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Nishida

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(54) **GAME PROGRAM, COMPUTER CONTROL METHOD, AND INFORMATION PROCESSING APPARATUS**

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Jun. 30, 2015	(JP)	2015-131966

(51) **Int. Cl.**

G06F 3/048	(2013.01)
G06F 3/0484	(2013.01)
G06F 3/0488	(2013.01)
A63F 13/2145	(2014.01)
A63F 13/828	(2014.01)
A63F 13/426	(2014.01)

(52) **U.S. Cl.**

CPC ***G06F 3/04842*** (2013.01); ***A63F 13/2145*** (2014.09); ***A63F 13/426*** (2014.09); ***A63F 13/828*** (2014.09); ***G06F 3/0488*** (2013.01)

(58) **Field of Classification Search**

None

See application file for complete search history.

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Primary Examiner — Jeffrey A Gaffin
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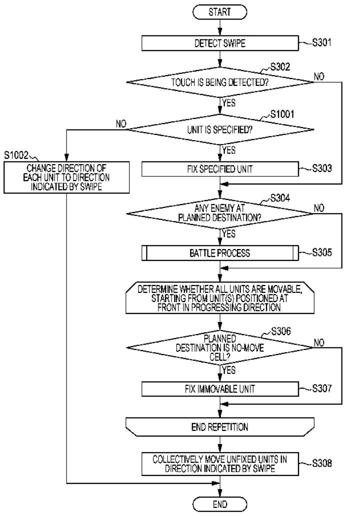
(57) **ABSTRACT**

A computer-implemented method for operating a computer game involving moving a plurality of objects. A game screen on which a plurality of objects are displayed may be displayed on a touchscreen. If a swipe operation is detected, a plurality of the objects may be moved. If a swipe operation is detected while a touch operation that specifies any of the plurality objects is also being detected, the plurality of objects excluding the object specified with the touch operation are collectively moved in a direction indicated by the swipe operation.

20 Claims, 12 Drawing Sheets


START
DETECT SWIPE
S301
S302
TOUCH IS BEING DETECTED?
NO
YES
S1001
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UNIT IS SPECIFIED?
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CHANGE DIRECTION OF EACH UNIT TO DIRECTION INDICATED BY SWIPE
FIX SPECIFIED UNIT
S303
S304
ANY ENEMY AT PLANNED DESTINATION?
NO
YES
BATTLE PROCESS
S305
DETERMINE WHETHER ALL UNITS ARE MOVABLE, STARTING FROM UNIT(S) POSITIONED AT FRONT IN PROGRESSING DIRECTION
S306
PLANNED DESTINATION IS NO-MOVE CELL?
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YES
FIX IMMOVABLE UNIT
S307
END REPETITION
COLLECTIVELY MOVE UNFIXED UNITS IN DIRECTION INDICATED BY SWIPE
S308
END

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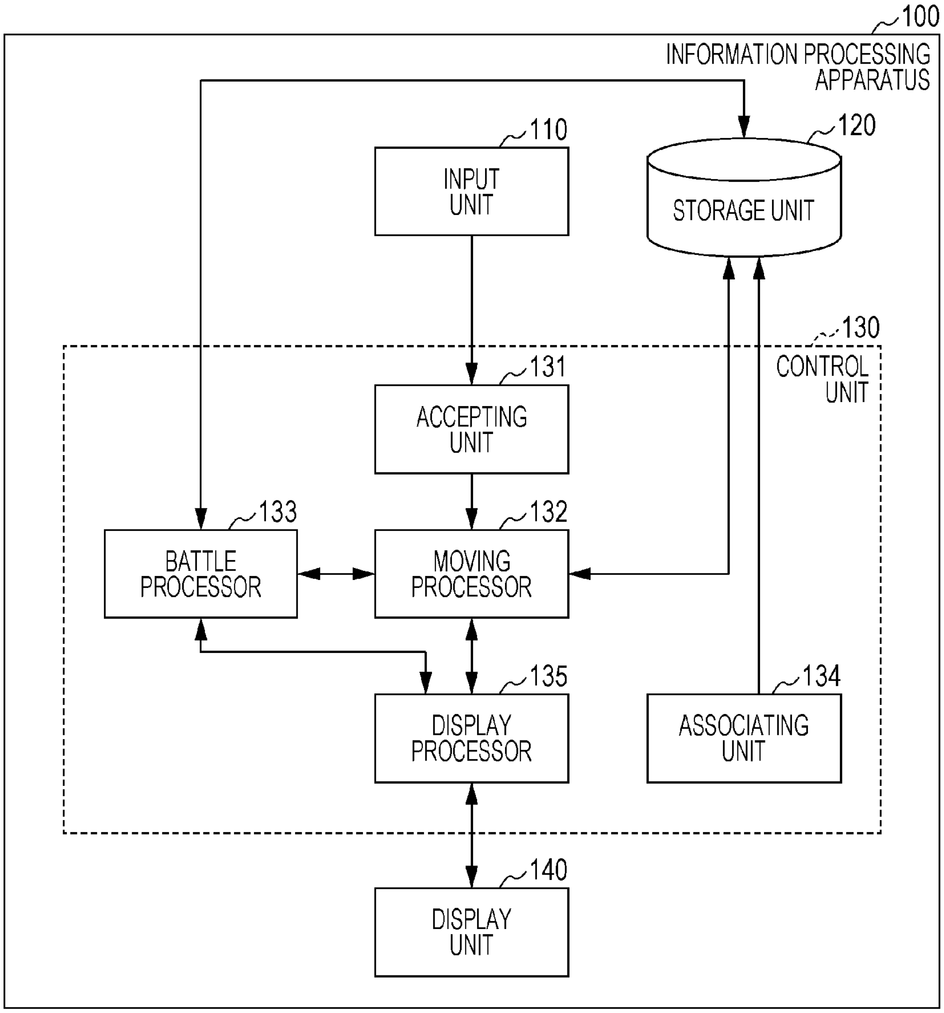
FIG. 1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INFORMATION PROCESSING APPARATUS
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INPUT UNIT
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STORAGE UNIT
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CONTROL UNIT
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ACCEPTING UNIT
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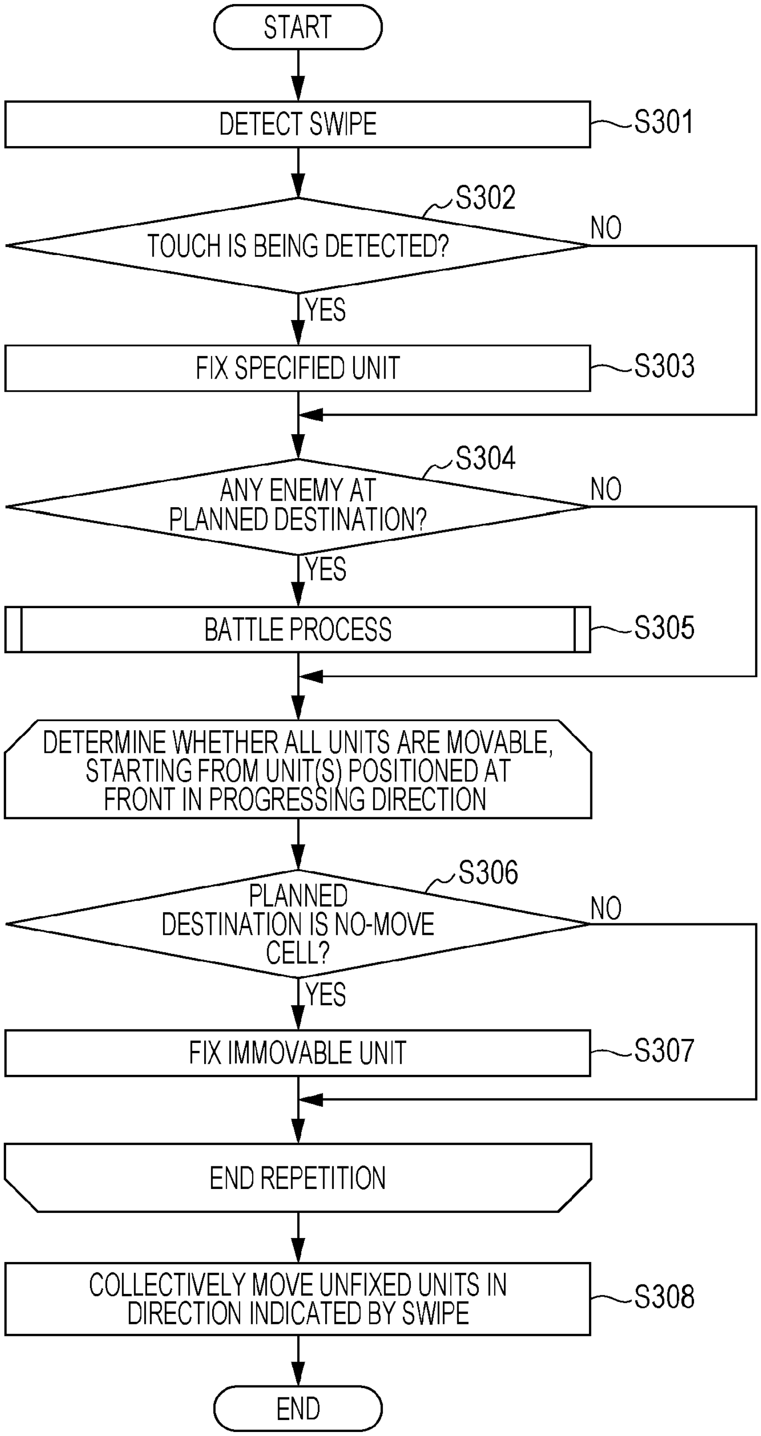
BATTLE PROCESSOR
132
MOVING PROCESSOR
135
DISPLAY PROCESSOR
134
ASSOCIATING UNIT
140
DISPLAY UNIT

FIG. 2

200

	1	2	3	4	5	6
a						
b		300i	300j			
c		300e	♛ 300f	300g	300h	
d		300a	300b	300c	300d	
e						
f						
g		310a	310b	310c	×	×
h		310d	310e	310f	×	×
⋮	⋮	⋮	⋮	⋮	⋮	⋮

FIG. 3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S302
TOUCH IS BEING DETECTED?
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FIX SPECIFIED UNIT
S303
S304
ANY ENEMY AT PLANNED DESTINATION?
NO
YES
BATTLE PROCESS
S305
DETERMINE WHETHER ALL UNITS ARE MOVABLE, STARTING FROM UNIT(S) POSITIONED AT FRONT IN PROGRESSING DIRECTION
S306
PLANNED DESTINATION IS NO-MOVE CELL?
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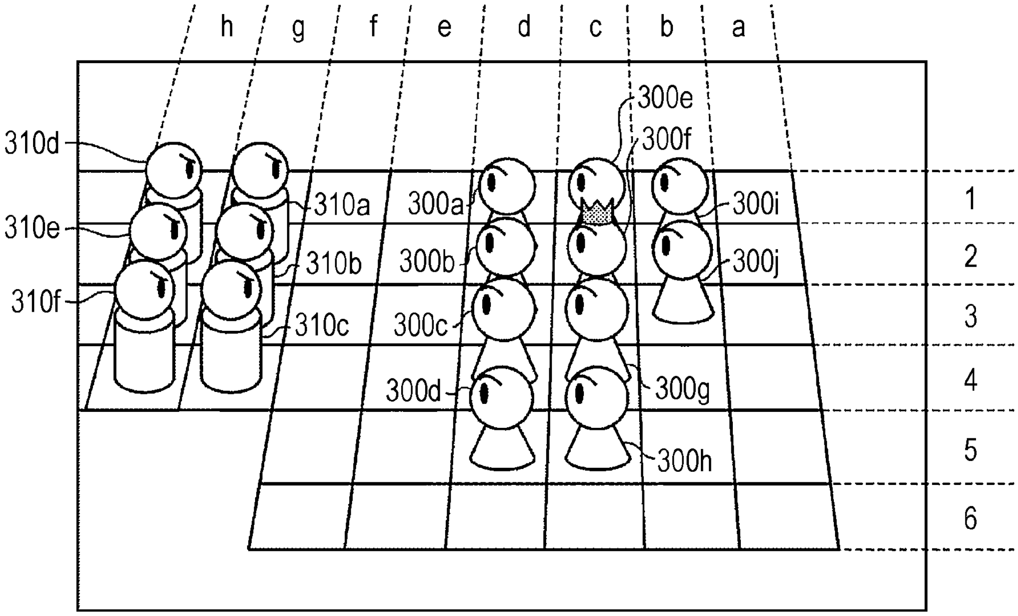
FIX IMMOVABLE UNIT
S307
END REPETITION
COLLECTIVELY MOVE UNFIXED UNITS IN DIRECTION INDICATED BY SWIPE
S308
END

FIG. 4



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Page 6

FIG. 5A

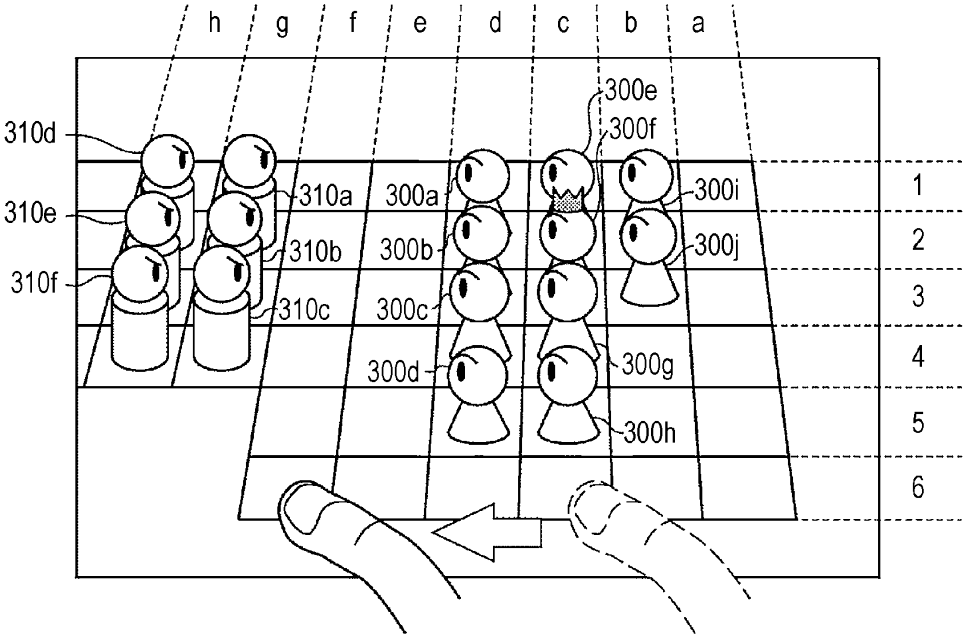
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FIG. 5B

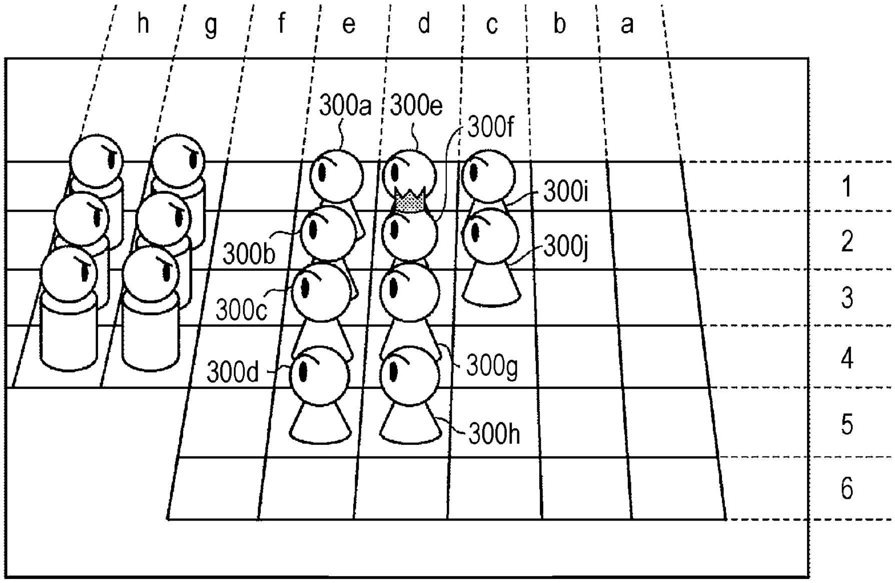
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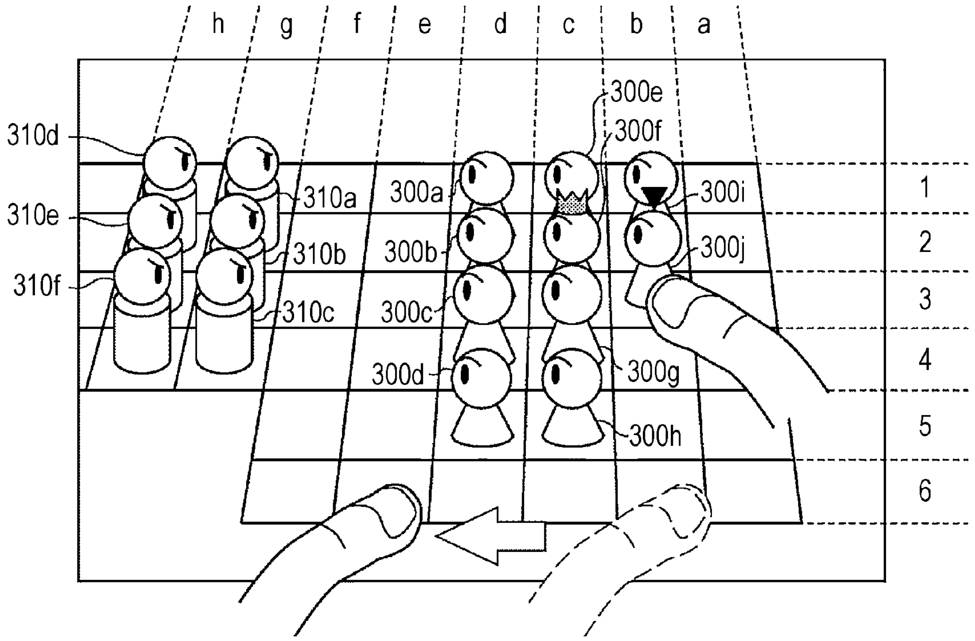
FIG. 6A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310e
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FIG. 6B

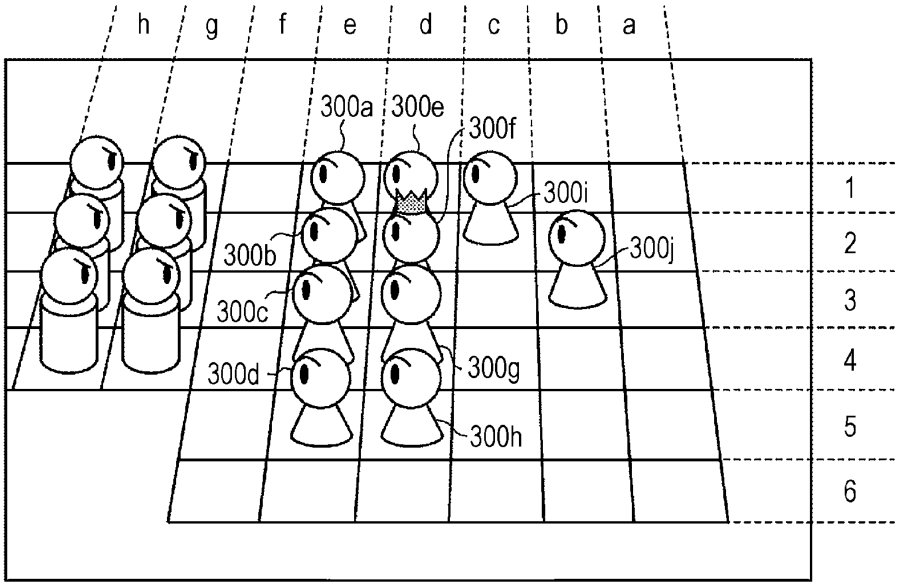
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FIG. 7A

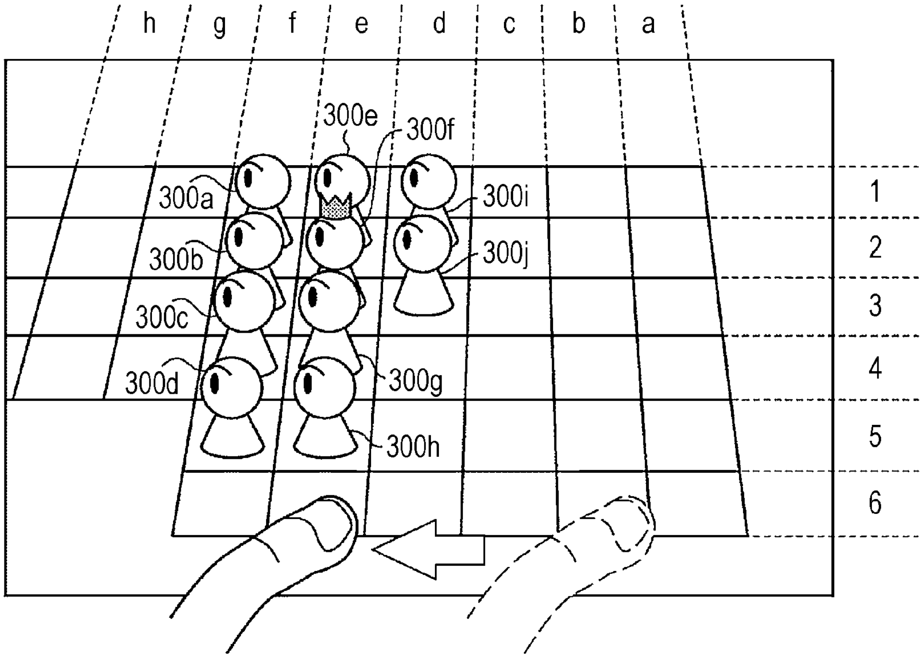

FIG. 7B

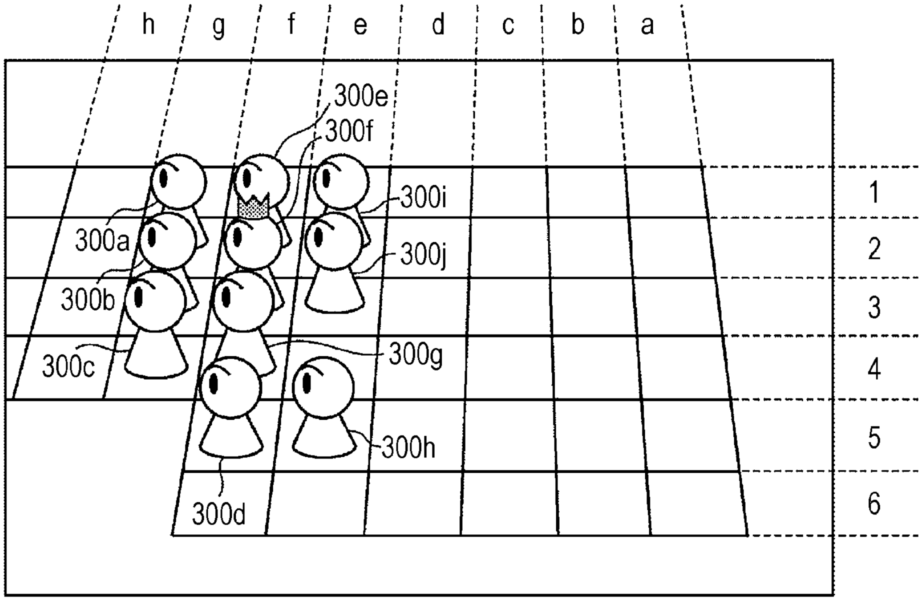

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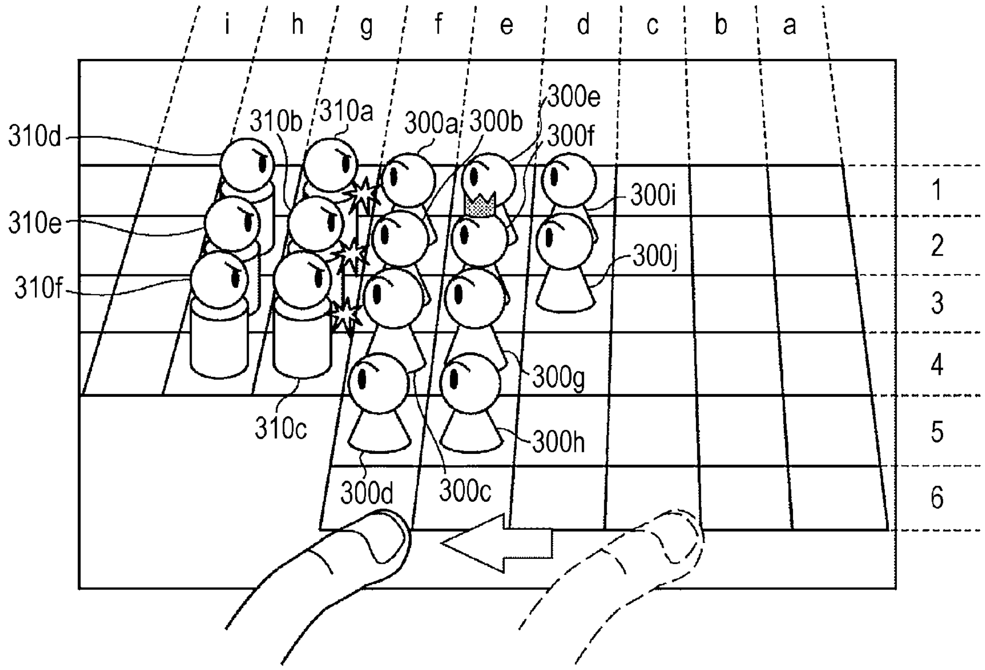
FIG. 8A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300c
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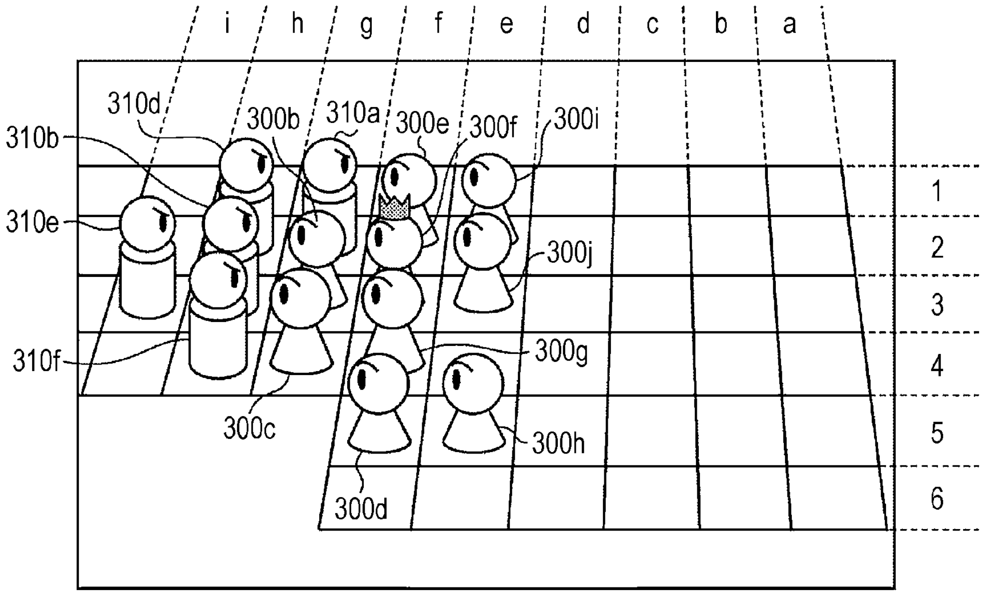
FIG. 8B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300e
300f
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FIG. 9A

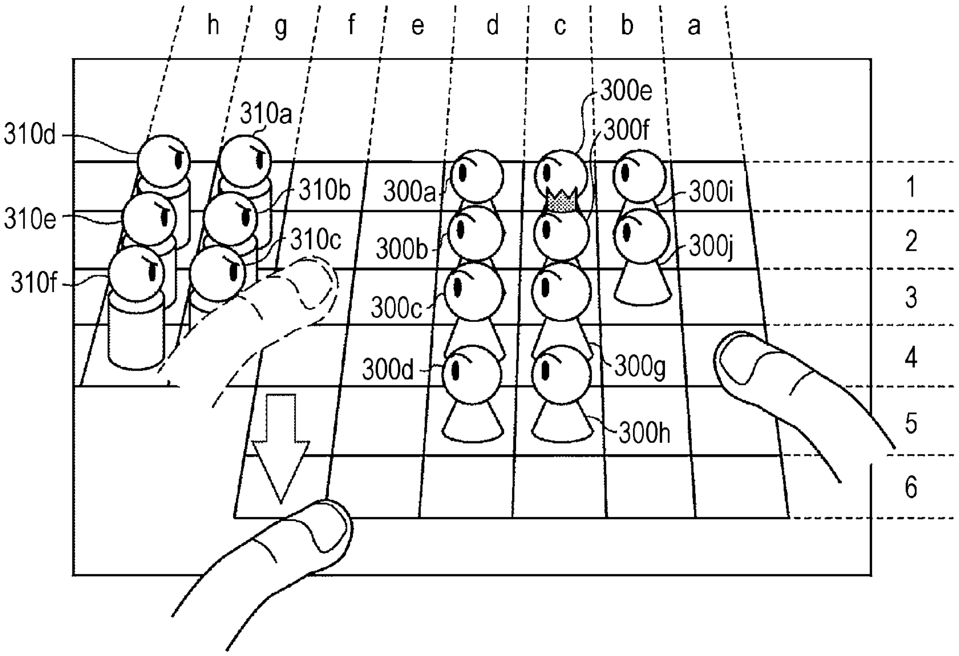
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FIG. 9B

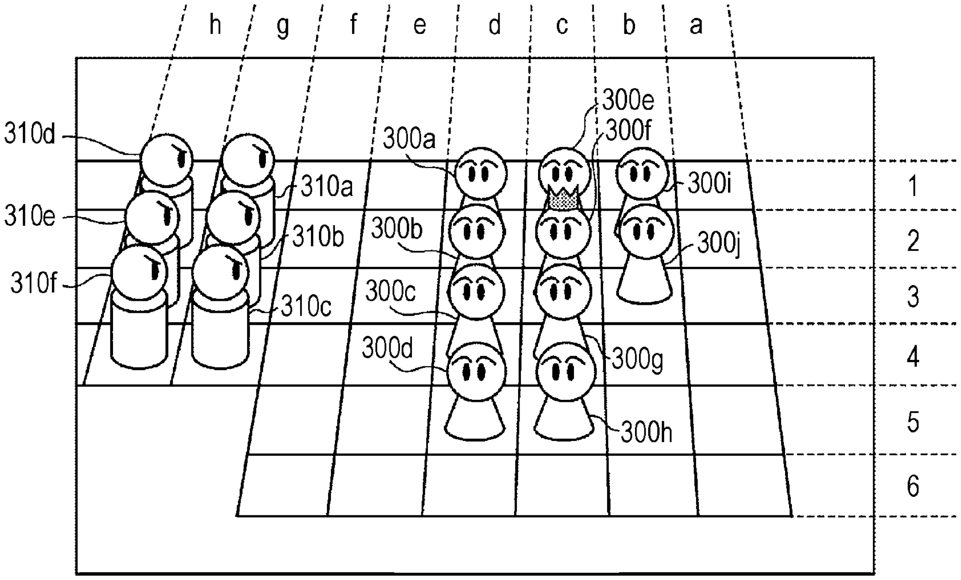
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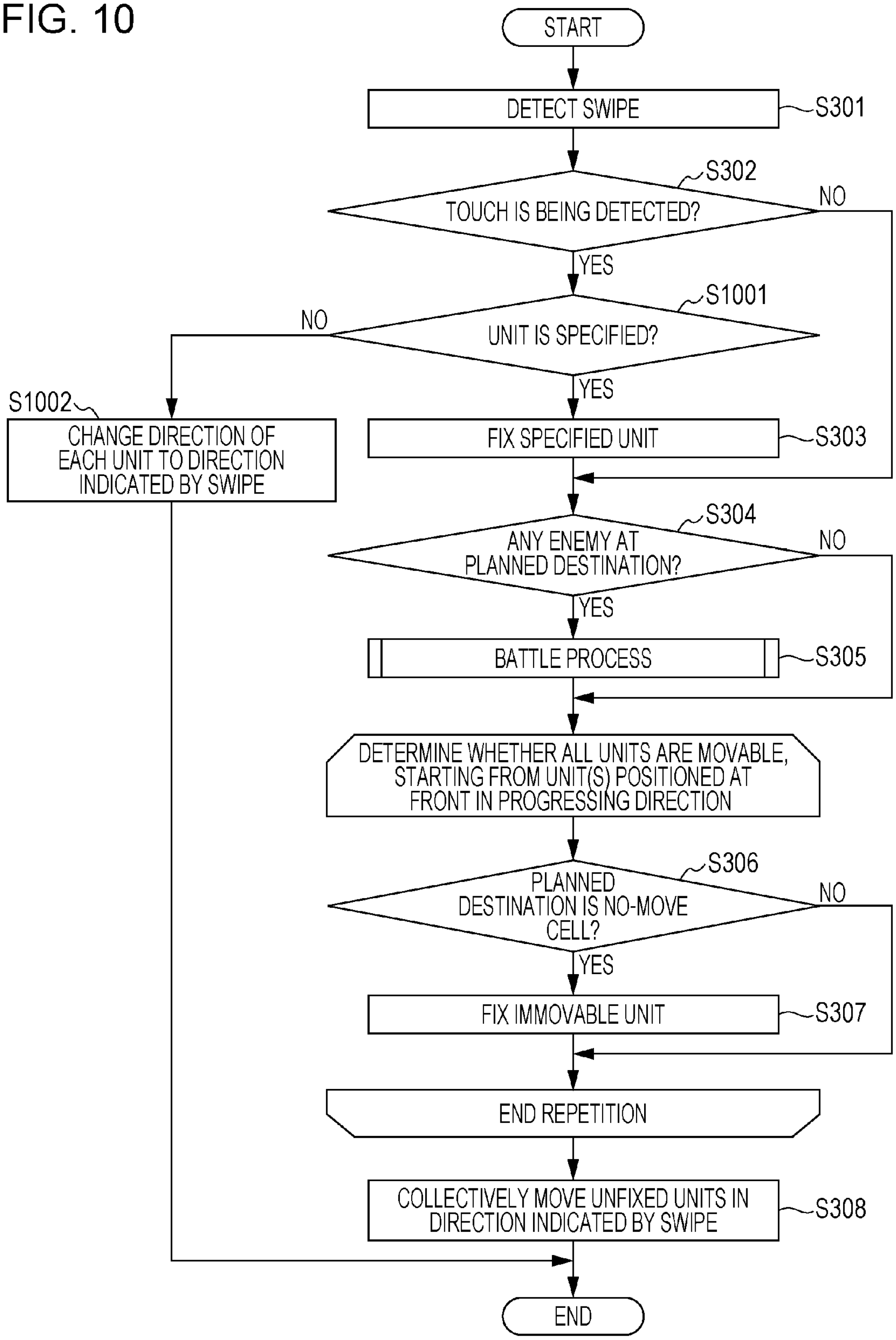
FIG. 10


START
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S301
S302
TOUCH IS BEING DETECTED?
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S1001
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UNIT IS SPECIFIED?
YES
S1002
CHANGE DIRECTION OF EACH UNIT TO DIRECTION INDICATED BY SWIPE
FIX SPECIFIED UNIT
S303
S304
ANY ENEMY AT PLANNED DESTINATION?
NO
YES
BATTLE PROCESS
S305
DETERMINE WHETHER ALL UNITS ARE MOVABLE, STARTING FROM UNIT(S) POSITIONED AT FRONT IN PROGRESSING DIRECTION
S306
PLANNED DESTINATION IS NO-MOVE CELL?
NO
YES
FIX IMMOVABLE UNIT
S307
END REPETITION
COLLECTIVELY MOVE UNFIXED UNITS IN DIRECTION INDICATED BY SWIPE
S308
END

Supercell
Exhibit 1001
Page 12

FIG. 11A

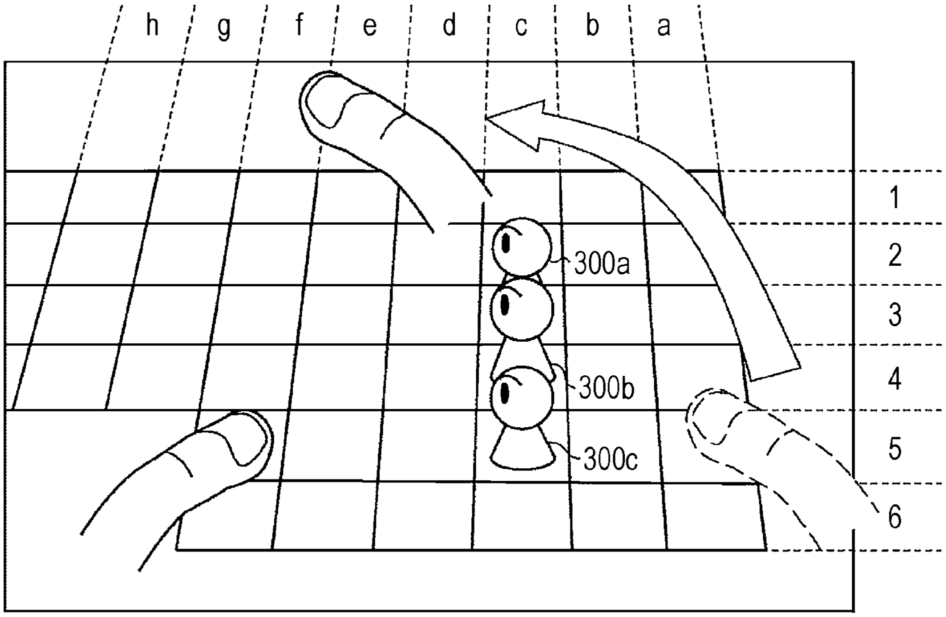


FIG. 11B

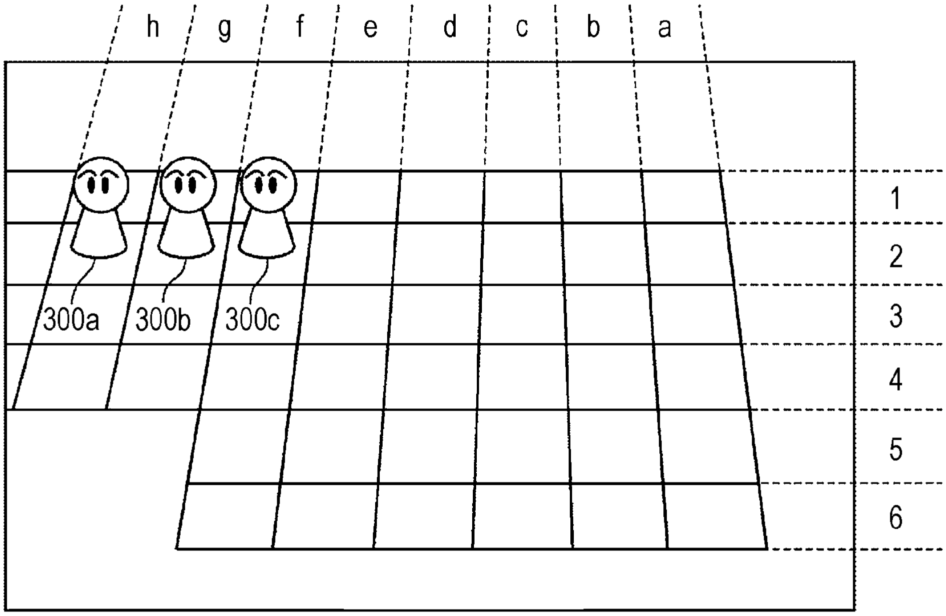
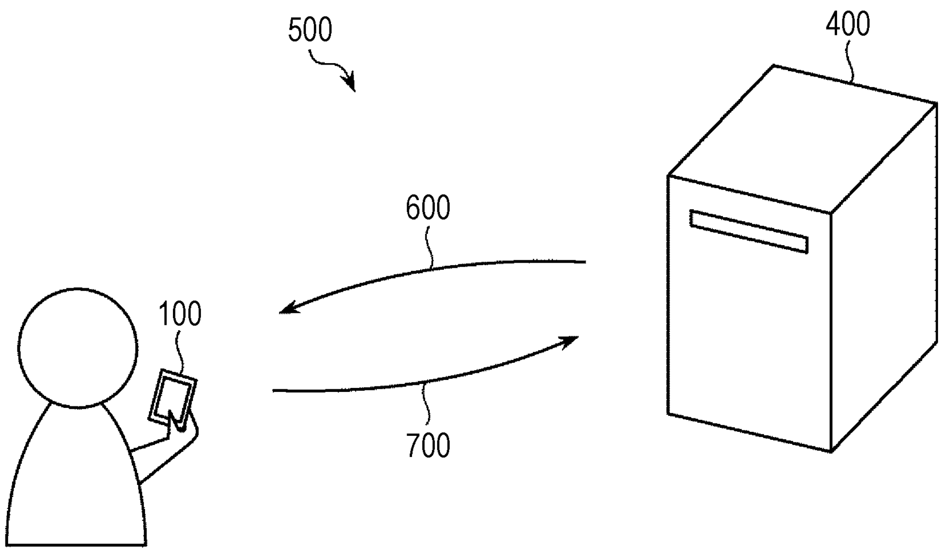


FIG. 12



GAME PROGRAM, COMPUTER CONTROL METHOD, AND INFORMATION PROCESSING APPARATUS

BACKGROUND

Hitherto, network games using electronic devices such as smart phones and tablet terminals have been actively developed.

For example, Japanese Unexamined Patent Application Publication No. 2012-147936 discloses a game apparatus and a game control program for implementing a baseball game in which the player of the game can minutely change and adjust the positions of player characters in the baseball game, while alleviating the operation burden on the player of the game. According to Japanese Unexamined Patent Application Publication No. 2012-147936, the game apparatus stores group information indicating the corresponding relationship between the player characters and a plurality of groups into which the characters are classified according to their roles in the game. Japanese Unexamined Patent Application Publication No. 2012-147936 discloses that a contact in a detection target area of a screen is detected, a group corresponding to the detected portion is identified, and characters corresponding to the identified group are simultaneously moved by a certain distance in a direction toward the detected portion.

However, although the configuration in Japanese Unexamined Patent Application Publication No. 2012-147936 is capable of simultaneously moving a plurality of characters included in a group by a certain distance, the configuration is incapable of causing the characters to make complex movements. Accordingly, the game is minimally strategic.

SUMMARY

An exemplary embodiment of the present invention provides a game program with enhanced strategic gameplay in which a plurality of characters are operated with simple operation, a computer control method, and an information processing apparatus.

According to an exemplary embodiment of the present invention, there may be provided a game program that processes progress of a game for moving a plurality of objects arranged on a game field. The game program may cause a computer to implement an accepting function that accepts operation information regarding a touch operation performed by a user, from a certain input face capable of detecting the touch operation; an associating function that associates the plurality of objects as a group; a moving function that may move, in a case where the operation information is a direction operation indicating a certain direction, the plurality of associated objects as a group in the direction indicated by the direction operation; and a display processing function that may display the game field and the plurality of objects arranged on the game field on a screen of the game, and, in a case where a moving process is performed by the moving function, may move and display the plurality of objects in accordance with the moving process. Upon acceptance of the direction operation as the operation information while a specifying operation that specifies a first object that is any of the plurality of objects is being accepted as the operation information, the moving function may move the remaining objects, excluding the first object from the plurality of objects, as a group in the direction indicated by the direction operation.

According to another exemplary embodiment of the present invention, there may be provided a computer control method that may control a computer that processes progress of a game involving moving a plurality of objects arranged on a game field. The method may include an accepting step in which operation information regarding a touch operation performed by a user may be accepted, from a certain input face capable of detecting the touch operation; an associating step in which the plurality of objects may be associated as a group; a moving step that may include moving, in a case where the operation information is a direction operation indicating a certain direction, the plurality of associated objects as a group in the direction indicated by the direction operation; and a display processing step that may include displaying the game field and the plurality of objects arranged on the game field on a screen of the game, and, in a case where a moving process is performed in the moving step, that may include displaying the plurality of objects in accordance with the moving process. Upon acceptance of the direction operation as the operation information while a specifying operation that specifies a first object that is any of the plurality of objects is being accepted as the operation information, the remaining objects may be moved in the moving step, excluding the first object from the plurality of objects, as a group in the direction indicated by the direction operation.

According to another exemplary embodiment of the present invention, there may be provided an information processing apparatus that processes progress of a game involving moving a plurality of objects arranged on a game field. The information processing apparatus may include an accepting unit that may accept operation information regarding a touch operation performed by a user, from a certain input face capable of detecting the touch operation; an associating unit that may associate the plurality of objects as a group; a moving unit that may move, in a case where the operation information is a direction operation indicating a certain direction, the plurality of associated objects as a group in the direction indicated by the direction operation; and a display processing unit that may display the game field and the plurality of objects arranged on the game field on a screen of the game, and, in a case where a moving process is performed by the moving unit, may display the plurality of objects in accordance with the moving process. Upon acceptance of the direction operation as the operation information while a specifying operation that specifies a first object that is any of the plurality of objects is being accepted as the operation information, the moving unit may move the remaining objects, excluding the first object from the plurality of objects, as a group in the direction indicated by the direction operation.

According to the game program, the computer control method, and the information processing apparatus according to the exemplary embodiments of the present invention, in a game where a plurality of objects are collectively moved by one swipe operation, more advanced strategies can be used in collectively moving the plurality of objects, and hence a very strategic game can be provided.

BRIEF DESCRIPTION OF THE DRAWINGS

Exemplary FIG. **1** is a functional block diagram of an exemplary embodiment of an information processing apparatus;

Exemplary FIG. **2** is a data conceptual diagram of an example unit arrangement information referred to by a game program.

Exemplary FIG. **3** is a flowchart illustrating an exemplary embodiment of the operation of the information processing apparatus.

Exemplary FIG. **4** is a screen diagram illustrating an exemplary basic screen.

Exemplary FIG. **5**A is a screen diagram illustrating an example of the basic operation and movement of a unit group.

Exemplary FIG. **5**B is a screen diagram illustrating an example of the basic operation and movement of a unit group.

Exemplary FIG. **6**A is a screen diagram illustrating an example of the movement of the unit group while one unit is being fixed.

Exemplary FIG. **6**B is a screen diagram illustrating an example of the movement of the unit group while one unit is being fixed.

Exemplary FIG. **7**A is a screen diagram illustrating an example of movement in the case where one unit of the unit group collides with a boundary.

Exemplary FIG. **7**B is a screen diagram illustrating an example of movement in the case where one unit of the unit group collides with a boundary.

Exemplary FIG. **8**A is a screen diagram illustrating an example of movement in the case where the unit group collides with enemies.

Exemplary FIG. **8**B is a screen diagram illustrating an example of movement in the case where the unit group collides with enemies.

Exemplary FIG. **9**A is a screen diagram illustrating an example of changing the direction of each unit.

Exemplary FIG. **9**B is a screen diagram illustrating an example of changing the direction of each unit.

Exemplary FIG. **10** is a flowchart illustrating an exemplary embodiment of the operation of the information processing apparatus in the case where the example of changing the direction of each unit is conducted.

Exemplary FIG. **11**A is a screen diagram illustrating an example of rotationally moving each unit.

Exemplary FIG. **11**B is a screen diagram illustrating an example of rotationally moving each unit.

Exemplary FIG. **12** is a schematic diagram illustrating an example configuration of a game system including a mobile terminal, and a server apparatus according to a second embodiment of the present invention.

DETAILED DESCRIPTION

According to a first exemplary embodiment, an information processing apparatus (computer) may function as a mobile terminal (client apparatus), and a game program according to an embodiment of the present invention may be executed as a so-called native application (native game) by the mobile terminal. Such an exemplary embodiment may be described with reference to FIGS. **1** to **11**B.

According to a second exemplary embodiment, an information processing apparatus (computer) may function as a server apparatus, the game program according to the embodiment of the present invention may be partially or entirely executed as a so-called web application (web game) by the server apparatus, and the execution result may be returned to the mobile terminal. Such an exemplary embodiment may be described with reference to FIG. **12**.

A game program according to an exemplary embodiment of the present invention may be a game program that may process the progress of a game for moving a plurality of objects arranged on a game field, and may cause a computer to implement an accepting function, an associating function, a moving function, and a display processing function.

An accepting function may accept operation information regarding a touch operation performed by a user, from a certain input face capable of detecting the touch operation. For example, the touch operation may include the player of the game providing an input to a computer by bringing a finger or an indication tool (such as a stylus) into contact with or very close to the input face. In the case where the operation information indicates the coordinates of one point, the operation information may indicate the coordinates, and, in the case where the operation information indicates the coordinates of a plurality of points, the operation information may be information on a trajectory based on a start point (the first touched point) and an end point (a point at which no point is detectable any more after continuously detecting the touch). In the following description, an operation that specifies the coordinates of one point may be described as a touch operation, and an operation that indicates a trajectory that is substantially straight may be described as a swipe operation. A direction operation indicated by the swipe operation may refer to a direction from the start point to the end point.

The associating function may associate the plurality of objects as a group. In the case of associating a plurality of objects, the associating function may associate objects included in a certain range, may associate objects with a certain positional relationship (such as an in-line positional relationship), or, in the case where enemies appear in the game, may associate all objects that operate on the same player side or team, excluding enemies. As an associating technique, for example, a plurality of objects may be collectively stored as one group, a plurality of objects may be associated with each other, or one of a plurality of objects may be associated with all of the remaining objects.

In addition, an object may be, for example, any given electronic data (such as a character, an item, a card, or a building that can be moved by the user as a resource in the game) used by the user in a game implemented by the above-described game program or another game. In the following description, objects are described as user characters **300***a* to **300***j*.

The moving function may move, upon acceptance of a direction operation as operation information while a specifying operation that specifies a first object that is any of a plurality of objects is being accepted as operation information, any remaining objects, excluding the first object from the plurality of objects, as a group in a direction indicated by the direction operation.

"The first object" described above may correspond to, for example, the user unit **300***j* in FIGS. **6**A and **6**B. As depicted in FIGS. **6**A and **6**B, a user has excluded the user unit **300***j* from the plurality of objects in FIG. **6**A, and as a result the user unit **300***j* has not moved in FIG. **6**B despite all of the surrounding units moving. The remaining objects may correspond to the user units **300***a* to **300***i* in the case of FIGS. **6**A and **6**B.

On the game field, a no-move area or an obstacle object into which an object is incapable of progressing may be set. In movement by a moving process, in the case where a second object that is any of the remaining objects is prevented from moving by a no-move area or an obstacle object, the moving function may not move the second object, and may keep the second object as it is at the same position on the game field as the position at which the direction operation has been accepted.

A no-move area may refer to an area into which an object cannot move in the game field. In the following description, the game field where a game medium moves may be configured in the shape of a grid of cells (for example, see FIG. **2**), and among these cells, cells **5***g*, **6***g*, **5***h*, and **6***h* may correspond to no-move areas. Using FIG. **2**, for example, the cell **5***g* refers to the cell at the fifth column, g-th row. In the following description, obstacle objects may correspond to rocks, blocks, walls, and puddles in a first modification.

"The second object" described above may correspond to, for example, the user unit **300***d* in FIGS. **7**A and **7**B or the user unit **300***d* in FIGS. **8**A and **8**B. As depicted in FIGS. **7**A and **7**B, because of the presence of a no-move object in front of the user unit **300***d* in FIG. **7**A, user unit **300***d* is not moved along with the remainder of the units as depicted in FIG. **7**B.

In the game program, in the case that a second object is not moved in a direction indicated by the direction operation, and in the case where there is a remaining object other than the second object on a straight line in the direction indicated by the direction operation, the moving function may not move either the second object or the remaining object.

"The remaining object" described above may correspond to, for example, the user unit **300***h* in FIGS. **7**A and **7**B, and to the user unit **300***h* in FIGS. **8**A and **8**B. As depicted in those figures, user unit **300***h* is on a straight line with the second object **300***d* in the direction of the direction operation. As such, when user unit **300***d* is not moved along with the remainder of the units as depicted in FIG. **7**B, remaining object **300***h* is likewise not moved along with the remainder of the units.

In the case where each of the plurality of objects has a direction, the game program may further cause the computer to implement, upon acceptance of a direction operation as operation information while a specifying operation that specifies a portion other than the plurality of objects is being accepted as operation information, a direction changing function that may change the direction of each of the plurality of objects to a direction indicated by the direction operation.

The direction changing function may be any function as long as it changes the direction of an object on the basis of a user operation. In the following description, the direction changing function is described as a fifth modification.

An exemplary embodiment of the game program may be implemented by at least three configurations described below. That is, the game program may be implemented by (a) a configuration in which a computer functions as a client apparatus (such as a smart phone or a personal computer), and the game program is executed by the client apparatus, (b) a configuration in which the computer functions as a server apparatus (such as a main frame, a cluster computer, or any given computer capable of providing a game service to an external device), the game program is partially or entirely executed by the server apparatus, and the execution result is returned to the client apparatus, or (c) a configuration in which processes included in the game program are arbitrarily shared by the client apparatus and the server apparatus.

Therefore, an exemplary embodiment of the display function implemented by the game program (a) may display the game screen on an external display device (such as a display unit included in a mobile terminal) connected to the computer via a certain network (such as the Internet) so as to be able to communicate with the computer, by outputting information (such as display information) to the display device, or (b) may display the game screen on a display device included in the computer by outputting the display information to the display device.

In addition, according to an exemplary embodiment, the game program may be implemented by (a) a configuration in which a client apparatus connected to the computer via a certain network (such as the Internet) so as to be able to communicate with the computer includes a certain input device, the client apparatus transmits the operation information input via the certain input device to the computer, and an operation information obtaining function implemented by the game program on the computer obtains the operation information, or (b) a configuration in which the computer includes the certain input device, and the operation information obtaining function obtains the operation information via the certain input device.

A game according to a first exemplary embodiment may be intended to cause, in an object group operated by a user (hereinafter referred to as a user unit group), any object (in the first embodiment, the user unit **300***f* set as a leader of the user unit group) included in the user unit group to arrive at a goal arranged somewhere on a game field (hereinafter referred to as a map) set in the form of a grid of cells, from an initial arrangement position. This grid may be configured such that only up to one unit may be arranged in each cell of the grid. In the game, the user may be required to cause the user unit **300***f* to arrive at the goal within a certain number of turns (a certain number of operations) or a certain time while defeating or escaping objects serving as enemies (obstacles) (hereinafter referred to as enemy units).

According to an exemplary embodiment of the game, one swipe operation performed by the user on a touchscreen moves the user unit group as a whole by one cell in a direction indicated by the swipe operation.

According to such an embodiment, when the user performs a swipe operation while performing a touch operation that specifies a user unit of the unit group, the game may fix the user unit specified by the touch operation as it is (that is, the game may not move the specified user unit), and may collectively move the remaining user units of the user unit group by one cell in a direction indicated by the swipe operation.

Accordingly, the game according to the first embodiment can provide a more strategic game because of the unit group movement.

An exemplary embodiment of an information processing apparatus **100** may also be described with reference to the drawings.

Exemplary FIG. **1** is a block diagram illustrating an example of the main configuration of the information processing apparatus **100**. The information processing apparatus (computer) **100** may be an information processing apparatus capable of executing a game program including processes described hereinafter. The information processing apparatus **100** may be, as a specific device, for example, a smart phone, a tablet terminal, a home video game console, a mobile phone, a personal computer, or other electronic devices as long as this device can execute the processes. Note that the game program may be suitably executed by a multifunction device (such as a smart phone) that includes a display (display unit), an input face capable of detecting a touch input, a memory, and one or a plurality of processors capable of executing one or a plurality of programs stored in the memory.

As illustrated in FIG. **1**, the information processing apparatus **100** may include an input unit **110**, a storage unit **120**, a control unit **130**, and a display unit **140**.

According to an exemplary embodiment, the input unit **110** may have an input face capable of detecting a touch input, and may have the function of accepting an input from the user and transferring the accepted input details to the control unit **130**. The input unit **110** may be implemented by, for example, a touch pad included in a mobile terminal. In this case, the input unit **110** may transfer input coordinate information on a point touched by the user on the touch-screen, or, in the case of a swipe operation, may transfer trajectory information of the swipe operation. A swipe operation is an operation of sliding a finger touching on the input face. According to an exemplary embodiment, a swipe operation may be used to identify a direction of moving each user unit. A swipe operation can be regarded as a type of touch operation, that is, a set of touch operations, in which the first touched portion (start point) and a portion where this touching is released (end point) are detected, and a direction from the start point to the end point is identified as a direction that the user wants to specify. For example, when the user slides a finger from right to left on the input face, this swipe operation may indicate movement of each user unit in a leftward direction on the screen. For example, when the user slides a finger from top to bottom on the input face, this swipe operation may indicate movement of each user unit in a downward direction on the screen.

The input face of the input unit **110** may correspond to a display screen of the display unit **140**, and the input coordinate system of the input unit **110** and the coordinate system of the display screen of the display unit **140** may have a corresponding relationship. That is, for example, the user's touching an object displayed on a game screen displayed on the display unit **140** may execute an operation on this object.

According to an exemplary embodiment, the storage unit **120** may have the function of storing the game program and various types of data necessary for executing the game program. The storage unit **120** may be implemented by various recording media, such as typically a hard disk drive (HDD), a solid state drive (SSD), or a flash memory.

The storage unit **120** may retain map information **200** used by the game program. The map information **200** may include information indicating the state of the map, and each unit's arrangement position. The map information **200** will be described in detail later. The storage unit **120** may also retain group information (not illustrated) regarding the user unit group to be collectively moved, and the group information may include the identifiers of user units of the user unit group. In response to detection of a swipe operation performed by the user, each unit included in the group information may progress one cell in a direction indicated by the swipe operation, as long as its progression is not hindered.

The storage unit **120** also stores parameters of each of user units and each of enemy units used in the game (such as a hit point (HP) indicating the physical strength, usable special capabilities (such as magical ability, skills, etc.), offensive ability, defensive ability, and speed).

According to an exemplary embodiment, the control unit **130** may be a processor with the function of executing the progress of the game. Upon acceptance of an instruction to start the game, the control unit **130** may display a game screen on the display unit **140**, and may cause the game to progress in accordance with a user input from the input unit **110**. The control unit **130** may provide a stage where the user plays, and, in the case where the user succeeds in causing a user unit to arrive at a set goal, the control unit **130** may prepare the next stage. The shape of the map, the position at which each enemy unit is arranged, and enemy units to be arranged may all be different from one stage to another.

The control unit **130** may also include an accepting unit **131**, a moving processor **132**, a battle processor **133**, an associating unit **134**, and a display processor **135**.

According to an exemplary embodiment, the moving processor **132** may have the function of executing a process of moving the user unit group in accordance with an input from the input unit **110**, and executing a process of moving enemy units in accordance with a predetermined algorithm. In the case where a touch input is transferred from the input unit **110**, the moving processor **132** may identify the position where the touch operation has been input, and may identify a user unit displayed in accordance with that input position. In addition, in the case where a swipe input is input from the input unit **110**, the moving processor **132** may identify the start point and the end point of the swipe input on the game screen, and may determine a direction from the start point to the end point as a direction of moving each user unit.

Regarding the process of moving each user unit, the moving processor **132** may be configured to execute two types of moving processes. That is, these are the following two types.

(1) In the case where a swipe operation is transferred from the input unit **110**, the moving processor **132** may collectively move the user unit group by one cell in a direction indicated by the swipe operation.

(2) In the case where a swipe operation is transferred from the input unit **110** and additionally detection of a touch operation has been transferred from the input unit **110**, the moving processor **132** may fix (does not move) a user unit specified by the touch operation, and may collectively move the remaining user unit group in a direction indicated by the swipe operation.

In execution of these two types of moving processes, the moving processor **132** may determine whether each user unit of the user unit group can move, and, if that user unit can move, may determine that user unit's destination, and may collectively move user units of the user unit group that can move. If a certain unit cannot move, this may be for several reasons: that user unit may have been specified by the user, as indicated in the above-described moving process (2); the unit's planned destination may be a no-move area; and that user unit may be fixed at a planned destination. Hereinafter, the case in which a planned destination is not a no-move area and there is no user unit fixed at that planned destination will be represented as the fact that the planned destination is empty.

According to an exemplary embodiment in which a user unit group may be moved in a direction indicated by a swipe operation, the moving processor **132** may determine the planned destination of a user unit at the front and so on, and, when the planned destinations of all user units are determined (including the case of not moving), the moving processor **132** may collectively move user units that are not fixed. Here, if there is a plurality of user units at the front in the case of moving in a direction indicated by a swipe operation, the moving processor **132** may sequentially determine the planned destinations of these user units at the front (in a randomly selected order or in an order in accordance with a certain criterion).

According to an exemplary embodiment, where there is an enemy unit in a cell at the planned destination of a user unit, the moving processor **132** may transfer a combination of the identifier of the user unit and the identifier of the enemy unit, for which a battle (fighting) is to be executed, to the battle processor **133**, and may request the battle processor **133** to perform a battle process. Once the battle process has been completed, the moving processor **132** may receive a notification of a battle process end from the battle processor **133**. In the case where the notification includes information on the enemy unit, the moving processor **132** may move that enemy unit one cell back in a direction indicated by the swipe operation. If there is a second enemy unit arranged in a direction of moving the aforementioned enemy unit back, the moving processor **132** may also move the second enemy unit back.

Next, in order to move user units, the moving processor **132** may determine the destination of a user unit at the front and so on in a direction indicated by the swipe operation. If there is a plurality of user units positioned at the front, the moving processor **132** may select one of these user units at a time and may determine the destination of that user unit. At this time, if the destination is a no-move area, the user unit to be moved to that no-move cell may be fixed (not moved) at the current position prior to the movement. In addition, if there is a user unit that is to be moved to a cell where there is a fixed user unit (a user unit specified by a touch operation performed by the user, and a user unit to be moved to a no-move cell), the user unit to be moved may be fixed.

After the battle process is finished and user unit(s) are fixed, the moving processor **132** may collectively move movable user units of the user unit group, that is, unfixed user units, by one cell in a direction indicated by the swipe operation. After this movement, the fixing of the fixed user unit(s) may be released.

Although the movement of the user units has been described in detail here, enemy units may also move in accordance with a predetermined algorithm, like the user units.

The moving processor **132** may transfer the movement result of the moving process to the display processor **135**.

According to an exemplary embodiment, in the case where there is an enemy unit in a cell at the destination of a user unit or in the case where there is a user unit in a cell at the destination of an enemy unit as a result of movement performed by the moving processor **132**, the battle processor **133** may have the function of executing a battle process between the user unit and the enemy unit. In response to a request from the moving processor **132**, the battle processor **133** may execute a battle process between units that are included in a notification.

Parameters (such as HP (physical strength), offensive ability, and defensive ability) may be set for each of the user unit(s) and the enemy unit(s), and the battle processor **133** may execute a process regarding a battle in accordance with a predetermined battle algorithm. In the case where the user unit loses in the battle process, information identifying the defeated user unit may be deleted from the later-described map information **200**; and, in the case where the user unit wins in the battle process, information identifying the defeated enemy unit may be deleted from the map information **200**. The battle processor **133** may be configured to regard the case where, as a result of the battle process, the HP of the user unit is greater than zero and the HP of the enemy unit is zero as the user unit's victory, and the case in which the HP of the user unit is zero and the HP of the enemy unit is greater than zero as the user unit's defeat. In addition, the battle processor **133** may regard the case in which, as a result of the battle process, the HPs of both the user unit and the enemy unit are not zero (that is, both of the units have remaining HPs) as a draw. Note that the battle processor **133** may display on the screen an effect indicating victory, defeat, or the like of the battle.

The battle processor **133** may transfer a notification of the battle process end (including information on the enemy unit with which the user unit has tied) to the moving processor **132**, and may transfer display data regarding the battle to the display processor **135**.

According to an exemplary embodiment, the associating unit **134** may have the function of associating a user unit group that moves in a group as a group, and storing the group in the storage unit **120**. In the first embodiment, the associating unit **134** may associate the user units **300***a* to **300***j* as a group.

According to an exemplary embodiment, the display processor **135** may generate display data in accordance with the movement result transferred from the moving processor **132** and the battle result transferred from the battle processor **133**, and may write the display data in a frame memory of the display unit **140**.

The display unit **140** may be a monitor that has the function of accepting an instruction from the control unit **130** and displaying an image.

According to an exemplary embodiment, the input unit **110** and the display unit **140** may be implemented by a touchscreen including the input unit **110** and the display unit **140** superimposed on each other.

Turning now to exemplary FIG. **2**, FIG. **2** displays an example of a data conceptual diagram of the map information **200** to which the game program refers, which may also be information indicating the arrangement position of each unit.

According to an exemplary embodiment, the map information **200** may correspond to a game field configured in the form of a grid of cells on a game screen. That is, each cell indicated by each row and each column of the map information **200** may correspond to the state of each cell displayed as a game field. The state of each cell may refer to information associated with a cell, such as whether a unit is arranged in that cell, whether that cell is a cell into which a unit can move, or whether another object is arranged in that cell.

In each cell in the map information **200**, if a unit is arranged in that cell, an identifier unique to that unit may be associated with that cell. In addition, if a cell is not on the map, or if the cell is otherwise a cell into which a unit cannot move, information indicating that that cell is a no-move cell may be associated with that cell. In FIG. **2**, the symbol "x" may be used as information indicating a no-move cell. Although not illustrated in FIG. **2**, the term "goal" may be indicated in a cell serving as a set goal in the map information **200**.

As illustrated in FIG. **2**, for example, the user unit "**300***i*" may be arranged in the cell "**2***b*", and the enemy unit "**310***b*" may be arranged in the cell "**3***g*". In addition, as depicted in exemplary FIG. **2**, the cell "**5***g*" may be a no-move cell.

According to an exemplary embodiment, the control unit **130** may make use of the map information **200** in order to manage each unit and its movement.

Turning now to exemplary FIG. **3**, FIG. **3** depicts a flowchart illustrating an example of the operation of the information processing apparatus **100**. According to an exemplary embodiment, a process of moving the user unit group in response to an input from the user may be described. Descriptions of the other game elements may be omitted since the specification of a game in the related art is applicable to these other game elements.

The input unit **110** of the information processing apparatus **100** may detect a swipe operation performed by the user, and may transfer the detection of the swipe operation to the control unit **130** (step S**301**).

At this time, in the case where the input unit **110** is detecting a touch operation performed by the user (YES in step S**302**), the input unit **110** may transfer the detection of the touch operation to the control unit **130** successively (such as every second). In response to the transfer of the detection of the user's touch operation, the moving processor **132** may fix (does not move) a user unit associated with the coordinates where the touch operation has been performed (step S**303**).

In response to a swipe operation, if no touch operation is being detected (NO in step S**302**), the operation may proceed to step S**304**.

For the user unit group, the moving processor **132** may determine whether there is a user unit whose planned destination is a cell where an enemy unit is arranged (step S**304**). The moving processor **132** may perform this determination using the map information **200**.

In the case where there is a user unit whose planned destination has an enemy unit arranged therein (YES in step S**304**), the moving processor **132** may transfer information on a combination of the user unit and the enemy unit who are in conflict with each other to the battle processor **133**, and may request the battle processor **133** to perform a battle process (step S**305**).

The battle processor **133** may execute a battle process between the user unit and the enemy unit included in the transferred information. The battle processor **133** may execute a battle process in accordance with a certain battle algorithm on the basis of the parameters of the user unit and the parameters of the enemy unit included in the transferred information (step S**305**). If the result of the battle process is that there is a defeated unit, the battle processor **133** may delete that unit from the map information **200**, and may notify the moving processor **132** of the fact that the battle process has ended, along with the result of the battle process. If there is an enemy unit with which the user unit has tied, the moving processor **132** may move that enemy unit back by one cell in a direction indicated by the swipe operation.

According to an exemplary embodiment, the moving processor **132** may determine whether to move each user unit.

If it is assumed that a direction indicated by the swipe operation is a direction in which the user unit group progresses, the moving processor **132** may sequentially determine whether each user unit is movable, starting from a user unit positioned at the front.

According to an exemplary embodiment, in order for the moving processor **132** to determine whether or not a unit is able to move, the moving processor **132** may determine whether the user unit is immovable to a cell at its planned destination (step S**306**). The moving processor **132** may determine whether a user unit is immovable to its planned destination by determining whether the planned destination is set as a no-move area in the map information **200** or whether there is a user unit fixed at the planned destination.

In the case where a user unit is immovable to its planned destination (YES in step S**306**), the moving processor **132** may fix (does not move) the user unit (step S**307**), and may determine whether the next user unit is movable. In the case where the user unit is not immovable to its movement destination, the moving processor **132** may determine whether the next user unit is movable.

After determining whether all the user units are immovable to their planned destinations, the moving processor **132** may collectively move unfixed user units by one cell in a direction indicated by the swipe operation (S**308**).

The process indicated in FIG. **3** may be repeated, in order to make the user unit **300***f* with a crown arrive at a goal. When the user unit **300***f* with a crown arrives at a goal set in one of the cells on the map, this may mean that the user has cleared the map, and a new map may be made available to the user to challenge.

Hereinafter, a specific example of the movement of user units using display examples will be described.

Exemplary FIG. **4** depicts a diagram illustrating one display example of a game screen.

In accordance with an instruction from the display processor **135** included in the control unit **130**, the display unit **140** may display a game screen such as that illustrated in FIG. **4**. The display unit **140** may display a game screen on which the map with the shape indicated by the map information **200** is displayed in three dimensions, and the user units **300***a* to **300***i* and the enemy units **310***a* to **310***f* are arranged at positions indicated by the map information **200** and displayed in three dimensions. The user may operate the user units **300***a* to **300***i* of the user unit group, and may cause the user unit **300***f* with a crown to arrive at a goal. According to an exemplary embodiment, it may be assumed that only one unit can be arranged in one cell.

Turning now to exemplary FIGS. **5**A and **5**B, FIGS. **5**A and **5**B depict diagrams illustrating a specific example of the movement of user units in the case where the user performs a swipe operation on the screen, that is, on the input unit **110**.

According to the exemplary embodiment of the screen of the information processing apparatus **100** in a display state that is displayed in FIG. **4**, a set of units may initially be at rest. Then, as displayed in FIG. **5**A, a user may perform a swipe operation of sliding a finger from right to left.

According to this embodiment, the moving processor **132** may collectively move the user units **300***a* to **300***j* of the user unit group leftward on the screen as depicted in FIG. **5**B.

Specifically, the moving processor **132** may determine each user unit's destination, starting from a user unit(s) positioned at the front in a direction of movement indicated by the swipe operation, and may collectively move the user unit group. Regarding a user unit(s) positioned at the front in the user unit group, since the swipe operation is performed from right to left in the case of FIG. **5**A and indicates a leftward direction, the user units **300***a*, **300***b*, **300***c*, and **300***d* may be user units positioned at the front. The moving processor **132** may first determine the planned destinations of these user units **300***a* to **300***d*.

According to this exemplary embodiment, since the planned destination e**1** of the user unit **300***a* is empty, the moving processor **132** may not fix the user unit **300***a*. Similarly, since the planned destinations **2***e* to **4***e* of the user units **300***b* to **300***d* are empty, the moving processor **132** may not fix the user units **300***b* to **300***d*. Although the user unit **300***a* is arranged at the planned destination of the user unit **300***e*, the user unit **300***a* is not fixed and is movable, that is, the planned destination **2***d* is empty. Therefore, the moving processor **132** may not fix the user unit **300***e*. Similarly, since the planned destinations **2***d*, **3***d*, and **4***d* of the user units **300***f* to **300***h* are empty, the moving processor **132** may not fix the user units **300***f* to **300***h*. Similarly, since the planned destinations **2***c* and **3***c* of the user units **300***i* and **300***j* are empty, the moving processor **132** may not fix the user units **300***i* and **300***j*. Therefore, the moving processor **132** may not fix all the user units, and may collectively move all the user units

300*a* to **300***j* by one cell in a direction indicated by the swipe operation, in this case leftward on the screen.

As a result, as illustrated in exemplary FIG. **5**B, each user unit may move to the left by one cell. This operation so far is a basic operation of moving the user unit group. As a result of one swipe operation, the user units **300***a* to **300***j* may be collectively moved in a direction indicated by the swipe operation.

FIGS. **6**A and **6**B are diagrams illustrating a specific example of the movement of the user unit group in the case where the user performs a swipe operation while performing a touch operation that specifies a particular user unit.

As illustrated in exemplary FIG. **6**A, a user may execute a swipe operation of sliding a finger from right to left, while touching the user unit **300***j*.

In response to this, as illustrated in FIG. **6**B, the user unit **300***j* touched by the user may be fixed at its position, and the remaining user units **300***a* to **300***i* may move to the left by one cell.

For example, the moving processor **132** may fix a user unit **300***j* that is specified by a touch operation, so as not to cause it to move. According to the exemplary embodiment displayed in FIG. **6**A, the specified user unit may be indicated by a cursor in order to clearly show that the user unit has been specified; however, this is not essential. Next, since the planned destination **2***e* of the user unit **300***a* is empty, the moving processor **132** may not fix the user unit **300***a* as may have happened if the planned destination **2***e* of the user unit **300***a* was occupied. Similarly, since the planned destinations **3***e*, **4***e*, and **5***e* of the user units **300***b* to **300***d* are empty, the moving processor **132** may not fix the user units **300***b* to **300***d*. Since the planned destination **2***d* of the user unit **300***e* is empty, the moving processor **132** may not fix the user unit **300***e*. Similarly, since the planned destinations **3***d*, **4***d*, **5***d*, and **2***c* of the user units **300***f* to **300***i* are empty, the moving processor **132** may not fix the user units **300***f* to **300***i*. The user unit **300***j* has already been fixed. Therefore, the moving processor **132** may not fix the user units **300***a* to **300***i* except for the user unit **300***j*, and may collectively move all the user units **300***a* to **300***i* except for the user unit **300***j* by one cell in a direction (leftward on the screen) indicated by the swipe operation.

By incorporating this movement operation, while one or some of the user units are being left as they are (not moved), the remaining user units can be collectively moved, thereby implementing a more strategic movement operation. By not moving one or some of the user units in accordance with the user's selection operation and by moving the remaining user units, the formation of the user units can be transformed to the user's desired shape. Since it is necessary to leave as many user units as possible in order to arrive at a goal, it is necessary for the user to appropriately transform the formation while taking into consideration enemy units and obstacles provided on the map. Accordingly, the game may become a more strategic game.

Turning now to exemplary FIGS. **7**A and **7**B, FIGS. **7**A and **7**B depict diagrams illustrating an example of the movement of the user unit group in the case where there is a user unit that is trying to move to a no-move cell.

According to the exemplary embodiment shown in FIG. **7**A, it is assumed that the user units **300***a* to **300***j* of the user unit group are arranged on the map. As illustrated in FIG. **7**A, there may be no cell to the left of the user unit **300***d* at the left side of the screen, which may make the user unit **300***d* immovable.

According to an exemplary embodiment, in such an arrangement state, the user may perform a swipe operation of sliding a finger from right to left, as illustrated in FIG. **7**A.

According to this exemplary embodiment, in response to this swipe operation, the user unit **300***d* may not be able to move since the leftward direction, that is, the planned destination **5***g*, is a no-move area. Therefore, the user unit **300***d* may be fixed to the current position (cell **5***f*). That is, the user unit **300***d* may not be moved.

According to an exemplary embodiment where the user unit **300***d* has been fixed, the user unit **300***d* may be fixed and arranged at the planned destination **5***f* of the user unit **300***h*. Therefore, according to this exemplary embodiment, the planned destination **5***f* of the user unit **300***h* may not be empty and the user unit **300***h* cannot be moved either; thus, the user unit **300***h* may be fixed as well.

Therefore, as a result of a swipe operation performed in the arrangement state illustrated in FIG. **7**A, the user units **300***a*, **300***b*, **300***c*, **300***e*, **300***f*, **300***g*, **300***i*, and **300***j* may collectively move to the left by one cell, as illustrated in FIG. **7**B. In contrast, the two cells, namely, the user unit **300***d* whose destination is a no-move area, and the user unit **300***h* whose destination is occupied by the user unit **300***d*, may not move, and may remain at their current positions. That is, the user units **300***d* and **300***h*, which are arranged in the cell **5***f* and the cell **5***e*, respectively, as illustrated in FIG. **7**A, may remain in the cell **5***f* and the cell **5***e*, respectively, after the user performs a swipe operation to the left. Since, according to an exemplary embodiment, it may be necessary to leave as many user units as possible in order to arrive at a goal, it may be necessary for the user to appropriately transform the formation while taking into consideration the shape of the map.

According to an exemplary embodiment, there may be a case where there is an enemy unit at a user unit's destination. Movement in that case may be described using FIGS. **8**A and **8**B.

According to such an exemplary embodiment, and as illustrated in FIG. **8**A, the user units **300***a* to **300***c* and the enemy units **310***a* to **310***c* may be arranged facing each other.

According to an exemplary embodiment, a user may perform a swipe operation of sliding a finger from right to left, as illustrated in FIG. **8**A. Therefore, since the user units may progress leftward on the screen in this case, the user units **300***a* to **300***d* on the left side of the screen may be user units positioned at the front.

According to this exemplary embodiment, the enemy units **310***a* to **310***c* may be arranged at the planned destinations **2***g*, **3***g*, and **4***g* of the user units **300***a* to **300***c*. When the user attempts to move user units **300***a* to **300***c* to the planned destinations **2***g*, **3***g*, and **4***g*, the moving processor **132** may request the battle processor **133** to perform a battle process between the units that are in conflict with each other.

According to the exemplary embodiment displayed in FIG. **8**B, the user unit **300***a* may be defeated by the enemy unit **310***a*; the battle between the user unit **300***b* and the enemy unit **310***b* may end in a draw (the HPs of the two units do not become zero in the battle); and the user unit **300***c* may defeat the enemy unit **310***c*. In this case, the battle processor **133** may delete the user unit **300***a* and the enemy unit **310***c* from the map information **200**. The battle processor **133** may cause the display processor **135** to display a screen from which the user unit **300***a* and the enemy unit **310***c* are deleted.

Thereafter, the battle processor **133** may notify the moving processor **132** that the battle has ended. The notification may include information on the enemy unit **310***b*. Upon receipt of the battle process end notification, the moving processor **132** may move the enemy unit **310***b* back by one cell in a direction indicated by the swipe operation (in this case, moving the enemy unit **310***b* to the left by one cell). Since the enemy unit **310***e*, being located immediately behind the enemy unit to be moved **310***b*, is arranged in the direction of movement of the enemy unit **310***b*, the moving processor **132** may additionally move the enemy unit **310***e* back by one cell. As a result, the enemy unit **310***b* moves to the cell **3***h*, and the enemy unit **310***e* moves to the cell **3***i*. The moving processor **132** may perform a process of moving the remaining user units **300***b* to **300***j* in a direction indicated by the swipe operation (leftward on the screen in the case of FIG. **8**B).

The moving processor **132** may first determine the movement destinations of the user units (**300***b* to **300***d*) that are, when a direction of moving the remaining user units (**300***b* to **300***j*) of the user unit group is considered, positioned at the front of the user unit group. Looking first at user unit **300***b*, since the enemy unit **310***b*, which has tied in the battle, is moved back by one cell and the planned destination **3***g* is empty, the moving processor **132** may not fix the user unit **300***b*. Since the user unit **300***c* has defeated the enemy unit **310***c* and the planned destination **4***g* is empty, the moving processor **132** may not fix the user unit **300***c*. Since the planned destination **5***g* of the user unit **300***d* is a no-move area and not empty, the moving processor **132** may fix the user unit **300***d*. Since the planned destination **2***f* of the user unit **300***e* is empty because the user unit **300***a* has been defeated in the battle and the cell where the user unit **300***a* had been is now an empty cell, the moving processor **132** may not fix the user unit **300***e*. Since the planned destination **3***f* of the user unit **300***f* is empty, the moving processor **132** may not fix the user unit **300***f*. Since the planned destination **4***f* of the user unit **300***g* is empty, the moving processor **132** may not fix the user unit **300***g*. Since the user unit **300***d* is arranged at the planned destination of the user unit **300***h* and the planned destination is not empty, the moving processor **132** may fix the user unit **300***h*. Since the planned destination **2***e* of the user unit **300***i* is empty, the moving processor **132** may not fix the user unit **300***i*. Since the planned destination **3***e* of the user unit **300***j* is empty, the moving processor **132** may not fix the user unit **300***j*.

Thereafter, the moving processor **132** may collectively move the unfixed user units **300***b*, **300***c*, **300***e*, **300***f*, **300***g*, **300***i*, and **300***j* to the left by one cell. After this movement, the moving processor **132** may release the fixing of the fixed user units.

Therefore, as a result of a swipe operation performed by the user in FIG. **8**A, the user unit **300***a* may be deleted from the map; the user units **300***d* and **300***h* may not move; and the user units **300***b*, **300***c*, **300***e*, **300***f*, **300***g*, **300***i*, and **300***j* may move to the left by one cell, as illustrated in FIG. **8**B.

By performing movements such as those illustrated in FIGS. **5**A to **8**B, the user may cause the user unit **300***f* to arrive at a goal. Movement by one cell may consume one turn. If the user succeeds in moving a user unit to a goal within a certain number of turns, the game may proceed to the next stage; if not, the user may have to play the game again.

As such, according to an exemplary embodiment, it may become possible to provide a simple-to-operate yet deep game for causing a user unit to arrive at a goal, where the user unit group may be operated simply by two types of simple operations (a swipe operation, and a swipe operation while a user unit is being specified) as described above.

Turning now to exemplary FIG. **12**, an exemplary embodiment of the present invention will be described. In the exemplary embodiment of FIG. **12**, only configurations that are different from those included in previous embodiments may be described. All the configurations described in other embodiments may be included in the exemplary embodiment of FIG. **12** (and vice versa). The definitions of terms described in other exemplary embodiments may be the same in the exemplary embodiment of FIG. **12**.

FIG. **12** is a schematic diagram illustrating an exemplary configuration of a game system **500** including an information processing apparatus **100** and a server apparatus **400**. As illustrated in FIG. **12**, there may be an exemplary embodiment in which a computer according to an embodiment of the present invention may function as a server apparatus **400** connected to an information processing apparatus **100** via a network so as to be able to communicate with the information processing apparatus **100**, and a game program according to an embodiment of the present invention may be executed by the server apparatus **400**.

The server apparatus (computer) **400** may be an information processing apparatus that may include the control unit **130**, which may be included in the information processing apparatus **100** as in previous embodiments, and which can execute a game program including some or all of the processes described in previous embodiments. The server apparatus **400** may receive instruction information **700** input by a player (in the case of a touch operation, position information indicating a touched position; and, in the case of a swipe operation, direction information indicated by the swipe operation) via the certain network. The server apparatus **400** transmits display information **600** for moving a user unit group including a plurality of user units to the information processing apparatus **100** via the network.

In other words, the server apparatus **400** may include the control unit **130**, which may be included in the information processing apparatus **100** as in other embodiments. The control unit **130** may receive input data, which may be directly received from the input unit **110** according to other embodiments, from the information processing apparatus **100** via the network in the exemplary embodiment of FIG. **12**. The control unit **130** may execute a process in accordance with the obtained input data, and the display processor **135** may output image data. The output image data may be transmitted via the network.

The information processing apparatus **100** may receive the result of playing the game from the server apparatus **400**, and may display the result on the display unit **140**. According to an exemplary embodiment, the play result may be displayed via a web browser, and the information processing apparatus **100** can accumulate information received from the server apparatus **400**, for example, in a certain storage area (web storage) included in the web browser.

In this manner, the server apparatus **400** may include some or all of the elements of the control unit **130** described as being included in the information processing apparatus **100** in other exemplary embodiments, and the server apparatus **400** can be configured to transmit a game output result to the information processing apparatus **100** on the basis of an input given to the information processing apparatus **100**. Accordingly, the server apparatus **400** may achieve the same advantageous effects as those achieved by the information processing apparatus **100** does in the exemplary embodiments where the information processing apparatus **100** provides these functions.

The concept of the present invention is not construed to be limited to those embodiments that have been previously described. Hereinafter, various modifications and alternative embodiments may be described.

Although an exemplary game in which enemy units appear as obstacles to user units has been discussed in the above embodiments, examples of obstacles to user units are not limited thereto. According to an exemplary embodiment, obstacle objects that prevent user units from progressing, such as rocks, blocks, walls, buildings, or puddles, may be arranged as obstacles. In the case of rocks, blocks, walls, or buildings, parameters such as HPs and defensive abilities may be set to these obstacles, and accordingly these obstacles may be destroyable. In the case of puddles, some sort of game processing may be performed to change the puddles to enable user characters to progress into the puddles (such as by freezing the puddles, or putting soil into the puddles to make a road).

Although an exemplary game in which the user moves user units while defeating enemy units has been discussed in the above embodiments, the game is not limited thereto. The method of operating objects (user units) according to the above-described embodiments may be applicable to any game that includes user-operable objects, and may include a process of collectively moving these objects. In that case, the method of operating objects (user units) according to the above-described embodiments may also be applicable not only to a game, but also to the case in which a group of objects displayed on a screen is collectively operated (to change display positions).

Although an exemplary game in which user units are moved on a map in the form of a grid of cells has been discussed in the above embodiments, the game is not limited thereto.

According to an exemplary embodiment, the game may be configured to allow user units to be freely movable on the game field. For example, the game may be configured to allow the user unit group to follow a position that the user touches on the input unit **110**. While the user continuously specifies, with a touch operation, one user unit included in the user unit group, the game may be configured to allow the remaining user units to follow another position that the user touches with another finger on the input unit **110**.

Although a battle process may be performed between a user unit and an enemy unit on the basis of their parameters in the above-described embodiments, according to an exemplary embodiment, a battle may be simplified by letting, if a unit that is moving comes into contact with an enemy, that moving unit always win.

In the above-described embodiments, as a method of operating user units, in the specification of collectively moving user units, an example has been discussed in which, while a particular unit is specified with a touch operation and that particular unit is fixed (not moved), the remaining user units may be caused to progress by one cell.

As a special method of moving the user units, the following examples may be performed, besides the above case.

For example, according to one exemplary embodiment, a direction parameter may be set for each unit (user unit, enemy unit). As illustrated in FIG. **9**A, a user may execute a swipe operation, while touching a portion other than the user units. In response to this, the user units directed leftward on the screen, as illustrated in exemplary FIG. **9**A, may be displayed so as to be directed to a different side on the screen, as illustrated in exemplary FIG. **9**B (where the units are directed to face the screen).

That is, according to an exemplary embodiment where the input unit **110** detects a swipe operation while detecting a touch operation that specifies a portion where no user unit is arranged, the information processing apparatus **100** may execute a process of changing the direction of each user unit and a process of displaying that result.

The operation of the information processing apparatus **100** in the case of including this direction changing operation in this case can be performed by, for example, changing the flowchart illustrated in FIG. **3** used in previous embodiments to the flowchart illustrated in FIG. **10**. Specifically, the flowchart in exemplary FIG. **10** may add certain steps to FIG. **3**, which may be as follows. First, in the case where there is a touch operation, it may be determined whether a portion specified by that touch operation is a user unit or a portion other than the user units (step S**1001**); second, in the case where a portion other than the user units is specified, a direction changing process of changing the direction of each user unit to a direction indicated by the swipe operation (step S**1002**) may be performed.

In the case where a direction is set for each user unit as described above, if the game is set to allow each user unit to move only in its directed direction, the user may have to take into consideration how to move each user unit in order to arrive at a goal. Therefore, a more strategic game can be provided.

In the case of performing a battle, the following processes may be performed. That is, for example, in the case where a user unit (enemy unit) attacks an enemy unit (user unit), if the user unit (enemy unit) attacks the enemy unit (user unit) from behind, the enemy unit (user unit) may receive damage that is twice as powerful as that received when attacked from the front. In the case of attacking an enemy unit (user unit) from its side, the enemy unit (user unit) may receive damage that is 1.5 times more powerful. In doing so, a more strategic game can be provided.

Other methods of movement, for example, a configuration that executes a rotational movement, may also be implemented.

Exemplary FIGS. **11**A and **11**B illustrate one such specific example. FIGS. **11**A and **11**B are diagrams illustrating an example by which user units may be moved by a rotational movement.

For example, according to the exemplary embodiment illustrated in FIG. **11**A, a user unit **300***a* may be arranged in the cell **3***c*, a user unit **300***b* may be arranged in the cell **4***c*, and a user unit **300***c* may be arranged in the cell **5***c*.

According to this exemplary embodiment, a user may perform a swipe input in the shape of a circular arc, while touching the cell **5***f*.

In response to this, as illustrated in FIG. **11**B, the user unit group may move to positions after a rotational movement is performed around the cell (**5**, *f*), which is the position that the user is touching. That is, the user unit **300***a* may move to the cell **2***h*, the user unit **300***b* may move to the cell **2***g*, and the user unit **300***c* may move to the cell **2***f*.

Note that the angle of rotation in a rotational movement may depend on an angle formed by the start point and the end point of a swipe operation in the shape of a circular arc, and the position of a touch operation, or the angle of rotation in a rotational movement as a result of one swipe operation in the shape of a circular arc may be set to a predetermined value (such as 90 degrees).

Such moving processes may be performed.

Although the game according to the above-described embodiments may have as its win condition causing the user unit **300***f* with a crown to arrive at a goal, according to an alternative exemplary embodiment, the game may instead have as its win condition causing any user unit to arrive at a goal, instead of a specific user unit.

Although the storage unit **120** may be configured to retain group information in the above-described embodiments, according to an exemplary embodiment, the group information may be retained to enable the user unit group to collectively move, and other information may be retained as long as that information enables the user unit group to collectively move. For example, the information may be one in which a specific user unit of the user unit group is associated with another user unit, or the information may be implemented by a configuration where each user unit has, as its parameter, information indicating that the user unit is a unit that assumes to move collectively with other user units.

Although a game of the type where the user operates a user character to arrive at a goal has been described as an example in the above-described embodiments, according to an exemplary embodiment, the operation method discussed in the above-described embodiments may also be applicable to other games.

For example, a target to be operated may be a card in a card game. As a method of using the operation method discussed in the above-described embodiments, the operation method can be used to exchange cards in a deck having a plurality of cards in a card game. That is, while cards to be left in a deck having a plurality of cards may be being specified with a touch operation, a swipe operation may be performed with another finger, thereby changing untouched cards to other cards. Alternatively, if each card has a face and a back, a swipe operation may invert the untouched cards from one side to the other, instead of changing the cards.

According to an alternative exemplary embodiment, in a game where buildings (facilities) are placed on a map and users attack and defend each other, like a strategy game, the operation method discussed in the above-described embodiments may be applicable to an operation of leaving one or some of the buildings (facilities) and moving the rest of the buildings (facilities) at the same time. For example, buildings (facilities) in the above-mentioned strategy game may include those for attacking enemy characters (such as cannons or houses (places) where characters are waiting to attack), those that protect the user's map (area) from enemy characters' attacks (such as walls or fences), those for accumulating costs (such as virtual currency, fuels, or foods) used in the game, and those for training the user's characters. In other words, while one or more not-to-be-moved buildings are being touched, when a swipe operation is performed with another finger, the remaining buildings (untouched buildings) may be moved in a direction indicated by the swipe operation. In addition, the rotational movement discussed in a previous embodiment may also be applied.

Furthermore, the operation method discussed in the above-described embodiments may also be applicable to a game where the board can be moved (such as a puzzle game), where a portion of the board is specified by a touch operation and the remaining board is moved by a swipe operation.

Accordingly, the operation method discussed in the above-described embodiments in which, while a touch operation is being performed, a swipe operation may be performed with another finger can be used in various applications.

In the above-described embodiments, as the operation of leaving a certain unit as it is and collectively moving the remaining units, a swipe operation may be performed while touching the certain unit. However, the operation is not limited to that described above. Alternatively, while the certain unit is touched to be selected, the finger that is touching the certain unit may be released, and then a swipe operation may be performed. After the movement as a result of the swipe operation, the certain user unit may be deselected. In the case of this operation method, the user may no longer need to keep touching a user unit that the user does not want to move.

Although the user units may move one cell at a time in the above-described embodiments, the number of cells that the user units can move at a time may not be limited to one. The number of cells that the user units can move at a time may be a predetermined number greater than or equal to two, or may be a number in accordance with the distance between the start point and the end point of a swipe operation.

Although it has been described in the above-described embodiments that a swipe operation indicates only one direction (a straight line connected between the start point and the end point), according to an exemplary embodiment, a user may optionally perform an operation of inputting a polygonal chain of two line segments while continuing to touch the device. In this case, it may be regarded that two swipe operations are performed in which the vertex between the two line segments serves as the first end point and the second start point.

Although only one unit can be arranged in one cell in the above-described embodiments, according to an exemplary embodiment the number of units that can be arranged in one cell may not be limited to one. A plurality of units may be arranged in one cell, or one cell may be arranged so as to occupy a plurality of cells.

In the above-described embodiments, for the user unit group, group information associated by the associating unit **134** may be stored in the storage unit **120**. That is, the above-described embodiments describe an example in which the user unit group may be predetermined by the game program. However, the user unit group is not limited to that described above.

That is, the game program may have the function of specifying, by the user, user units that move as a user unit group. There are various methods of specifying user units. In one example, user units included in a range specified by a so-called drag operation may be specified as a user unit group.

In the above-described embodiments, one user unit may be specified by a touch operation and is not moved. However, according to an exemplary embodiment, a plurality of user units rather than a single user unit may be specified not to be moved. In addition, for example, a cell for specifying a column or a row may be provided at the end of the map discussed in the above-described embodiments, and, if a swipe operation is performed while touching that cell, user units arranged in the column or row specified by touching that cell may be fixed as user units not to be moved. Alternatively, a plurality of user units arranged in the same column or row adjacent to (consecutive to) a user unit specified by a touch operation performed by the user may be fixed as user units not to be moved. Conversely, user units other than those arranged in the specified column or row may be fixed as user units not to be moved. That is, user units arranged in the specified column or row may be moved while keeping the relative positional relationships among the user units that are arranged. The method of specifying user units to move may be one that uses a cell capable of specifying a column or a row, or one that specifies a plurality of user units arranged in the same column or row based on one specified user unit. For example, when one user unit is specified, a button for selecting each column or row may be displayed, and, in response to selecting the button, a plurality of user units arranged in the same column or row adjacent to (consecutive to) the specified user unit can be specified. Alternatively, when one user unit is specified, a plurality of user units arranged in the same column or row adjacent to (consecutive to) that user unit may be automatically specified.

Although the above-described embodiments have discussed an example in which a user unit and an enemy unit fight against each other, and, in the case of a draw (the HPs of the two units remain), the user unit progresses by one cell in a direction indicated by a swipe operation, and the enemy unit moves back by one cell, the embodiments are not limited to this example. According to an exemplary embodiment, when a user unit and an enemy unit fight against each other and the fight ends in a draw, both the user unit and the enemy unit may remain at their current positions.

According to an exemplary embodiment, a progress screen of the game may be displayed in the form of a web display on an information processing apparatus **100** on the basis of data generated by the server apparatus **400**, and other menu screens (although not particularly discussed in the above-described embodiments, for example, if user units can use any special ability, a menu used by the user to specify the use of that special ability; if there are a plurality of types of user units, a menu for specifying which type to use; or a menu for entering an input to start, restart, or give up the game) may be displayed in the form of a native display by a native application installed in the information processing apparatus **100**. In doing so, the game may be a hybrid game where the server apparatus **400** and the information processing apparatus **100** each perform some of the processes.

According to an exemplary embodiment, each function unit of the information processing apparatus **100** may be implemented by a logic circuit (hardware) formed in an integrated circuit (integrated circuit (IC) chip) or the like or by software using a central processing unit (CPU). In the latter case, the information processing apparatus **100** or the server apparatus **400** may include a CPU that executes instructions of the game program which is software implementing the individual functions, a read-only memory (ROM) or storage device (referred to as a "recording medium") on which the game program and various kinds of data are recorded in a computer (or CPU) readable manner, and a random-access memory (RAM) to which the game program is loaded. The computer (or the CPU) may read the game program from the recording medium and executes the game program, thereby attaining the object of the present invention. As the recording medium, a "non-transitory tangible medium", for example, a tape, a disc, a card, a semiconductor memory, or a programmable logic circuit can be used. In addition, the game program may be provided to the computer via any given transmission media capable of transmitting the game program (such as a communication network or a broadcast wave). The present invention can be implemented as a data signal on a carrier wave, in which the game program is embodied by electronic transmission.

The game program can be written in, for example, a script language such as ACTIONSCRIPT or JAVASCRIPT, an object-oriented programming language such as OBJECTIVE-C or JAVA, or a markup language such as HyperText Markup Language 5 (HTML5). According to another exemplary embodiment, a game system (e.g., the game system **500**) may include an information processing terminal (e.g., the information processing apparatus **100**) that may include units that implement some of functions implemented by the game program, and may include a server (e.g., the server apparatus **400**) that may include units that implement the rest of the functions different from the some functions.

Although the present invention has been described on the basis of the drawings and the embodiments, it should be noted that various modifications or changes can be made by those skilled in the art on the basis of the present disclosure. Therefore, it should be noted that these modifications or changes fall within the scope of the present invention. For example, the functions included in each unit or each step may be relocatable without logically contradicting each other. A plurality of units or steps can be combined as one unit or step, or one unit or step can be separated into a plurality of units or steps.

Configurations discussed in the above-described embodiments and modifications may also be appropriately combined.

Still other exemplary embodiments may be described. For example, a game program, a computer control method, and an information processing apparatus according to exemplary embodiments may provide advantageous effects achieved by the embodiments.

(a) A game program according to an exemplary embodiment a game program that processes progress of a game for moving a plurality of objects arranged on a game field, the game program causing a computer to implement: an accepting function that accepts operation information regarding a touch operation performed by a user, from a certain input face capable of detecting the touch operation; an associating function that associates the plurality of objects as a group; a moving function that moves, in a case where the operation information is a direction operation indicating a certain direction, the plurality of associated objects as a group in the direction indicated by the direction operation; and a display processing function that displays the game field and the plurality of objects arranged on the game field on a screen of the game, and, in a case where a moving process is performed by the moving function, moves and displays the plurality of objects in accordance with the moving process. Upon acceptance of the direction operation as the operation information while a specifying operation that specifies a first object that is any of the plurality of objects is being accepted as the operation information, the moving function moves remaining objects, excluding the first object from the plurality of objects, as a group in the direction indicated by the direction operation.

A computer control method according to an exemplary embodiment may be a computer control method for controlling a computer that processes progress of a game for moving a plurality of objects arranged on a game field, the method can include: an accepting step of accepting operation information regarding a touch operation performed by a user, from a certain input face capable of detecting the touch operation; an associating step of associating the plurality of objects as a group; a moving step of moving, in a case where the operation information is a direction operation indicating a certain direction, the plurality of associated objects as a group in the direction indicated by the direction operation; and a display processing step of displaying the game field and the plurality of objects arranged on the game field on a screen of the game, and, in a case where a moving process is performed in the moving step, displaying the plurality of objects in accordance with the moving process. Upon acceptance of the direction operation as the operation information while a specifying operation that specifies a first object that is any of the plurality of objects is being accepted as the operation information, the moving step moves remaining objects, excluding the first object from the plurality of objects, as a group in the direction indicated by the direction operation.

A computer according to an exemplary embodiment my be an information processing apparatus that processes progress of a game for moving a plurality of objects arranged on a game field, including: an accepting unit that accepts operation information regarding a touch operation performed by a user, from a certain input face capable of detecting the touch operation; an associating unit that associates the plurality of objects as a group; a moving unit that moves, in a case where the operation information is a direction operation indicating a certain direction, the plurality of associated objects as a group in the direction indicated by the direction operation; and a display processing unit that displays the game field and the plurality of objects arranged on the game field on a screen of the game, and, in a case where a moving process is performed by the moving unit, displays the plurality of objects in accordance with the moving process. Upon acceptance of the direction operation as the operation information while a specifying operation that specifies a first object that is any of the plurality of objects is being accepted as the operation information, the moving unit moves remaining objects, excluding the first object from the plurality of objects, as a group in the direction indicated by the direction operation.

Accordingly, with simple operations that may be one touch operation and one swipe operation, the user can, while leaving an object specified with the touch operation, collectively move the remaining objects in a direction indicated by the swipe operation. That is, without forcing the user to perform a complex operation, a plurality of objects can be moved without moving a particular object. Therefore, an easy-to-operate game in which a plurality of objects can perform complex movement can be provided.

(b) In the game program according to (a), a no-move area or an obstacle object into which each of the plurality of objects is incapable of progressing may be set on the game field; and, in movement by the moving process, in a case where a second object that is any of the remaining objects can be prevented from moving by the no-move area or the obstacle object, the moving function does not move the second object.

Accordingly, when the user can move a plurality of objects, in the case where there is an object whose planned destination includes an immovable object, that object remains at its position. Therefore, although the specification defines that basically a plurality of objects move as a whole, there are exemplary cases where an object does not move. Depending on the user's way of moving the objects, the user may not move some of the objects on purpose. Therefore, a more strategic game can be provided.

(c) In the exemplary game program according to (a) or (b), in a case of not moving the second object in the direction indicated by the direction operation and in a case where there is a remaining object other than the second object on a straight line in the direction indicated by the direction operation, the moving function does not move the remaining object other than the second object either.

Accordingly, in the exemplary case where there is an object whose destination includes an immovable object, that object cannot move either. In that case, the user can plan a strategy to move an object group while avoiding immovable objects as much as possible, or a strategy to purposefully have an immovable object to make the gameplay more advantageous. Therefore, a more strategic game can be provided.

(d) In the exemplary game program according to any one of (a) to (c), each of the plurality of objects has a direction, and the game program further causes the computer to implement a direction changing function that, upon acceptance of the direction operation as the operation information while a specifying operation that specifies a portion other than the plurality of objects is being accepted as the operation information, changes the direction of each of the plurality of objects to the direction indicated by the direction operation.

Accordingly, in the exemplary case where each of the plurality of objects has a direction, the directions of the plurality of objects can be easily and collectively changed by performing a swipe operation toward a direction that the user wants to direct the objects, while touching a position that specifies no object. For example, if the game includes a battle process with enemies, the game may be configured to change the magnitude of damage in accordance with the direction of receiving the attack (attacking from the front, attacking from the side, or attacking from behind), thereby providing a more strategic game. As in other exemplary embodiments described herein, this is merely an example and is non-limiting.

The present invention is widely applicable to any given computers such as smart phones, tablet terminals, mobile phones, home video game consoles, personal computers, server apparatuses, workstations, or mainframes.

What is claimed is:

1. A computer-implemented method for operating a computer game, the method comprising:

storing, in a storage module, a plurality of virtual objects and the arrangements of those virtual objects on a game field;

accepting, via an input face configured to detect a touch operation, operation information regarding a touch operation performed by a user;

associating, using a processor, a plurality of virtual objects as a group;

determining, using a processor, whether the operation information comprises a direction operation;

upon determining that the operation information comprises a direction operation, moving, using a moving processor, one or more of the plurality of associated objects as a group in the direction indicated by the direction operation;

storing, in a storage module, the new arrangements on the game field of the one or more of the plurality of associated objects moved with the moving processor;

displaying, on a computer screen, the game field and the plurality of virtual objects arranged on the game field; and

displaying, on a computer screen, the new arrangement on the game field of the one or more of the plurality of associated objects moved with the moving processor.

2. The computer-implemented method of claim **1**, wherein

the operation information further comprises a specifying operation that specifies a first object that is any of the plurality of associated objects, and

wherein the first object is excluded from the group of one or more of the plurality of associated objects that is moved by the moving processor.

3. The computer-implemented method of claim **1**, wherein

the game field includes a region into which an object is incapable of progressing, and wherein, in movement by the moving processor, the moving processor identifies whether a first object in the group of one or more of the plurality of associated objects to be moved is prevented from being moved by the presence of said region, and

wherein a first object that is prevented from being moved by the presence of said region is not moved by the movement processor.

4. The computer-implemented method of claim **3**, wherein the region into which an object is incapable of progressing is a no-move area.

5. The computer-implemented method of claim **3**, wherein the region into which an object is incapable of progressing is occupied by an obstacle object.

6. The computer-implemented method of claim **3**, wherein

the movement processor identifies whether a second object in the group of one or more of the plurality of associated objects to be moved is located on a straight line in the direction indicated by the direction operation with a first object not moved by the movement processor, and

wherein the second object is also not moved by the movement processor.

7. The computer-implemented method of claim **1**, wherein

each of the plurality of virtual objects has a direction, and

the computer-implemented method further comprises receiving operation information comprising a direction operation and a specifying operation that specifies a portion other than the plurality of objects, and changing the direction of each of the plurality of virtual objects to the direction indicated by the direction operation.

8. A computer program product embodied on a non-transitory computer readable medium, comprising code executable by a computer arranged to operate a computer game, to cause the computer to carry out the following steps:

storing, in a storage module, a plurality of virtual objects and the arrangements of those virtual objects on a game field;

accepting, via an input face configured to detect a touch operation, operation information regarding a touch operation performed by a user;

associating, using a processor, a plurality of virtual objects as a group;

determining, using a processor, whether the operation information comprises a direction operation;

upon determining that the operation information comprises a direction operation, moving, using a moving processor, one or more of the plurality of associated objects as a group in the direction indicated by the direction operation;

storing, in a storage module, the new arrangements on the game field of the one or more of the plurality of associated objects moved with the moving processor;

displaying, on a computer screen, the game field and the plurality of virtual objects arranged on the game field; and

displaying, on a computer screen, the new arrangement on the game field of the one or more of the plurality of associated objects moved with the moving processor.

9. The computer program product of claim **8**, wherein

the operation information further comprises a specifying operation that specifies a first object that is any of the plurality of associated objects, and

wherein the first object is excluded from the group of one or more of the plurality of associated objects that is moved by the moving processor.

10. The computer program product of claim **8**, wherein

the game field includes a region into which an object is incapable of progressing, and

wherein, in movement by the moving processor, the moving processor identifies whether a first object in the group of one or more of the plurality of associated objects to be moved is prevented from being moved by the presence of said region, and

wherein a first object that is prevented from being moved by the presence of said region is not moved by the movement processor.

11. The computer program product of claim **10**, wherein the region into which an object is incapable of progressing is a no-move area.

12. The computer program product of claim **10**, wherein the region into which an object is incapable of progressing is occupied by an obstacle object.

13. The computer program product of claim **10**, wherein

the movement processor identifies whether a second object in the group of one or more of the plurality of associated objects to be moved is located on a straight line in the direction indicated by the direction operation with a first object not moved by the movement processor, and

wherein the second object is also not moved by the movement processor.

14. The computer program product of claim **8**, wherein

each of the plurality of virtual objects has a direction, and

the code executable by a computer arranged to operate a computer game further comprises code causing the computer to receive operation information comprising a direction operation and a specifying operation that specifies a portion other than the plurality of objects, and change the direction of each of the plurality of virtual objects to the direction indicated by the direction operation.

15. A system comprising at least one processor, at least one memory module including computer program code, and at least one terminal apparatus of a player user having a graphical user interface, the at least one memory module and the computer program code configured to, with the processor, cause the system to at least:

store, in a storage module, a plurality of virtual objects and the arrangements of those virtual objects on a game field;

accept, via an input face configured to detect a touch operation, operation information regarding a touch operation performed by a user;

associate, using a processor, a plurality of virtual objects as a group;

determine, using a processor, whether the operation information comprises a direction operation;

upon determining that the operation information comprises a direction operation, move, using a moving processor, one or more of the plurality of associated objects as a group in the direction indicated by the direction operation;

store, in a storage module, the new arrangements on the game field of the one or more of the plurality of associated objects moved with the moving processor;

display, on a computer screen, the game field and the plurality of virtual objects arranged on the game field; and display, on a computer screen, the new arrangement on the game field of the one or more of the plurality of associated objects moved with the moving processor.

16. The system of claim **15**, wherein

the operation information further comprises a specifying operation that specifies a first object that is any of the plurality of associated objects, and

wherein the first object is excluded from the group of one or more of the plurality of associated objects that is moved by the moving processor.

17. The system of claim **15**, wherein

the game field includes a region into which an object is incapable of progressing, and

wherein, in movement by the moving processor, the moving processor identifies whether a first object in the group of one or more of the plurality of associated objects to be moved is prevented from being moved by the presence of said region, and

wherein a first object that is prevented from being moved by the presence of said region is not moved by the movement processor.

18. The system of claim **17**, wherein the region into which an object is incapable of progressing is one of the set of:

a no-move area, occupied by an obstacle object.

19. The system of claim **17**, wherein

the movement processor identifies whether a second object in the group of one or more of the plurality of associated objects to be moved is located on a straight line in the direction indicated by the direction operation with a first object not moved by the movement processor, and

wherein the second object is also not moved by the movement processor.

20. The system of claim **15**, wherein

each of the plurality of virtual objects has a direction, and

the computer program code further comprises code causing the computer to receive operation information comprising a direction operation and a specifying operation that specifies a portion other than the plurality of objects, and change the direction of each of the plurality of virtual objects to the direction indicated by the direction operation.

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