.

“Voice Activation and Response Unit”
The system utilizes voice activation commands and a voice recognition engine to decipher those commands. The voice activation process allows users to speak commands into either a telephone, or computing device which the system then interrupts and processes the commands. The voice response unit allows system users to “call” into the system via a telecommunication device (telephone or computing device) and receive automated voices responses to the desired information.

“Embedded Applications Download”
To ensure the protection against software piracy, the system uses a download method of obtaining the appropriate program files to run the program (both application server and clients). Upon start-up the application server and/or clients query a “system appliance” device located either on- or off-site. The system appliance validates the machine and downloads program files to the machine’s memory store. The machine then runs the program out of memory, thus limiting the amount of files and potential piracy associated with storing program files on the machines itself. The “system appliance” also serves as an update device where the application server and/or clients query the appliance at scheduled times to locate any program file updates (such as patches and new program versions).

“Knowledge Base with Decision Rule Maker”
The system houses a standardized set of gaming rules which allows systems users to query the system for house or industry standard gaming rules. In the event of a player-house conflict, the user may query the knowledge base to determine what the standard rules are to resolve the conflict. The system may also suggest a solution based upon a history tracking table of rule conflicts. The system attempts to standardize the rules so that users and players have clear solution in the event of a conflict.

“Database Synchronizer”
The Database Synchronizer allows administrator to synch or create a replica of the system’s database on any other industry-standard relational database. Establishments may wish to synchronize the system's database with another in-house database for purposes of backup, recovery, or reporting. Internally, the system automatically synchronizes with a secondary database if two or more application servers exist.

“Credit Card Processor Engine”
The system has a built in credit card processing unit that allows patrons to pay for services via credit cards, which are either entered or stored in the system. The application server will make the appropriate communications uplink to an authorized bank or processing facility to complete all credit card related transactions.

“Legacy Agent Robot”
The legacy agent feature communicates to back-end existing systems such as AS400 or ACSC patron management systems. Using both screen scrapping (a technique that maps out the coordinates on a computer terminal screen, writes information to the appropriate fields and sends the data as if a manual entry was conducted) and socket based connections, the system can accurately upload data to existing back-end systems. The two methods are used to update existing systems, provide replica data, and eliminate manual entry of data. The screen scrapping method uses an existing upload program and acts as a virtual user entering data. The socket-based communication encapsulates the data into packets that the back-ends system can understand and transmits that data to the back-end system directly.

Network Manager
Network Manager is designed to assist in the setup, maintenance, and support of the computer network topology through which the program communicates. Utilizing technology such as data load balancing, server redundancy, encryption, and monitoring agents enhances the program’s performance. Network Manager is a management console enabling administrators to control the attributes and behaviors of their computer devices (e.g., desktops, PDAs, servers) throughout the topology. With Network Manager, administrators of the system can selectively add, delete, or modify computing devices from a virtual map layout. The devices can be aligned to form a geographical map of each device’s location. Network Manager allows administrators to test device communications, ensure security mechanisms are being followed, and view proactive communications monitoring. The manager provides administrators a graphical view of the devices and their statuses throughout the computer network.

FIG. 9 illustrates a graphical user interface which is displayed upon initiating the Network Manager.

“Add Network Device”
Adds a network device to the system topology to be used and monitored.

“Modify Network Device”
Modify an existing network device in the system topology.

“Delete Network Device”
Delete a network device from the system topology.
“View Network Device Status”  
A real-time display of all networked computing devices that reside in the system. Providing device status, uptime, and any alerts to the health of the device. An example of such a display is shown in FIG. 69.

“Workstation Manager”  
Allows administrators to remotely control the workstations (e.g., personal computer devices) that make up the system topology. The feature allows the ability to run certain procedures remotely to maintain the status of each personal computer device.

“Wireless Manager”  
Provides the system administrator to control the flow and redundancy of data transmissions throughout the wireless portion of the system topology. The wireless manager maintains industry standard 802.11b wireless protocol technology. Wireless managers also allow management personnel to pinpoint the location of their wireless devices anywhere within the wireless range.

“Infrastructure Manager”  
Allow administrators to control remotely the infrastructure devices that make up the system topology communication segments. The feature allows the ability to run certain procedures remotely to maintain the status of each device.

“Ping Network Device”  
An industry standard tool for testing the connectivity to a networked device.

“Integrated Locator System (ILS)”  
Integrated Locator System allows management personnel to pinpoint the location of their wireless devices anywhere within the wireless range.

Template Manager  
Template Manager eases redundant system resources and procedures by providing the ability to use resource templates. With templates, administrators can quickly and easily maintain other areas of the program and quickly increase the establishment’s productivity. Template Manager allows administrators and users of the system to quickly create, delete, and modify a pattern or structure applicable to many system resources. Template Manager can be used throughout all system modules and may also be protected by permission set forth by administrators. For example, a poker room manager would have the ability to create a template for upcoming tournaments which would include the pre-configured date, time, amount, entry fees, table number, etc.

“Create Template”  
Create a new template for a system resource.

“Modify Template”  
Modify an existing template for a system resource.

“Delete Template”  
Delete a specified template.

“Print Template”  
Print a specified template to a local or networked printer.

Report Manager  
Report Manager allows authorized personnel to view real-time and historic data. The Report Manager may be enabled to be constantly active, thus ensuring real-time capability. By utilizing event-triggered methods, the real-time status of an establishment’s areas of business may be ascertained. The report Manager incorporates different features in which the data is formatted and delivered to the inquiring parties. Report Manager can use predefined reports. Additionally, individually customized reports can be created by users. Report Manager actively searches the database for the records and data need to complete the report query and returns the results back to the user in graphical format. Report Manager has an automated scheduling system in which reports may be set up and run without any user intervention.

FIG. 10 illustrates a graphical user interface which is displayed by Report Manager. That user interface displays a report which includes several items pertaining to the status of a Pit (“Pit 2”).

“Real-Time Reports”  
Utilizing structured update calls, the system provides clients real-time reporting capability on specified data chosen by the user.

“Historical”  
Historical reporting provides users of the system access to historical data stored by the system in the database. Allowing users to query data on a specified set of parameters for any past date and time.

“Automated Reports”  
Methods in which a real-time report can be sent via electronically or printed after certain predefined parameters trigger the reporting event. Electronic messages can be sent, e.g., via e-mail, instant message, pager, or voice mail.

“Slot Attendant”  
The Slot Attendant function allows system users to view reports of slot machines. Information gathered such as cash contained, uptime, downtime, hit counters, location and maintenance records are all viewable through Report Manager.

Notification Manager  
Notification Manager is the system’s alert engine. Notification Manager is a watch engine that looks for certain parameters that raise red flags in the system. These notifications may be based on business rules and/or system conditions. Notification Manager can be customized to meet an establishment’s needs and priorities. Industry standard protocols may be used to alert and notify predetermined individuals of certain system conditions and business rules violations. Notification Manager allows the establishment to be notified proactively on any condition they deem to be vital. The Notification Engine utilizes the industry standard TCP/IP (Transmission Control Protocol/Internet Protocol) as the mechanism for transport. Business rules and system conditions are pre-set by system administrators. The groups, departments or destinations to which the messages are sent are also set forth by administrators. Loss of communication to a computing device is an example business rule violation that could initiate a notification message being sent to a set forth party.

FIG. 68 is an illustration of a graphical user interface, including a notification message, shown on a PDA.

FIG. 70 is an illustration of a graphical user interface which permits a user to create and send a notification. The user interface allows the user to select a recipient and corresponding message.

“Start Notification”  
The “Start Notification” function starts the notification engine and begins to capture and send messages.

“Stop Notification”  
Stop Notification stops or pauses the notification engine and queues up the inbound and outbound messages to a buffer
pool. Once notification begins the queue is flushed and all paused messages are delivered.

“Clear Notification Log”
   Enables administrators to clear or flush the notification log file where all transactions are recorded.

“View Notification Log”
   Display the log of recorded transactions that the system has processed.

“Add Notification”
   Add a custom notification based on a set of system parameters determined by the system administrator.

“Modify Notification”
   Modify an existing notification by adding or removing parameters.

“Delete Notification”
   Deletes a notification from the system.

“Set Notification Parameters”
   Allows administrators to customize how and when notifications are sent and received.

“Send Message”
   Permits users to send instant text and voice based messages to other devices within the system topology.

“E-mail Support”
   The system feature that enables the emailing of patrons, management, or other system users data that is set forth via business rules. The system may email players compensation or play statistics, email management reports, etc.

“Web SNMP Notification Engine (WSNE)”
   This feature combines the industry standard SNMP (Simple Network Management Protocol) with a web based communication protocol (HTTP/HTTPS) to send system alerts to technical support representatives via the Internet or intranet. The system allows the capture of SNMP packets, encapsulates those SNMP traps into an HTTP or HTTPS (secure) packet, and then forwards those packets to a desired destination. Upon retrieval of the packet, a small java program deciphers that packet to retrieve the SNMP trap or alert. This eliminates the need for SNMP management software by utilizing the industry standard HTTP/HTTPS web network protocols.

Security Manager

   Security Manager assigns security levels and privileges to individual users and groups of the system. Security Manager also establishes data encryption schemes to ensure that any transmitted data is securely encrypted and protected from outside threats. Security Manager maintains the relationship between the users of the system and the security database where access levels are granted. Security Manager supports the use of Smart Cards and Smart Card readers, an industry standard security mechanism validating the authenticity and integrity of system users. Use of Smart Cards also enables the system clients to be run using “thin client” or “dumb terminals” devices. Thin clients are devices that process all data including operating system and programs off a centralized server.

FIG. 67 is an illustration of a graphical user interface shown at the Security Manager Logs screen. The illustrated interface shows data on a number of security events, including when the event occurred, who was involved, and the severity of the event.

“System Login”
   By using an industry standard authentication method (LDAP), the system login process validates a user’s identity and access privileges. The method of authentication can be derived from many known mechanisms, including barcodes, magnetic stripe cards, text based passwords, voice recognition, or fingerprint recognition. Login transactions are recorded by the system for tracking, accountability, and administrative purposes. The system can easily integrate into an existing LDAP environment or provide its own standalone authentication domain.

FIG. 11 is a sample display that is shown to a user when the user is expected to swipe a card thru a card reader, thereby identifying the user. FIGS. 12-14 illustrate a process for system login.

“System Logout”
   The process by which a user logs themselves out of the system. Capturing the transaction, the system updates the user’s profile with information captured during the session. Once the user is logged out of the system, the user must log back into the system to gain access.

“Add User”
   Add a user to the system directory for access.

“Modify User”
   Modify an existing user’s profile.

“Delete User”
   Delete a user from the system removing all associated access privileges.

“Disable User”
   Disable a user’s account where that user is not removed from the system but the user has no permission to access any area of the system.

“Active User Display”
   Display for administrative personnel a real-time description of which users are active in the system and their corresponding locations of activity.

“Set User Permissions”
   Provide users with different security levels which can permit or deny them access to certain areas of the system or access to certain system devices.

“Add User Group”
   Allow administrators to group like users into a single group that holds certain security levels. All users included in the group follow the groups’ security privileges.

“Modify User Group”
   Modify the parameters of a certain user group of the system.

“Delete User Group”
   Remove a user group from the system.

“View User”
   Display showing the profile of a specified user, including personal information, security level, employee identification, license number, digital signature, and/or photo identification.
Casino Manager

Casino Manager performs casino wide business functions. Casino Manager includes functions for requesting credits, fills, and markers. Table inventory and table history methods are included along with a scheduling module used in the management of dealers. Casino Manager allows functionality to be run from either a standalone personal computer or from a wireless handheld device or PDA (Personal Digital Assistant).

FIG. 15 is an illustration of an example of graphical user interface for Casino Manager in which a table and an amount of chips may be designated, along with other functions applied to such a table and amount of chips. Note that a similar interface may be used in other functions to enter chip denominations and/or chip amounts.

FIG. 16 is a flowchart of a process for initiating Casino Manager functions.

“Table Inventory”

Allows users to accurately and electronically track table inventories at startup and closure of each table session. The system records all inventory values and updates the table roadmap accordingly.

“Roadmap”

The roadmap keeps a constant accounting cycle of a table’s financial situation. All table transactions are recorded and entered into the roadmap by the system with no user intervention.

“Credit”

The credit feature automates the credit request made by pit and floor person. A fill request is recorded by the system and transmitted electronically to the casino back end system. A system printed receipt allows employee signatures and barcode verification for tracking.

“Fill”

The fill feature automates the fill request made by pit and floor person. A fill request is recorded by the system and transmitted electronically to the casino back end system. A system printed receipt allows employee signatures and barcode verification for tracking.

“Marker”

The marker method allows pit and floor personnel to request player markers for gaming purposes. The system generates the request to the casino cage and handles accountability and tracking of the requests, along with sequential printed receipts for employee signatures.

“Dealer Coordinator”

Dealer feature allows dealers and authorized personnel to perform dealer preferences and dealer scheduling. The feature allows dealers to register themselves into the system upon the beginning of a work shift. The system using random generation schedules dealers for certain games and breaks based upon preloaded dealer preferences. Cross referencing available Dealer pools to cover lost shifts and table dealer necessities.

FIG. 23 is an illustration showing the Dealer Coordinator actors and functions.

FIG. 24 is a diagram of the process for Dealer Rotation.

FIG. 25 is an illustration of a graphical user interface which shows the View Rotation display this user interface shows information regarding various shifts, and responsibilities of personnel in the shifts.

FIG. 26 is an illustration of a graphical user interface which shows the Dealer Coordinator Create Rotation screen.

FIG. 27 is an illustration of a graphical user interface which shows the Dealer Coordinator Re-Assign screen.

“Request Player Card”

A method that allows a user to request a player identification card be processed for a particular player. The system generates a request and is sent to the establishment’s computer system responsible for handling player identification cards. Typical requests stem from lost or damaged player cards.

“Security Alert Request”

A feature which allows a user of the system to request security assistance to a gaming table or area. The system generates an alert notification to the establishment’s security division. To combat fraud within the establishment the user has the capability to send a real-time request for assistance. The system calculates the exact location of the alert origin and notifies security personnel.

Rating Manager

Rating Manager tracks the characteristics of wagers by players. Users of the system have the ability to record the wagers of players, calculate average wagers of players, and track duration of play by a player. Rating Manager cooperates with Player Manager in order to calculate and assign a player’s compensation points. Compensation points are typically calculated based on the amount the player wagers, but may also be calculated in other many ways, including based on time, player characteristics, and/or fixed amounts.

FIG. 28 is an illustration of an example of graphical user interface for Rating Manager module which allows a user (E.G., Pit Boss, Floor Manager) to enter a wager amount made by a player. In particular, the graphical user interface allows a player to be selected by selecting a table and seat at which the player is seated. Note that a similar interface may be used in other functions to indicate (by a seat at a table) a player. The graphical user interface also allows a wager of this player to be entered and thereby recorded by the system. Note that a similar interface may be used in other functions to enter wager amounts.

The system also may display, via this user interface, the duration of play by this player and the average bet of this player, which may be computed from data previously entered, such as prior wagers and when the player checked-in to begin play for this game.

FIG. 29 is an illustration of a graphical user interface which shows Rating Manager displays on PDAs (e.g., a PDA operated by a Pit Boss or Floor Manager). The left display shows a graphical user interface which allows a player to be selected by the user of the graphical user interface. In the right display shows a graphical user interface which allows a wager for the player at this seat to be entered. This display also provides the user with information regarding this player, such as the table and seat of the player, the game played in this player, the player identifier, the duration of play of this player, and the average bet of this player. Such data can be calculated from data previously entered.
Rating Manager functionality is implemented by the software described in the following source code files, filed here-with and incorporated in this application by reference.

RatingChipPanel.java
RatingCurrencyButton.java
RatingGamePanel.java
RatingPanel.java
RatingManagerConsole.java
RatingPanel.java
RatingPlayerInfoPanel.java
RatingPlayerPanel.java
RatingSeatButton.java
RatingSeatsPanel.java
RatingSummaryPanel.java
RatingTableButton.java
RatingTablesPanel.java

"Current Wager"
Records a wager amount of a player at a table game. This function is typically activated (e.g., by a Pit Boss or Floor Person via a PDA) during the game immediately after the player makes a wager. This function is also typically activated to record several wager amounts of the player.

"Average Wager"
Calculate the average wager of a player by averaging the accumulated wagers previously recorded during this player’s active session (e.g., this game, this type of game, this tournament, this day at the casino).

"Away Status Button"
Indicate and record when a player is/is not absent from an active game session (e.g., the player has momentarily left the table, the player has paused play for some reason). A toggle button may be used to easily toggle a player’s “away status”, and thereby record whether the player is actively playing at any time. As described in this application, the system may use play duration and/or “player away” duration to calculate compensation points.

"Chip Count"
Record the amount of chips that a player brings to the table or leaves the table with. As described in this application, by tracking the chip count, the system can ascertain, in real-time, the chip count for a table.

"Player Session Duration"
A feature that allows the system and users to track the play duration of a player at gaming tables.

"Player Seat Tracking"
A method that tracks the seat assignments and changes made by a player during their active session at a gaming table.

"Chips In", "Chips Out"
Record the amount of chips that a player brings to a gaming table/the amount of chips that are relinquished by a table to a player.

Specifically, the system records player and table transactions for a game. Upon the opening or closing of a game, the Pit Boss and Dealer can perform a Table Inventory. This inventory can be entered into the system, allowing the gaming establishment to record the table inventory is open and close.

Also, when players enter a game, they can receive chips from the table in exchange for cash. The Pit Boss (or another user) can enter this “buy-in” amount into the system (e.g., via an interface that allows a player to be selected and a chip amount to be entered.

This data entry, which indicates a number of chips the player starts/ends a game with, is then saved and processed by the system to update player and table inventory data in the database. By providing the ability to register the amount of chips that come in and out of a table, the system can accurately determine the table’s win/loss amount.

"Total In"
Records the amount of markers and cash that a player uses at a specific gaming table.

"Total Out"
Record the amount of chips that a player takes from the gaming table during an active session.

"Wager Notification"
Allow users to notify certain personnel of possibly fraudulent wagering practices. For example, since the recorded player bet may be tracked, a significant deviation from the player’s recorded wager amounts (e.g. over a time period such as one day, over all recorded bets of the player) may be noted and communicated to the proper entities. Similarly, if not enough samples of a player’s wager amounts have been recorded, this may indicate a problem with the person responsible for recording the bets (e.g. possible collusion with that player, because that person has not recorded the player’s lower wager amounts).

In ascertaining a deviation amount by which at least one of the wager amounts deviates from other wager amounts, many known methods may be used, such as the absolute value of the difference between the one wager amount and the average of the remaining wager amounts, or the percentage difference between the one wager amount and the average of the remaining wager amounts. Various types of thresholds may be established, as desired, to indicate when a deviation is to be considered significant enough to warrant notification.

Such notifications may include a message sent to pre-defined personnel (e.g., Floor Manager, Pit Boss) and/or a message which is stored or record (for future reading by others, for future auditing).

"Calculate Rating"
The system can ascertain the elapsed time between when the player starts playing and when the player ends playing (e.g., by subtracting the stop time from the start time, minus any duration(s) of "player away"). Based on the elapsed time the system can calculate a player rating in any of a number of ways the casino desires. A player’s rating may possibly but not necessarily include an amount of additional compensation points earned by the player for his play.

An example of a rating, specifically a poker rating, performed by Rating Manager is provided below:

Ratings level (which may indicate compensation points or other benefits to the player) in poker games may be based on wager amounts of the game, or the type of game at the table. For example, the player may be awarded compensation points (valued at certain dollar amounts) based on the duration of play and the table “stakes” or wagers of the player, such as:

Level 1—Stakes under $20 earn $1.00 per hour
Level 2—Stakes over $20 and under $60 earn $1.50 per hour
Level 3—Stakes over $60 earn $2.00 per hour

Such rating levels are of course stored in the database, and can be changed by administrators to implement various compensation schemes.

A player may be awarded compensation points based on the following information recorded by the system:
Thus, the system calculates the compensation points (in dollars) for this player by the following equation:

\[
\text{Rating per session} = 2 \times \text{(hours of play)} \times 1.50 \times \text{hourly rating amount for a level 2 player} \times $3.00
\]

Note that the system itself may calculate an amount of compensation points for the player based on the elapsed time. Alternatively or additionally, the system may simply transmit the elapsed time to a compensation system (in an embodiment where the casino has an existing compensation system which cooperates with the present system).

Player Manager

Player Manager permits a player to be registered for a specific game (e.g., at a table). By registering the player, the system can accurately calculate seating and game capacity as well as track player activities. Using a security mechanism, the system tracks a player’s registration across the entire gaming establishment. The player registration is recorded via a player identification card (e.g., encoded with a magnetic stripe storing a player identifier) that is swiped thru a card reader (e.g., operable to transmit a signal, from cards that are read, to a desktop computer or PDA). The player may be identified from such a signal by translating the signal to a corresponding player identifier read from the card, and looking up that identifier in a database of player information.

Players may check in themselves (e.g., by swiping their own player tracking card) or may be checked in by another (e.g., by a casino employee that swipes the player’s card). Players that check themselves out may be prompted to enter other data (e.g., via a nearby keyboard). For example, players may be prompted to enter their email addresses so that they may receive an email receipt. This would facilitate the collection of email addresses of such players.

FIG. 18 is an illustration of an example of graphical user interface for Player Manager module. This interface allows a player to be identified (by swiping a player tracking card). This interface also allows the identified player to be checked into or out of a game and the compensation points of the player to be verified. In addition, the interface may display player information, such as the player identifier, when the player was checked out of a game, the game the player was checked out of, and other game related information.

FIG. 86 is an illustration of a graphical user interface, showing the Player Manager Expert View display. This interface allows a player to be checked into or checked out of a particular seat at a particular table. This interface also displays information about the table and seats at that table, such as whether the seats are available for additional players or not.

Player Manager functionality is implemented by the software described in the following source code files, filed here-with and incorporated in this application by reference.

PlayerPanel.java
PlayerSeatButton.java
PlayerSummaryPanel.java
PlayerTableButton.java
PlayerVerificationTicketLayout.java
PlayerPanel.java
PlayerSeatButton.java
PlayerSummaryPanel.java
PlayerTableButton.java
PlayerVerificationTicketLayout.java

“Check In Player”

Register a player at a specific gaming table and seat. The system records player information and begins to record player play duration and player characteristics that are used by the system to determine, e.g., compensation and player profiles. Thus, activating this function (e.g., by receiving a swipe of the player’s player tracking card) or (or button press by a dealer or other personnel to indicate a seat at the table) allows the system to ascertain when a player starts playing a game at a table.

“Check Out Player”

Record the end of a player’s active session and remove the player from the game at this table. The system calculates the player’s session giving that player the correct amount of compensation. The system then transmits the player data to the establishment’s main rating system. Thus, activating this function (e.g., by receiving a swipe of the player’s player tracking card and/or a button press by a dealer or other personnel to indicate a seat at the table) allows the system to ascertain when a player stops playing a game at a table.

FIGS. 19-21 describe a process for a Player Check Out function.

“Verify Player Points”

Display the amount of compensation points that a player has accrued. The system queries the database and/or the establishment’s main rating system database for the player’s current point status. This function may be activated by the player (e.g., at a terminal with a card reader) or by casino personnel (e.g., a Dealer).

The data may also be sent instead of or in addition to being displayed. The player may choose to have their session or historical recordings of compensation points sent to them either via e-mail or traditional postal mail. To facilitate such sending, a player’s personal information may be requested by the system.

“Player Assignment”

Binding a player to a specific gaming table and seat location for tracking, accounting, and profile purposes.

“Player Card Swipe”

Read, e.g., a magnetic stripe or barcode from a player identification card, and recorded the identifier for player tracking.

“Active Play Verification”

A security feature that ensures the establishment that a player may not be registered for multiple games at one time. The system can ascertain whether the player has attempted to register for another game (e.g., at another table).

To reduced fraudulent practices of undue compensation points awarded to the player, the player may only be registered at an active gaming table where there are seat locations available for play, and the player may only be registered for one game at a time. If the system detects that the player is attempting to register at another game, the system will automatically close out the previous game the player had checked into before starting a new session at the other game.
“Player Statistics Display”
Display player profiles and historical characteristics.

“Forbidden Player Notification”
A security method that restricts players who have a “banned” status from registering and playing at a gaming table by way of a system notification directed to the pit personnel, administrators, and security division.

“Print Player Check-In & Check-Out Tickets”
Print, on a ticket, information about the game. Establishments may desire to have a hard copy of their players’ ratings. The printing of player tickets is controlled by the program’s main processing engine. The printed tickets can include establishments customized data show the session playing time and compensation rating for each player. FIG. 22 shows examples of such tickets.

Game Manager
Game Manager allows certain personnel to open, close, modify, and view games. Game Manager interacts with the database and clients to ensure real-time updates and monitoring of games. Game Manager interacts with other modules such as List Manager without requiring user intervention. Game Manager of course supports both stationary and mobile electronic input devices.

FIG. 23 is an illustration of an example of graphical user interface for Game Manager. In particular, this interface allows various poker tables to be designated as active or inactive.

FIG. 24 is a flowchart illustrating an overview of an embodiment for Game Manager. In particular, the flowchart describes a process by which an actor may start Game Manager and invoke various Game Manager functions.

“Open Game”
Open a new game on a specified table and give the table an “active” status. FIG. 25 describes how various actors may interact with the Open Game (or “Open Table”) function. FIGS. 26–28 describe in detail the “Open Game” function.

“Modify Game”
Modify the current game on the specified table.

“Close Game”
Close the current game on the specified table and give the table an “inactive” status. FIG. 29 describes how various actors may interact with the Close Game (or “Close Table”) function. FIGS. 30–32 describe in detail the “Close Game” function.

“Must Move Game”
Protect a main game by backfilling players from temporary tables to the main table as seat becomes available. The system automatically handles all instructions to floor and pit personnel about which players to move and to which seats the players be moved to. The system handles player moves by establishing table relationships and recording the order in which players have seniority to play at the main table.

“Active Game Display”
A display showing the active tables and associated games within a pit or specialized gaming room.

“Inactive Game Display”
A display showing the inactive tables within a pit or specialized gaming room giving personnel real-time analysis of table capacity.

“Active Seating Display”
A method that displays real-time seating capacity.

“Inactive Seating Display”
A method that displays real-time seating capacity.

“Seating Capacity”
Displays real-time seating capacity. The system calculates the number of active tables and active seats and compares the values to the predetermined values of maximum table and seat capacity.

“Active Dealer Display”
A feature that displays the current active dealer servicing the game at a particular table.

“Automapper”
Uses a geographical layout of the casino and instruct players or patrons on the “best route” to the gaming table of their choice. This function affects the workings of List Manager by notifying a player of the geographic location of the table where an available seat resides.

“Player—Game Tracking”
Coordinates with other modules to calculate the play rate of a dealer. For example, since a dealer checks into and out the system during his shift at various tables, he may be readily identified when he begins and ends play at a given gaming table. Thus, that dealer’s rate of play (e.g. games played per some unit of time) may be readily determined. This in turn may be used to calculate an expected “take rate” for the casino, since the expected take rate per game may be determined for specific games.

List Manager
List Manager maintains a list or queue of various information. List Manager includes a suite of tools for automating the queuing process. These tools include: Add, Modify, Delete, Phone-In, Activate, Open Seat, Lockup, Rollover, Insert, Public Seat, and Multiple. Using these combined tools allows certain personnel to automate the manual processes. List Manager also uses voice recognition, text-to-speech algorithms, and intelligent queue notification to alert patrons of various availabilities. Sun’s Java™ telephony API module may be used to implement text-to-speech appropriately.

List Manager interacts with the database and all clients to ensure real-time updates and monitoring. List Manager of course supports both stationary and mobile electronic input devices.

FIG. 33 is a graphical user interface that displays, for various games at various tables, the players that are registered for those games. Whether the player is registered or waiting to be registered for the game may be indicated by, for example, a different shading or color of the initials of the player indicated.

FIG. 34 is a graphical user interface showing a virtual keyboard, which allows data such as players’ initials to be entered in conjunction with a particular game at a particular table.

FIG. 35 is a flowchart illustrating an overview of an embodiment for List Manager. In particular, the flowchart illustrates that an actor may start List Manager and invoke various functions of List Manager.

“Add”
Adds the player information to the list under the specified game of choice. The “Add” function records player information, date and time, and type of list addition. The system correctly places the addition on the list in the next available position with a unique system and queue identifier. Additions
are color-coded on the visual representation of the queue/list, permitting various information to be easily understood by users viewing the displayed data.

FIG. 36 shows a use case diagram of various actors invoking the “Add” (also “Add Player”) function.

FIGS. 37-39 describe in detail the process for adding a player.

“Modify”
Modify allows the modification of player information in the queue or on the list. The player’s position in the queue remains the same.

“Delete”
Delete removes a certain player’s registration from the list or queue. Upon deletion the system recalcitrates the queue/list and updates the remaining entries by resorting them in the appropriate order. FIGS. 40-42 describe in detail the process for deleting a player.

“Insert”
Insert performs a player insertion into the queue or list at a specified location determined by the user. After a player insertion the system resorts the queue/list and updates accordingly. When a player is inserted the system provides date and time stamps as well as a unique system ID. Inserts are color-coded on the visual representation of the queue/list. FIGS. 43-46A describe in detail the process for inserting a player.

“Phone-In”
Phone-In supports the addition of a player to the queue/list via telephone or e-mail requests (e.g., by a player not on site). A Phone-in is added with date and time stamps, unique system ID, and color-coded visual entry.

“Activate”
Activate feature is required to activate a Phone-in entry. Once a phone-in entry is present and available for action, the active feature updates the system on player availability. Once a phone-in is activated the system removes the color-coded phone-in visual representation.

“Search”
Search enables operators to actively search both current and past players and lists to provide comprehensive reporting and information regarding the transaction history. Search can be performed with initials, name, player card, game, or stakes. FIGS. 71-72 describe in detail the process for searching for a user’s initials.

FIG. 73 illustrates a user interface which displays information about various players and events.

“Open Seat”
Allows users to notify the system and players that an available seat has become open. Once the open seat feature has been initiated the system locates the next name in the queue/list. The system then reads the player’s information and uses text-to-speech generation and calls out the player via a public announcement system (e.g., speakers in communication with and/or under control of the system) notifying them of the open seat for the particular game. The system can also notify players via e-mail, and pager services.

“Lockup”
The system “lockups” or secures the available seat for a particular player called during the open seat notification. Once a player has been “locked up” their information is removed from the queue/list. The system then updates the queue/list by resorting the players.

FIGS. 46B-46G describe in detail the process of Lockup.

“Rollover”
Moves a player in the queue/list to the bottom of the queue/list. This is done so that the player is not removed from the queue/list but “rolled” over in because of unavailability of the player. The system records the transaction and resorts the queue/list accordingly.

“Multiple”
Allow a user of the system to perform multiple functions during one action. An example of the multiple feature would be to add a player to more than one game at a time. Using the multiple feature a user can add players to multiple games through one action.

FIG. 47 is a Use Case Diagram describing actors that may initiate the “Multiple” (Also called “Multiple Add”) function.

FIGS. 48-50 describe in detail the process of “Multiple”.

“Reseat Player”
Determine the correct location in the queue/list to place a player during a reseating procedure. The player is placed on a reseating list of the game of choice and once activated the system manages how and where the player is inserted into the main queue/list.

“Integrated Voice Response”
Use customized text-to-voice process to create sentences and utilizing a speaker or public announcement setup calls out the created sentence in a voice format. The method also handles the ability for players to “call-in” to the system via telephone or e-mail services and gain real-time queue/list status, register for games, verify compensation points, and learn about establishment promotions. The integrated voice response feature can recognize proper names from an internal dictionary (name table) and call the specific player by the own name.

Proper Name recognition may be performed through software. For example, prior to calling a name or set of initials, the system parses the string (i.e. “p-e-t-e-r”) representing that name or set of initials. The system then determines whether or not the string matches a proper name in the name table. If there is a match, a pre-recorded speech output file corresponding to the proper name is played via the audio output device. If the string does not match a proper name from the name table, each variable (i.e. “p-e-t-e-r”) is matched to its corresponding pre-recorded sound (e.g., a sound file for each letter). Those sounds are played via the audio output device.

“Promotional Marquee”
Allows an establishment to utilize the system to promote special events on a visual display. Many types of appropriate displays include, for example, a large plasma screen capable of a resolution of 1024x768.

FIG. 51 is a Use Case Diagram describing actors that may initiate the “Promotional Marquee” (Also called “Marquee”) function.

FIGS. 52-54 describe in detail the process of “Promotional Marquee”.

The program queries a database table where the marquee text, pictures, or voice information is stored. The program then displays this stored information on the designated screens. The marquee runs in real-time, so that upon changing the values or information in the database table the displayed content will be updated without having to re-start the program. The scheduled query intervals, scrolling speed, and location of the marquee can be in customized since these parameters are defined in the database.
“Average Wait Time”
Calculates historical and real-time data to predict average wait time within a queue/list.
FIGS. 77-78 describe in detail the process for “Average Wait Time”.
FIG. 79 is a user interface that displays average wait time for various games.

“Player Self Registration”
Allows players to utilize the system and register themselves for particular games of choice or tournaments via their player identification card. The system handles the player registration and records the transaction as self-registration for tracking and reporting purposes.

“Profanity Checker”
Actively compares displayed information against a database dictionary of profanities. If the system detects a possible displayed profanity the system can notify an administrator and automatically disallow the profanity from being displayed.
FIG. 55 is a Use Case Diagram describing actors that may initiate the “Profanity Checker” function.
FIGS. 56-58 describe in detail the process of “Profanity Checker”.

“Duplicate Checker”
A feature that actively checks for duplicate names or the list or in the queue. Duplicate Checker verifies that no duplicate entries may reside so that confusion in regards to list registration is avoided. This is a process of the program’s processing engine.
FIG. 59 is a Use Case Diagram describing actors that may initiate the “Duplicate Checker” (also called “Duplicate Entry”) function.
FIGS. 60-62 describe in detail the process of “Duplicate Checker”.

“Player Receipt”
Generate a receipt that the player can receive for validation of a gaming session, registration, tournament placement, or compensation redemption. The receipt can be generated by the system with a unique identifier and can contain encrypted barcode or magnetic stripe features.

“Casino Valet List Manager”
Handle the queue/list in the valet area of the establishment. Players or patrons utilize the valet list in the same manner as the game list. The system records the player and vehicle identification and processes the transaction.

“Public Seat”
When an open seat is initiated the system will check to see if there are active entries in the queue/list. If there are not, the system will notify the “Public Seat” function. This function allows the actors of the system to be informed of available seats for the public or walk-in players by a visual color-code of the information.
FIG. 63 is a Use Case Diagram describing actors that may initiate the “Public Seat” (also called “Public Seating”) function.
FIGS. 64-66 describe in detail the process of “Public Seat”.

“Reserve Player”
When a player requests to be placed at the top of a list or queue, that player can be inserted via the “Reserve Player” function. When an open seat becomes available that player will be next in line to acquire the seat. The reserved player may be represented by a visual color-code. The “Reserve Player” function may be used by management to place a player atop the list or queue for special purposes.
FIGS. 74-75 describe in detail the “Reserve Player” function.
FIG. 76 is a graphical user interface showing a virtual keyboard, which allows data such as players’ initials to be entered in conjunction with a particular game at a particular table.

“Jackpot Display”
Allow an establishment to display a running total of a cash payment offered. The system records the parameters of the Jackpot requirements and maintains the Jackpot total based upon the selected criteria.

“Game Qualification”
Decide whether or not to suggest the opening of a new game based upon a set of predefined criteria and algorithms.
“Game Qualification” assures that there are enough players or interest in a game prior to that game beginning. Qualifying the game prior to its start ensures that no resources, time, or administration services continue without some assurance that the game will be played. The criteria for qualifying games may be, for example, number of players, type of game, day of the week, time of day, available dealers and/or available staff.
The criteria are business rules that reside in the database and can be changed by an administrator as desired.
An example of game qualification is:

Criteria
1. A game must have at least three players waiting to play before the table opens for play.
2. Available dealer must be present and currently unassigned.
3. All other games of similar type must be full.

Algorithm
Check Rule: 1 (Pass)
Check Rule: 2 (Pass)
Check Rule: 3 (Pass)
Result: Game is opened.

“Pause List”
Allows the users of the system to pause the list or queue at random. Allowing the pausing of the list or queue gives the users the benefit of manipulating, viewing, and analyzing the current list or queue status. Upon a list pause, the system does not stop processing other requests from other users or clients. The system will continue to process requests and update the paused user or client once the list or queue is resumed.

“Undo”
System users may choose to undo already committed actions. The undo feature allows users to undo previously entered actions. The application server and database log every transaction to a history table allowing the rollback of transactions to a desired point.

“Redo”
The opposite of undo, if a system users rolls back a transaction with an undo command and decides to redo the action, the system user may redo the last revoked command.
Finally, FIG. 89 describes an example of a player interacting with the system to be added to a desired game.
The invention has been described with respect to a number of embodiments. However it will be apparent that many modifications and variations may be made within the scope of the invention.
We claim:
1. A system for real time operational support of poker gaming functions for use in physical casino environments comprising:
   a suite of computerized gaming application software programs configured for physical casino operations that are linked together to provide real time operational support for live poker gaming functions, said suite including software programs configured to facilitate electronic player waitlisting and public display or marquee functions and related functions in support of poker gaming functions;
   a central database for storing said suite of poker or gaming application software programs and player data, wherein said central database is configured to allow the continuous synchronization of the player data with another database that is unique to a particular physical casino environment;
   an application software program server for facilitating execution of said poker or gaming application software programs; wherein at least one of said application software programs is configured to process player or prospective player information for generation and updating of a waitlist, wherein the said application software program is further configured to associate particular player or prospective player information with at least one unique identifier, and wherein the said application software program is further configured to update the waitlist after player or prospective player information is added, modified or deleted;
   at least one client computing or display device on which said poker or gaming application software programs or data may be executed, linked or displayed;
   at least one user interface configured for use by casino staff, wherein said user interface is associated with the at least one client computing or display device, wherein said user interface is configured to display and/or enable initiation, execution and interaction with the application software programs and data stored on the central database; and
   at least one public display or marquee interface configured for simultaneous viewing by a multiplicity of players or prospective players from within a physical casino or poker room; wherein said public display or marquee interface is configured to display information by use of said at least one unique player identifier to facilitate and streamline casino operations by displaying information sufficient to enable a multiplicity of simultaneous players or prospective players to view displayed seating, prioritization and waitlisting information and wherein information presented via said public display or marquee interface is updated in real time from the suite of application software programs;
   wherein said application software program server enables communication and transmission of data between the central database, the at least one client computing or display device and the at least one public display or marquee interface; wherein the central database, application software program server, at least one client computing or display device and application software programs are configured to facilitate integrated real time operational support for poker gaming functions within a physical casino and wherein information generated by or associated with a particular application software program may also be used by another related gaming application software program.
2. The system of claim 1 wherein at least one of the application software programs of the suite of programs is configured to facilitate public display of the availability and location of games and/or seating of players.
3. The system of claim 1 wherein at least one of the application software programs of the suite of programs is configured to facilitate public display of win and loss statistics for at least one gaming table.
4. The system of claim 1 wherein at least one of the application software programs of the suite of programs is configured to facilitate the creation, modification or display of tournament games.
5. The system of claim 4 further configured to publicly display information related to said tournament games.
6. The system of claim 1 wherein at least one of the application software programs of the suite of programs is configured to coordinate dealer scheduling and/or rotation functions.
7. The system of claim 1 wherein at least one of the application software programs of the suite of programs is configured to facilitate public display of dealer scheduling and/or rotation information.
8. The system of claim 1 wherein at least one of the application software programs of the suite of programs is configured to provide or support security functions.
9. The system of claim 1 wherein at least one of the application software programs of the suite of programs is configured to facilitate registration of players for games.
10. The system of claim 1 wherein at least one of the application software programs of the suite of programs is configured to facilitate the maintenance, processing or display of customer or player information.
11. The system of claim 10 further configured to enable tracking of customers or players activity at poker room level or at or from a poker table.
12. The system of claim 10 further configured to facilitate processing of customer or player information to yield predicted or actual wait times for games, tables or other casino resources.
13. The system of claim 10 further configured to facilitate processing of customer or player information to yield information regarding customer or player characteristics.
14. The system of claim 1 wherein at least one of the application software programs of the suite of programs is configured to facilitate the determination of an amount of compensation or rewards to be associated with a customer or player.
15. The system of claim 14 further configured to store on the central database information related to an amount of compensation associated with a customer or player.
16. The system of claim 14 further configured to store an amount of compensation associated with a customer or player on a card uniquely associated with the customer or player.
17. The system of claim 1 wherein the at least one client computing or display device is configured to communicate wirelessly with the application program server.
18. The system of claim 1 wherein the system components are configured to communicate with each other and with other applications, data and systems via the internet or other computer network.
19. The system of claim 1 further configured to facilitate monitoring of the system via the internet or other network connection.
20. The system of claim 1 wherein the system is configured to link to and interact with special purpose casino devices.
21. The system of claim 20 wherein said devices include at the table shuffling machines.
22. The system of claim 1 wherein at least one of the application software programs of the suite of programs is configured to facilitate generation of a report from information stored on the central database.

23. The system of claim 1 wherein the user interface is configured to receive and operate in response to verbal commands or inquiries and to provide automated verbal responses to such verbal commands or inquiries.

24. The system of claim 1 further configured to facilitate generation of a report from information related to an amount of compensation associated with a customer or player.

25. The system of claim 1 further configured to facilitate public display of the availability and location of games and/or seating of players.

26. A system for real time operational support of poker gaming functions for use in physical casino environments comprising:

a suite of computerized gaming application software programs configured for physical casino operations that are linked together to provide real time operational support for live poker gaming functions, said suite including software programs configured to facilitate electronic player waitlisting and public display or marquee functions and related functions in support of poker gaming functions;

a central database for storing said suite of poker or gaming application software programs and player data, wherein said central database is configured to allow the continuous synchronization of the player data with another database that is unique to a particular physical casino environment;

an application software program server for facilitating execution of said poker or gaming application software programs; wherein at least one of said application software programs is configured to process player or prospective player information for generation and updating of a waitlist, wherein the said application software program is further configured to associate particular player or prospective player information with at least one unique identifier, and wherein the said application software program is further configured to update the waitlist after player or prospective player information is added, modified or deleted;

at least one client computing or display device on which said poker or gaming application software programs or data may be executed, linked or displayed;

at least one user interface configured for use by casino staff, wherein said user interface is associated with the at least one client computing or display device, wherein said user interface is configured to display and/or enable initiation, execution and interaction with the application software programs and data stored on the central database; and

at least one public display or marquee interface configured for simultaneous viewing by a multiplicity of players or prospective players from within a physical casino or poker room; wherein said public display or marquee interface is configured to display information by use of said at least one unique player identifier to facilitate and streamline casino operations by displaying information sufficient to enable a multiplicity of simultaneous players or prospective players to view displayed seating, prioritization and waitlisting information and wherein information presented via said public display or marquee interface is updated in real time from the suite of application software programs;

wherein said application software program server enables communication and transmission of data between the central database, the at least one client computing or display device and the at least one public display or marquee interface; wherein the central database, application software program server, at least one client computing or display device and application software programs are configured to facilitate integrated real time operational support for poker gaming functions; wherein information generated by or associated with a particular application software program may also be used by another related application software program and wherein said system is configured to monitor player gaming locations, automatically assign a prospective new player to a gaming location when one becomes available and compute and maintain reports on system activity.

27. The system of claim 26 wherein at least one of the application software programs of the suite of programs is configured to facilitate public display of the availability and location of games and/or seating of players.

28. The system of claim 26 wherein at least one of the application software programs of the suite of programs is configured to facilitate public display of win and loss statistics for at least one gaming table.

29. The system of claim 26 wherein at least one of the application software programs of the suite of programs is configured to facilitate the creation, modification or display of tournament games.

30. The system of claim 29 further configured to publicly display information related to said tournament games.

31. The system of claim 26 wherein at least one of the application software programs of the suite of programs is configured to coordinate dealer functions.

32. The system of claim 26 wherein at least one of the application software programs of the suite of programs is configured to facilitate public display of scheduling and/or rotation dealer information.

33. The system of claim 26 wherein at least one of the application software programs of the suite of programs is configured to provide or support security functions.

34. The system of claim 26 wherein at least one of the application software programs of the suite of programs is configured to facilitate registration of players for games.

35. The system of claim 26 wherein at least one of the application software programs of the suite of programs is configured to facilitate the maintenance, processing or display of customer or player information.

36. The system of claim 35 further configured to enable tracking of customers or players activity at poker room level or at or from a poker table.

37. The system of claim 35 further configured to facilitate processing of customer or player information to yield predicted or actual wait times for games, tables or other casino resources.

38. The system of claim 35 further configured to facilitate processing of customer or player information to yield information regarding customer or player characteristics.

39. The system of claim 26 wherein at least one of the application software programs of the suite of programs is configured to facilitate the determination of an amount of compensation or rewards to be associated with a customer or player.

40. The system of claim 39 further configured to store on the central database information related to an amount of compensation associated with a customer or player.
41. The system of claim 39 further configured to store an amount of compensation associated with a customer or player on a card uniquely associated with the customer or player.

42. The system of claim 26 wherein the at least one client computing or display device is configured to communicate wirelessly with the application program server.

43. The system of claim 26 wherein the system components are configured to communicate with each other and with other applications, data and systems via the internet or other computer network.

44. The system of claim 26 further configured to facilitate monitoring of the system via the internet or other network connection.

45. The system of claim 26 wherein the system is configured to link to and interact with special purpose casino devices.

46. The system of claim 45 wherein said devices include at the table shuffling machines.

47. The system of claim 26 wherein at least one of the application software programs of the suite of programs is configured to facilitate generation of a report from information stored on the central database.

48. The system of claim 26 wherein the user interface is configured to receive and operate in response to verbal commands or inquiries and to provide automated verbal responses to such verbal commands or inquiries.

49. The system of claim 26 further configured to facilitate synchronization of the central database with another database.

50. The system of claim 26 further configured to communicate with another casino management system such as a legacy player tracking system or other system or database.