A seating arrangement apparatus includes: a storage unit that stores seating arrangement conditions for each of a plurality of users; a seating arrangement processing unit that arranges the plurality of seats for the plurality of users, based on the seating arrangement conditions for each of the plurality of users; a change accepting unit that accepts a change input for changing seating arrangement of a first seat group among the plurality of seats; a detection unit that detects seating arrangement conditions that are changed, in a case in which the seating arrangement is planned to be changed by the change input, resulting in change of conformability to each of the seating arrangement conditions; and a reporting unit that reports at least a seating arrangement condition that is changed from being conformable to being unconformable, among the seating arrangement conditions thus detected.
FIG. 1

CONTROL UNIT 11
SEATING ARRANGEMENT PROCESSING UNIT 12
CHANGE ACCEPTING UNIT 13
DETECTION UNIT 14
STORAGE UNIT 20
SEATING ARRANGEMENT CONDITION TABLE 22
SEAT ATTRIBUTE TABLE 23
SEATING ARRANGEMENT SETTING TABLE 24
REPORTING UNIT 14

FIG. 2

SEATING ARRANGEMENT CONDITION TABLE

<table>
<thead>
<tr>
<th>USER ID</th>
<th>NAME</th>
<th>CONDITION A</th>
<th>CONDITION B</th>
</tr>
</thead>
<tbody>
<tr>
<td>001</td>
<td>a</td>
<td>NG FOR SEAT NEXT TO 004</td>
<td>NG FOR TASK X</td>
</tr>
<tr>
<td>002</td>
<td>b</td>
<td></td>
<td></td>
</tr>
<tr>
<td>003</td>
<td>c</td>
<td>NG FOR SEAT OPPOSITE TO 004</td>
<td></td>
</tr>
<tr>
<td>004</td>
<td>d</td>
<td>NG FOR SEAT OPPOSITE TO 001</td>
<td>NG FOR SEAT BESIDE WINDOW</td>
</tr>
<tr>
<td>005</td>
<td>e</td>
<td>OK FOR TASK Y ONLY</td>
<td></td>
</tr>
<tr>
<td>006</td>
<td>f</td>
<td>NG FOR SEAT IN SAME BLOCK AS 001</td>
<td></td>
</tr>
<tr>
<td>007</td>
<td>g</td>
<td></td>
<td></td>
</tr>
<tr>
<td>008</td>
<td>h</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
FIG. 4

SEATING ARRANGEMENT SETTING TABLE

<table>
<thead>
<tr>
<th>SEAT ID</th>
<th>USER ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>A01</td>
<td>001</td>
</tr>
<tr>
<td>A02</td>
<td>005</td>
</tr>
<tr>
<td>...</td>
<td>...</td>
</tr>
</tbody>
</table>

FIG. 5

CHANGE SEATING ARRANGEMENT

BLOCK A

<table>
<thead>
<tr>
<th>A01</th>
<th>A02</th>
</tr>
</thead>
<tbody>
<tr>
<td>USER 001</td>
<td>USER 005</td>
</tr>
<tr>
<td>A03</td>
<td>A04</td>
</tr>
<tr>
<td>USER 003</td>
<td>USER 008</td>
</tr>
</tbody>
</table>

BLOCK B

<table>
<thead>
<tr>
<th>B01</th>
<th>B02</th>
</tr>
</thead>
<tbody>
<tr>
<td>USER 002</td>
<td>USER 004</td>
</tr>
<tr>
<td>B03</td>
<td>B04</td>
</tr>
<tr>
<td>USER 007</td>
<td>USER 006</td>
</tr>
</tbody>
</table>
FIG. 6

MANAGER TERMINAL 100

ACCEPT CHANGE INPUT \( \sim S1 \)

SEATING ARRANGEMENT APPARATUS 1

TEMPORARILY SET CHANGE OF SEATING ARRANGEMENT \( \sim S3 \)

CHECK SEATING ARRANGEMENT CONDITION \( \sim S4 \)

OUTPUT REPORT INFORMATION \( \sim S6 \)

IS CHANGE DECIDED? \( \sim S7 \)

NO \( \downarrow \)

YES
FIG. 8

MANAGER TERMINAL 100a

ACCEPT CHANGE INPUT

S11

S12

TEMPORARILY SET CHANGE OF SEATING ARRANGEMENT

S13

CHECK SEATING ARRANGEMENT CONDITION

S14

OUTPUT REPORT INFORMATION

S16

IS CHANGE DECIDED?

S17

NO

YES

S18

DECIDE CHANGE OF SEATING ARRANGEMENT

S25

S26

S27

MANAGER TERMINAL 100b

ACCEPT CHANGE INPUT

S22

S23

OUTPUT REPORT INFORMATION

S19

S20

S21

IS CHANGE DECIDED?

NO

YES
SEATING ARRANGEMENT APPARATUS, SEATING ARRANGEMENT METHOD, AND SEATING ARRANGEMENT PROGRAM

[0001] This application is based on and claims the benefit of priority from Japanese Patent Application No. 2011-210280, filed on 27 Sep. 2011, the content of which is incorporated herein by reference.

BACKGROUND OF THE INVENTION

[0002] 1. Field of the Invention

[0003] The present invention relates to a seating arrangement apparatus, a seating arrangement method, and a seating arrangement program, all of which arrange a plurality of seats for users.

[0004] 2. Related Art

[0005] Conventionally, for the purpose of improving the work efficiency or the like of users at an office, a general manager sets seating arrangement that satisfies more seating arrangement conditions, by considering seating arrangement conditions for all the users (for example, see Japanese Unexamined Patent Application, Publication No. 2005-4386).

[0006] On the other hand, in a case in which the office is segmented into a plurality of management units (for example, task segments, departments and the like at a contract center), a manager assigned to each management unit may change the seating arrangement of some seat groups being a target to be managed, depending on the detailed circumstances in the management unit, which the general manager would not be capable of being aware of.

SUMMARY OF THE INVENTION

[0007] However, since each manager does not grasp seating arrangement conditions for the entire office other than the management unit managed by the manager himself/herself, there may be cases in which the manager freely changes the seating arrangement, but the seating arrangement thus changed may be uninformable to the seating arrangement conditions for the other seat groups in the other management units. It is not appropriate for the general manager, who would not be capable of being aware of detailed circumstances in each management unit, to cope with such an uninformable case. On the other hand, it has been difficult for a manager of each management unit to change the seating arrangement of his/her own seat group by considering seating arrangement of the other management units.

[0008] An object of the present invention is to provide a seating arrangement apparatus, a seating arrangement method, and a seating arrangement program, all of which enable a manager to easily change partial seating arrangement, while maintaining conformability to the entire arrangement conditions.

[0009] According to the present invention, means as follows is provided for solving the problems.

[0010] A first aspect of the present invention is a seating arrangement apparatus including: a storage unit that stores seating arrangement conditions for each of a plurality of users, for whom any one of a plurality of seats are arranged, the seats being a collection of seat groups provided to each management unit; a seating arrangement processing unit that arranges the plurality of seats for the plurality of users, based on the seating arrangement conditions for each of the plurality of users; a change accepting unit that accepts a change input for changing seating arrangement of a first seat group among the plurality of seats; a detection unit that detects seating arrangement conditions that are changed, in a case in which the seating arrangement is planned to be changed by the change input, resulting in change of conformability to each of the seating arrangement conditions; and a reporting unit that reports at least a seating arrangement condition that is changed from being conformable to being uninformable, among the seating arrangement conditions detected by the detection unit.

[0011] According to such a configuration, in a case in which a change input for changing the seating arrangement of some of the seat groups is accepted after arranging the entirety of the plurality of seats by the seating arrangement processing unit, the seating arrangement apparatus can report to the manager on the seating arrangement condition of which conformability was changed as a result of the change input. Therefore, with the seating arrangement apparatus, the manager can easily change partial seating arrangement, while maintaining conformability to the entire arrangement conditions.

[0012] A second aspect of the present invention is the seating arrangement apparatus as recited in the first aspect, in which the seating arrangement conditions are relevant to predetermined seat attributes or positional relationships with predetermined users.

[0013] According to such a configuration, the seating arrangement conditions are relevant to predetermined seat attributes or positional relationships with predetermined users, which the manager would not be capable of being aware of. Therefore, since the seating arrangement apparatus reports that conformability to the seating arrangement conditions was changed, the seating arrangement apparatus can provide information that should be considered by the manager who changes partial seating arrangement.

[0014] A third aspect of the present invention is the seating arrangement apparatus as recited in the first or second aspect, in which the reporting unit reports a seating arrangement condition that is changed from being conformable to being uninformable, as well as a management unit of a second seat group including seats arranged for users relevant to the seating arrangement condition.

[0015] According to such a configuration, the seating arrangement apparatus can report a seating arrangement condition of which conformability was changed, as well as management units relevant to the seating arrangement condition. Therefore, the manager can efficiently change partial seating arrangement, by understanding which management units require discussion for making the partial seating arrangement conformable to the seating arrangement conditions.

[0016] A fourth aspect of the present invention is the seating arrangement apparatus as recited in the third aspect, in which the change accepting unit accepts a change input for changing seating arrangement of the second seat group provided to the management unit reported by the reporting unit; and the reporting unit reports both of a seating arrangement condition that is changed from being uninformable to being conformable, and a seating arrangement condition that is changed from being conformable to being uninformable, among the seating arrangement conditions detected by the detection unit.

[0017] According to such a configuration, the seating arrangement apparatus can further accept a change input, regarding a seat group provided to each management unit reported in response to the change input. Therefore, the man-
A manager can repeatedly make a change input for seat groups in
different management units as well, and can consider optimal
seating arrangement, while understanding seating arrange-
ment conditions of which conformability is changed each
time the change input is made.

[0018] A fifth aspect of the present invention is the seating
arrangement apparatus as recited in the third or fourth aspect,
further including a communication unit that performs data
communication with a manager terminal provided to each
management unit, in which the change accepting unit accepts
a change input for changing seating arrangement of a seat
group relevant to a management unit corresponding to a man-
ger terminal from the manager terminal through the com-
mination unit; and the reporting unit provides a report to the
manager terminal from which the change input was accepted,
and to a manager terminal corresponding to a management
unit of a seat group including a seat arranged for a user
relevant to the seating arrangement condition being a report
target, through the communication unit.

[0019] According to such a configuration, the seating
arrangement apparatus accepts a change input for changing
the seating arrangement of the seat group relevant to the
management unit, from the manager terminal provided to
each management unit. The seating arrangement apparatus
can report that the conformability to the seating arrangement
conditions was changed, to the manager terminal correspond-
ing to the management unit relevant to the seating arrange-
ment condition of which conformability was changed. There-
fore, when the seating arrangement is partially changed, the
seating arrangement apparatus can report to the managers of
the management units that require discussion for making the
seating arrangement conformable to the seating arrangement
conditions, and thus the change of the seating arrangement
can be easily adjusted by the managers.

[0020] A sixth aspect of the present invention is the seating
arrangement apparatus as recited in any one of the first to fifth
aspects, in which the seat group is provided to each task
segment as a management unit at a contact center.

[0021] According to such a configuration, with the seating
arrangement apparatus, the manager can easily change partial
seating arrangement for each task segment, while maintain-
ing conformability to the entire seating arrangement condi-
tions at a contact center provided with a plurality of task
segments.

[0022] A seventh aspect of the present invention is a seating
arrangement method for a computer to arrange any of a plu-
rality of seats for any of a plurality of users, the plurality of
seats being a collection of seat groups provided to each man-
agement unit, the computer including a storage unit that
stores seating arrangement conditions for each of the plurality
of users, the method being performed by the computer to
execute: a seating arrangement processing step of arranging
the plurality of seats for the plurality of users, based on
seating arrangement conditions for each of the plurality of
users; a change accepting step of accepting a change input for
changing seating arrangement of a first seat group among the
plurality of seats; a detecting step of detecting seating arrange-
ment conditions that are changed, in a case in which the
seating arrangement is planned to be changed by the
change input, resulting in change of conformability to each of
the seating arrangement conditions; and a reporting step of
reporting at least a seating arrangement condition that is
changed from being conformable to being unconformable,
among the seating arrangement conditions detected in the
detecting step.

[0023] According to such a configuration, effects similar to
those of the first aspect can be expected by the computer
performing the seating arrangement method.

[0024] An eighth aspect of the present invention is a seating
arrangement method for a computer to arrange any of a plu-
rality of seats for any of a plurality of users, the plurality of
seats being a collection of seat groups provided to each
management unit, the computer including a storage unit
that stores seating arrangement conditions for each of the
plurality of users, the program causing the computer to
execute: a seating arrangement processing step of arranging
the plurality of seats for the plurality of users, based on
seating arrangement conditions for each of the plurality of
users; a change accepting step of accepting a change input for
changing seating arrangement of a first seat group among the
plurality of seats; a detecting step of detecting seating arrange-
ment conditions that are changed, in a case in which the
seating arrangement is planned to be changed by the
change input, resulting in change of conformability to each of
the seating arrangement conditions; and a reporting step of
reporting at least a seating arrangement condition that is
classified by its changed seated arrangement condition.

According to such a configuration, effects similar to
those of the first aspect can be expected by the computer
executing the seating arrangement method.

According to the present invention, a computer can
easily change partial seating arrangement, while maintain-
ing conformability to the entire arrangement conditions.

BRIEF DESCRIPTION OF THE DRAWINGS

[0027] FIG. 1 is a block diagram showing a functional
configuration of a seating arrangement apparatus according
to a first embodiment;

[0028] FIG. 2 is a diagram showing a seating arrangement
condition table according to the first embodiment;

[0029] FIG. 3 is a diagram showing a seat attribute table
according to the first embodiment;

[0030] FIG. 4 is a diagram showing a seating arrangement
setting table according to the first embodiment;

[0031] FIG. 5 is a diagram showing an example of a change
input for changing a result of seating arrangement processing
according to the first embodiment;

[0032] FIG. 6 is a sequence chart showing processing
according to the first embodiment;

[0033] FIG. 7 is a block diagram showing a functional
configuration of a seating arrangement apparatus according
to a second embodiment; and

[0034] FIG. 8 is a sequence chart showing processing
according to the second embodiment.

DETAILED DESCRIPTION OF THE INVENTION

First Embodiment

[0035] Descriptions are hereinafter provided for a first
embodiment of the present invention.

[0036] When the seating arrangement of a seat group for
users provided to each task segment being a management unit
is changed at a contact center, a seating arrangement appara-
The seating arrangement apparatus \( I \) according to the present embodiment determines conformance to seating arrangement conditions for the entire users, and outputs report information.

The seating arrangement apparatus \( I \) includes a control unit \( 10 \), a storage unit \( 20 \), a communication unit \( 30 \), an input unit \( 40 \), and an output unit \( 50 \).

The control unit \( 10 \) controls the entirety of the seating arrangement apparatus \( I \), and appropriately reads and executes various programs stored in the storage unit \( 20 \), thereby collaborating with the aforementioned hardware units, and implementing various functions according to the present embodiment. The control unit \( 10 \) may be a central processing unit (CPU). Functions of each part provided to the control unit \( 10 \) will be described later.

The storage unit \( 20 \) is a storage area that stores various programs and a variety of data for causing a group of hardware units to function as the seating arrangement apparatus \( I \), in which the storage unit \( 20 \) may be a hard disk drive (HDD). More specifically, the storage unit \( 20 \) stores a program (a seating arrangement program) that is executed by the control unit \( 10 \) to implement various functions of the present embodiment.

The storage unit \( 20 \) stores: a seating arrangement condition table \( 21 \) that stores a seating arrangement condition that is set for each of a plurality of users, for whom any of a plurality of seats is arranged, the plurality of seats being a collection of seat groups provided to each management unit; a seat attribute table \( 22 \) that stores a variety of attribute information of each of the plurality of seats; and a seating arrangement setting table \( 23 \) that stores a result of the seating arrangement.

FIG. 2 is a diagram showing the seating arrangement condition table \( 21 \) according to the present embodiment.

The seating arrangement condition table \( 21 \) stores user names and seating arrangement conditions \( A, B \), and so on, in association with IDs for identifying the users. Here, there may be a user with no seating arrangement conditions being set, and a plurality of seating arrangement conditions may be set to a single user.

The seating arrangement conditions are relevant to predefined seat attributes or positional relationships with predetermined users. For example, it is not preferable to arrange a seating being next to a user with an ID “004” for a user with an ID “001”, and it is not preferable to arrange a seat being for a task X for the user with the ID “001”. Any seat may be arranged for a user with an ID “002”.

FIG. 3 is a diagram showing the seat attribute table \( 22 \) according to the present embodiment.

In association with IDs for identifying the seats, the seat attribute table \( 22 \) stores various attributes such as: a seat group (a block) to which the seat belongs; IDs of the seats located in the vicinities of the seat; a management unit (a task segment) of the seat; and positional characteristics of the seat at the office (for example, beside the window, or near the entrance).

FIG. 4 is a diagram showing the seating arrangement setting table \( 23 \) according to the present embodiment.

The seating arrangement setting table \( 23 \) stores user IDs in association with seat IDs, as a result of the seating arrangement.

The communication unit \( 30 \) is a network adapter used by the seating arrangement apparatus \( I \) to transmit and receive data to and from other apparatuses. The communication unit \( 30 \) performs data communication through a network with a manager terminal \( 100 \) provided to each management unit.

The input unit \( 40 \) is an interface device that accepts an input of an instruction by an operator into the seating arrangement apparatus \( I \). The input unit \( 40 \) is configured by, for example, a keyboard, a mouse, a touch screen, and the like.

The output unit \( 50 \) includes a display unit that displays a screen for accepting an input of data from the operator, and displays a screen for showing results of processing by the seating arrangement apparatus \( I \). The output unit \( 50 \) may also include a display unit such as a cathode ray tube (CRT) display or a liquid crystal display (LCD), as well as other various output units such as a printer.

Next, detailed descriptions are provided for functions of the control unit \( 10 \).

The control unit \( 10 \) includes a seating arrangement processing unit \( 11 \), a change accepting unit \( 12 \), a detection unit \( 13 \), and a reporting unit \( 14 \). Each of those units is a functional block that is implemented by executing the seating arrangement program.

The seating arrangement processing unit \( 11 \) arranges a plurality of seats for a plurality of users at the office, based on seating arrangement conditions for the plurality of users, the conditions being stored in the seating arrangement condition table \( 21 \). A seating arrangement processing algorithm may be an existing algorithm, and it is preferable for a seating arrangement result to satisfy more seating arrangement conditions.

Among the plurality of seats arranged by the seating arrangement processing unit \( 11 \), the change accepting unit \( 12 \) accepts a change input for changing seating arrangement of a first seat group through the communication unit \( 30 \) or the input unit \( 40 \).

The change accepting unit \( 12 \) may accept change inputs regarding a plurality of seat groups, and may accept, for example, a change input for changing seating arrangement of a second seat group provided to a management unit that is reported by the reporting unit \( 14 \).

In a case in which the seating arrangement is planned to be changed by such a change input, resulting in change of the conformability to each seating arrangement condition, the detection unit \( 13 \) detects a seating arrangement condition that was changed. By detecting a seating arrangement condition that was changed from being conformable to being unconformable, the detection unit \( 13 \) can acquire, as an alert, information about inconvenience resulting from the change input.

Among the seating arrangement conditions detected by the detection unit \( 13 \), the reporting unit \( 14 \) reports at least a seating arrangement condition that was changed from being conformable to being unconformable. In addition to the seating arrangement condition detected as being changed from being conformable to being unconformable, the reporting unit \( 14 \) also reports a management unit of the second seat group including seats arranged for users relevant to this seating arrangement condition.

In a case in which a change input for changing seating arrangement of the second seat group is accepted, the reporting unit \( 14 \) reports both of the seating arrangement
conditions that were changed from being unconformable to being conformable, and the seating arrangement conditions that were changed from being conformable to being unconformable, among the seating arrangement conditions detected by the detection unit 13. As a result, the reporting unit 14 can report whether the inconvenience due to the change of the seating arrangement of the first seat group is resolved, and whether another inconvenience newly occurs, and the reporting unit 14 can also report a management unit relevant to the newly occurred inconvenience.

Here, the reporting unit 14 may cause the output unit 50 to output report information including the seating arrangement conditions and the management unit, and may cause the communication unit 30 to report the report information to the manager terminal 100.

Fig. 5 is a diagram showing an example of a change input for changing a result of the seating arrangement processing according to the present embodiment.

In the present example, based on seating arrangement conditions in the seating arrangement condition table 21, a block A (seats A01 to A04) and a block B (seats B01 to B04) are arranged for users 001 to 008.

At this time, in a case in which a change input for replacing the user 001 with the user 008 regarding the seating arrangement in the block A is accepted, determination is made as to whether the seating arrangement thus changed is conformable to each of the seating arrangement conditions. Since this case is unconformable to the seating arrangement condition relevant to the user 001 “seating position next to the user 004 is NG”, the unconformable seating arrangement condition is reported, and a management unit (task segment) of the block B where the seat is arranged for the relevant user 004 is reported.

Fig. 6 is a sequence chart showing processing by the seating arrangement apparatus 1 and the manager terminal 100 according to the present embodiment.

It is assumed that the seating arrangement apparatus 1 has executed seating arrangement processing in advance, and a result of such seating arrangement is stored in the seating arrangement setting table 23.

In Step S1, the manager terminal 100 accepts a change input from the manager to change the seating arrangement of any of the seat groups.

In Step S2, the seating arrangement apparatus 1 receives data representing the change input accepted in Step S1, from the manager terminal 100.

In Step S3, based on the data received in Step S2, the seating arrangement apparatus 1 temporarily sets the change of seating arrangement, and stores the seating arrangement into the storage unit 20.

In Step S4, based on the seating arrangement that was temporarily set in Step S3, the seating arrangement apparatus 1 checks the seating arrangement conditions stored in the seating arrangement condition table 21, and detects a seating arrangement condition of which conformability was changed as a result.

In Step S5, the seating arrangement apparatus 1 transmits data representing the seating arrangement condition of which conformability was changed in Step S4, and data representing the management unit relevant to the seating arrangement condition, to the manager terminal 100.

In Step S6, based on the data received in Step S5, the manager terminal 100 outputs the seating arrangement condition of which conformability was changed, and the management unit relevant to the seating arrangement condition, as report information regarding the change input.

In Step S7, in response to an input from the manager, the manager terminal 100 determines whether to terminate acceptance of a change input. In a case in which the determination is YES, the processing is terminated, and in a case in which the determination is NO, the processing returns to Step S1 and continues accepting a new change input.

In a case in which approval is obtained from all the relevant management units, the seating arrangement apparatus 1 may decide the change of the seating arrangement, by receiving instruction data for deciding the seating arrangement from the manager terminal 100, and reflecting change of the seating arrangement, which was temporarily set, in the seating arrangement setting table 23 so as to be updated.

As described above, according to the present embodiment, in a case in which a change input for changing the seating arrangement of some of the seat groups is accepted after arranging the entirety of the plurality of seats by the seating arrangement processing, the seating arrangement apparatus 1 can report to the manager on the seating arrangement condition of which conformability was changed as a result of the change input. Therefore, with the seating arrangement apparatus 1, the manager can easily change partial seating arrangement, while maintaining conformability to the entire arrangement conditions.

The seating arrangement conditions are conditions relevant to predetermined seat attributes or positional relationships with predetermined users, which the manager would not be capable of being aware of. Therefore, since the seating arrangement apparatus 1 reports that conformability to the seating arrangement conditions was changed, the seating arrangement apparatus 1 can provide information that should be considered by the manager who changes partial seating arrangement.

The seating arrangement apparatus 1 can report a seating arrangement condition of which conformability was changed, as well as management units (task segments) relevant to the seating arrangement condition. Therefore, the manager can efficiently change partial seating arrangement, by understanding which management units require discussion for making the partial seating arrangement conformable to the seating arrangement conditions.

The seating arrangement apparatus 1 can further accept a change input, regarding a seat group provided to each management unit reported in response to the change input. Therefore, the manager can repeatedly make a change input for seat groups in different management units as well, and can consider optimal seating arrangement, while understanding seating arrangement conditions of which conformability is changed each time the change input is made.

Second Embodiment

Descriptions are hereinafter provided for a second embodiment of the present invention. Configurations similar to those in the first embodiment are assigned with the same reference numerals, and descriptions thereof are omitted or simplified.

A seating arrangement apparatus 1a according to the present embodiment identifies a manager terminal provided to or a manager assigned to each management unit, and communicates particular data therewith.
FIG. 7 is a block diagram showing a functional configuration of the seating arrangement apparatus 1a according to the present embodiment.

A change accepting unit 12a and a reporting unit 14a in a control unit 10a, as well as a communication unit 30a, are different from the seating arrangement apparatus 1 of the first embodiment.

The change accepting unit 12a accepts a change input for changing seating arrangement of a seat group relevant to a management unit corresponding to a manager terminal 100a, from the manager terminal 100a through the communication unit 30a. The change accepting unit 12a accepts a change input for changing seating arrangement of a seat group relevant to a management unit corresponding to a manager terminal 100b, from the manager terminal 100b. The change accepting unit 12a similarly accepts a change input from each manager terminal 100 (a, b and so on), but such a change input is for changing seating arrangement of a seat group relevant to a management unit, based on internal circumstances of each management unit.

At this time, the change accepting unit 12a may authenticate whether the seat group as a target of the change input is relevant to the management unit corresponding to the manager terminal 100 from which the change input was accepted.

The reporting unit 14a provides a report to the manager terminal 100a from which the change input was accepted, and to the manager terminal 100b corresponding to a management unit of a seat group including a seat arranged for a user relevant to the seating arrangement condition being a report target, through the communication unit 30a. More specifically, in a case in which the seating arrangement is changed based on the change input, resulting in that another seating arrangement condition relevant to another management unit other than the management unit of the seat group thus changed became unchangeable, the reporting unit 14a can report that adjustment is required, to a manager who manages the another management unit.

The communication unit 30a identifies a plurality of manager terminals 100 (a, b and so on) or a plurality of managers, and communicates data therewith. When a different manager uses a manager terminal 100, the manager terminal 100 is also different. In other words, a management unit, from which the change accepting unit 12a has accepted a change input, is identified by identifying the manager terminal 100 or the manager. The control unit 10a may identify the manager terminal 100 or the manager.

FIG. 8 is a sequence chart showing processing by the seating arrangement apparatus 1a, the manager terminal 100a and the manager terminal 100b according to the present embodiment.

It is assumed that the seating arrangement apparatus 1a has executed seating arrangement processing in advance, and a result of such seating arrangement is stored in the seating arrangement setting table 23.

In Step S11, the manager terminal 100a accepts a change input from the manager to change the seating arrangement of a first seat group belonging to the management unit that is managed by the manager himself/herself.

In Step S12, the seating arrangement apparatus 1a receives data representing the change input accepted in Step S11, from the manager terminal 100a.

In Step S13, based on the data received in Step S12, the seating arrangement apparatus 1a temporarily sets change of seating arrangement, and stores the seating arrangement into the storage unit 20.

In Step S14, based on the seating arrangement that was temporarily set in Step S13, the seating arrangement apparatus 1a checks the seating arrangement conditions stored in the seating arrangement condition table 21, and detects any seating arrangement condition of which conformability was changed as a result.

In Step S15, the seating arrangement apparatus 1a transmits data representing the seating arrangement condition of which conformability was changed in Step S14, and data representing the management unit relevant to the seating arrangement condition, to the manager terminal 100a.

In Step S16, based on the data received in Step S15, the manager terminal 100a outputs the seating arrangement condition of which conformability was changed, and the management unit relevant to the seating arrangement condition, as report information regarding the change input.

In Step S17, in response to an input from the manager, the manager terminal 100a determines whether to determine the seating arrangement that was temporarily set. In a case in which the determination is YES, the processing advances to Step S18, and in a case in which the determination is NO, the processing returns to Step S11 and continues accepting a new change input.

In Step S18, the seating arrangement apparatus 1a receives an instruction data for deciding the seating arrangement from the manager terminal 100a.

In Step S19, in a case in which the seating arrangement condition of which conformability was changed in Step S14 includes a condition relevant to a management unit of the manager terminal 100b, the seating arrangement apparatus 1a transmits data representing the relevant seating arrangement condition and the management unit to the manager terminal 100b.

In Step S20, based on the data received in Step S19, the manager terminal 100b outputs the seating arrangement condition of which conformability was changed, and the management unit relevant to the seating arrangement condition, as report information regarding the change input in the manager terminal 100b.

In Step S21, in response to an input from the manager, the manager terminal 100b determines whether to decide the seating arrangement that was temporarily set. In a case in which the determination is YES, the processing advances to Step S24, and in a case in which the determination is NO, the processing advances to Step S22.

In Steps S22 and S23, the seating arrangement apparatus 1a receives data representing the change input of the seating arrangement of the second seat group accepted in the manager terminal 100b, similarly to Steps S11 and S12. Subsequently, based on the change input, change of seating arrangement is temporarily set (Step S13), and the seating arrangement condition is checked (Step S14). In a case in which the conformability to the seating arrangement condition is changed as a result, report information is reported to the relevant manager terminal 100a or the relevant manager terminal 100b (Steps S15 and S19).

In Step S24, the seating arrangement apparatus 1a receives an instruction data for deciding the seating arrangement from the manager terminal 100b.
[0101] In this manner, based on the change input in the manager terminal 100a or the manager terminal 100b, the temporary setting of the seating arrangement is repeated until determining that the seating arrangement that was temporarily set is decided in both Steps S17 and S21, and report information regarding the change in conformity to the seating arrangement condition is output each time.

[0102] In Step S25, in response to receiving decision instruction data in Steps S18 and S24, the seating arrangement apparatus 1a reflects the change of the seating arrangement, which was temporarily set, in the seating arrangement setting table 23 so as to be updated.

[0103] In Steps S26 and S27, the seating arrangement apparatus 1a reports to the manager terminal 100a and the manager terminal 100b that the change of the seating arrangement has been decided.

[0104] As described above, according to the present embodiment, the seating arrangement apparatus 1a accepts a change input for changing the seating arrangement of the seat group relevant to the management unit, from the manager terminal 100 (a, b and so on) provided to each management unit (task segment). The seating arrangement apparatus 1a can report that the conformity to the seating arrangement conditions was changed, to the manager terminal 100 corresponding to the management unit relevant to the seating arrangement condition of which conformity was changed. Therefore, when the seating arrangement is partially changed, the seating arrangement apparatus 1a can report to the managers of the management units that require discussion for making the seating arrangement conformable to the seating arrangement conditions, and thus the change of the seating arrangement can be easily adjusted by the managers.

[0105] The present embodiment has been exemplified for the case in which two management units, i.e. the two manager terminals 100 are provided, but the present invention can also be applied to a case in which three or more management units (task segments) are provided. In this case, when decision instructions are received from the manager terminals 100 of all the managers, the seating arrangement apparatus 1a decides the seating arrangement that was temporarily set.

[0106] Although the embodiments of the present invention have been described above, the present invention is not limited to the aforementioned embodiments. The effects described in the embodiments merely list the most preferable effects that arise from the present invention, and the effects according to the present invention are not limited to those described in the embodiments.

[0107] The seating arrangement apparatus 1a may be any of various information processing apparatus (computers) such as a server device or a personal computer (PC), and each of the aforementioned functions is implemented by software. In a case in which a function is implemented by software, a program composing the software is installed in an information processing apparatus. Such a program may be distributed by being recorded in a removable medium such as a CD-ROM, and may be distributed by being downloaded to an information processing apparatus through a network.

What is claimed is:
1. A seating arrangement apparatus, comprising:
   a storage unit that stores seating arrangement conditions for each of a plurality of users, for whom any one of a plurality of seats are arranged, the seats being a collection of seat groups provided to each management unit;

   a seating arrangement processing unit that arranges the plurality of seats for the plurality of users, based on the seating arrangement conditions for each of the plurality of users;

   a change accepting unit that accepts a change input for changing seating arrangement of a first seat group among the plurality of seats;

   a detection unit that detects seating arrangement conditions that are changed, in a case in which the seating arrangement is planned to be changed by the change input, resulting in change in conformity to each of the seating arrangement conditions; and

   a reporting unit that reports at least a seating arrangement condition that is changed from being conformable to being unconformable, among the seating arrangement conditions detected by the detection unit.

2. The seating arrangement apparatus according to claim 1, wherein the seating arrangement conditions are relevant to predetermined seat attributes or positional relationships with predetermined users.

3. The seating arrangement apparatus according to claim 1, wherein the reporting unit reports a seating arrangement condition that is changed from being conformable to being unconformable, as well as a management unit of a second seat group including seats arranged for users relevant to the seating arrangement condition.

4. The seating arrangement apparatus according to claim 1, wherein the reporting unit reports both of a seating arrangement condition that is changed from being unconformable to being conformable, and a seating arrangement condition that is changed from being conformable to being unconformable, among the seating arrangement conditions detected by the detection unit.

5. The seating arrangement apparatus according to claim 1, further comprising:
   a communication unit that performs data communication with a manager terminal provided to each management unit,

   wherein the change accepting unit accepts a change input for changing seating arrangement of a seat group relevant to a management unit corresponding to a manager terminal from the manager terminal through the communication unit, and

   wherein the reporting unit provides a report to the manager terminal from which the change input was accepted, and to a manager terminal corresponding to a management unit of a seat group including a seat arranged for a user relevant to the seating arrangement condition being a report target, through the communication unit.

6. A seating arrangement method for a computer to arrange any of a plurality of seats for any of a plurality of users, the plurality of seats being a collection of seat groups provided to each management unit, the computer including a storage unit that stores seating arrangement conditions for each of the plurality of users, the method being performed by the computer to execute:
a seating arrangement processing step of arranging the plurality of seats for the plurality of users, based on seating arrangement conditions for each of the plurality of users;  
a change accepting step of accepting a change input for changing seating arrangement of a first seat group among the plurality of seats;  
a detecting step of detecting seating arrangement conditions that are changed, in a case in which the seating arrangement is planned to be changed by the change input, resulting in change of conformability to each of the seating arrangement conditions; and  
a reporting step of reporting at least a seating arrangement condition that is changed from being conformable to being unconformable, among the seating arrangement conditions detected in the detecting step.

8. A non-transitory computer-readable medium storing a seating arrangement program for causing a computer to arrange any of a plurality of seats for any of a plurality of users, the plurality of seats being a collection of seat groups provided to each management unit, the computer including a storage unit that stores seating arrangement conditions for each of the plurality of users, the program causing the computer to execute:

a seating arrangement processing step of arranging the plurality of seats for the plurality of users, based on seating arrangement conditions for each of the plurality of users;  
a change accepting step of accepting a change input for changing seating arrangement of a first seat group among the plurality of seats;  
a detecting step of detecting seating arrangement conditions that are changed, in a case in which the seating arrangement is planned to be changed by the change input, resulting in change of conformability to each of the seating arrangement conditions; and  
a reporting step of reporting at least a seating arrangement condition that is changed from being conformable to being unconformable, among the seating arrangement conditions detected in the detecting step.

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