

DESCRIPTION

Title of Invention

ORDER SUPPORT APPARATUS

Technical Field

[0001]

The present invention relates to technology for replenishing a product sold in a store.

Background Art

[0002]

A stock amount of a product sold at a retail store such as a drug store is managed so that a product displayed and sold at a storefront does not run out, and when the stock amount falls below a certain amount, the product is shipped from a manufacturer, a wholesaler, an in-house warehouse, or the like, and replenishment of the storefront product is performed.

[0003]

Under such a background, for example, Patent Literature 1 proposes an order determination apparatus capable of presenting a quantitative criterion for determining the appropriate order quantity at the time of ordering a product and verifying the validity of the order quantity.

Citation List

Patent Literature

[0004]

Patent Literature 1: JP 2024-049832 A

Summary of Invention

Technical Problem

[0005]

However, in the above-described conventional technology, there are many types of products handled in a store, and in a case where order processing is sequentially performed from a product having a smaller stock amount, there is a problem that the number of works of displaying ordered products at the time of arriving at the store increases, and the human cost corresponding thereto increases.

[0006]

Therefore, in view of the above problems, an object of the present invention is to provide an order support apparatus that improves efficiency of store work by achieving labor saving of delivery and display work in a store by matching order timing for each product as much as possible.

Solution to Problem

[0007]

An aspect of an order support apparatus disclosed herein includes: a product information storage unit that stores a stock amount and a sales amount trend for each product sold in a store; an order threshold storage unit that stores a first threshold related to the stock amount and a second threshold larger than the first threshold for each product; a stock amount prediction unit that calculates a predicted value of the stock amount after a predetermined period for each product, based on information stored in the product information storage unit; a first candidate extraction unit that extracts a product of which the stock amount is less than the first threshold as a first order candidate product; a second candidate extraction unit that extracts a product of which a predicted value of the stock amount is less than the second threshold as a second order candidate product; and an order unit that performs processing related to ordering of the first order candidate product and the second order candidate product.

Advantageous Effects of Invention

[0008]

An order support apparatus disclosed herein improves efficiency of store work by achieving labor saving of

delivery and display work in a store by matching order timing for each product as much as possible.

Brief Description of Drawings

[0009]

Fig. 1 is a diagram illustrating an outline of an order support apparatus according to the present embodiment.

Fig. 2 is a functional block diagram of the order support apparatus according to the present embodiment.

Fig. 3 is a diagram illustrating a hardware configuration example of the order support apparatus according to the present embodiment.

Fig. 4 is a flowchart illustrating a flow of processing by the order support apparatus according to the present embodiment.

Description of Embodiments

[0010]

An embodiment of the present invention will be described with reference to the drawings.

(Operation Principle of Order Support Apparatus According to Present Embodiment)

[0011]

An operation principle of an order support apparatus

(hereinafter, simply referred to as the "present apparatus") 100 according to the present embodiment will be described with reference to Figs. 1 and 2. Fig. 1 is a diagram illustrating a connection relationship between the present apparatus 100 and another apparatus, and Fig. 2 is a functional block diagram of the present apparatus 100.

[0012]

As illustrated in Fig. 1, the present apparatus 100 is connected to an order destination terminal 320 via a communication network 310. The communication network 310 may be in a wired form or a wireless form. The order destination terminal 320 is a terminal managed by a destination to which a store 210 places an order for a product 220 to be sold in the store 210 in order to replenish the product 220, for example, a manufacturer, a wholesaler, an in-house warehouse, a distribution center, or the like.

[0013]

As illustrated in Fig. 2, the present apparatus 100 includes a product information storage unit 110, an order threshold storage unit 120, a product position storage unit 130, a stock amount prediction unit 140, a first candidate extraction unit 150, a second candidate extraction unit 160, and an order unit 170.

[0014]

The product information storage unit 110 stores a stock amount 230 and a sales amount trend 240 for each product 220 sold in the store 210. The sales amount trend 240 is, for example, the latest sales, the seasonal characteristics of the sales amount, and the characteristics of the sales amount depending on the weather for each product 220, and is information necessary for predicting a future stock amount 270 of the product 220.

[0015]

The order threshold storage unit 120 stores a first threshold 250 related to the stock amount 230 and a second threshold 260 larger than the first threshold 250 for each product 220 sold in the store 210.

[0016]

The product position storage unit 130 stores a display position 300 in the store 210 for each product 220 sold in the store 210. The display position 300 is, for example, the XY coordinates in a case where the inside of the store 210 is regarded as a plane, or the height of a display shelf.

[0017]

The stock amount prediction unit 140 calculates a predicted value 270 of the future stock amount 230 (after a predetermined period) for each product 220, based on

information 230 and 240 stored in the product information storage unit 110. The predicted value 270 is, for example, the stock amount 230 after 3 days or 1 week. Further, the predicted value 270 is calculated based on a general prediction method, and the prediction method is not particularly limited.

[0018]

The first candidate extraction unit 150 extracts the product 220 of which the stock amount 230 is less than the first threshold 250 as a first order candidate product 280. This is general processing of selecting a product to be ordered.

[0019]

The second candidate extraction unit 160 extracts the product 220 of which the predicted value 270 of the stock amount is less than the second threshold 260 as a second order candidate product 290. Note that the product 220 extracted as the first order candidate product 280 by the first candidate extraction unit 150 is excluded from the second order candidate product 290. This is processing of selecting a product for which there is still room for the stock amount 230 as compared with the first order candidate product 280 but a product order time is close (the product will be ordered soon).

[0020]

As described above, if the order timing for each product 220 is matched as much as possible, it is possible to achieve labor saving for the delivery and display work in the store 210 and improve efficiency of the store work.

[0021]

The second candidate extraction unit 160 may extract, as the second order candidate product 290, a product which is in a predetermined positional relationship with the first order candidate product 280 and of which the predicted value 270 of the stock amount is less than the second threshold 260, based on the information 300 stored in the product position storage unit 130.

[0022]

At this time, the predetermined positional relationship with the first order candidate product 280 may be a relationship in which the product and the first order candidate product 280 are within a predetermined distance. Further, the predetermined positional relationship with the first order candidate product 280 may be a relationship in which heights of the display shelf in the store 210 for the product and the first order candidate product 280 are the same or within a predetermined difference. Further, the predetermined positional relationship with the first order candidate product 280 may be a relationship in which the product and the first order candidate product 280 are

within the predetermined distance, and the heights of the display shelf in the store 210 for the product and the first order candidate product 280 are the same or within the predetermined difference.

The display work of the second order candidate product 290 described above is efficient when performed together with the display work of the first order candidate product 280.

[0023]

The order unit 170 performs processing related to ordering of the first order candidate product 280 and the second order candidate product 290. The order unit 170 may perform processing of actually ordering the first order candidate product 280 and the second order candidate product 290 to the order destination terminal 320, or may support processing of ordering instead of processing of actually ordering.

[0024]

Based on the above operation principle, the present apparatus 100 improves efficiency of the store work by achieving labor saving of the delivery and display work in the store 210 by matching order timing for each product 220 as much as possible.

(Hardware Configuration of Order Support Apparatus According to Present Embodiment)

[0025]

A hardware configuration example of the present apparatus 100 will be described with reference to Fig. 3. Fig. 3 is a diagram illustrating an example of a hardware configuration of the present apparatus 100. As illustrated in Fig. 3, the present apparatus 100 includes a central processing unit (CPU) 510, a read-only memory (ROM) 520, a random access memory (RAM) 530, an auxiliary storage device 540, a communication I/F 550, an input device 560, a display device 570, and a storage medium I/F 580.

[0026]

The CPU 510 is a device that executes a program stored in the ROM 520, and performs arithmetic operation processing on data developed (loaded) in the RAM 530 according to a command of the program to control the entire present apparatus 100. The ROM 520 stores programs and data executed by the CPU 510. When the CPU 510 executes the program stored in the ROM 520, the program to be executed and data are developed (loaded) in the RAM 530, and the RAM 530 temporarily holds arithmetic operation data during arithmetic operation.

[0027]

The auxiliary storage device 540 is a device that stores an operating system (OS) that is basic software, an application program according to the present embodiment,

and the like together with related data. The auxiliary storage device 540 is, for example, a hard disk drive (HDD) or a flash memory.

[0028]

The communication I/F 550 is an interface that is connected to the communication network 310 such as a wired or wireless local area network (LAN) or the Internet and exchanges data with another apparatus 320 that provides a communication function.

[0029]

The input device 560 is a device such as a keyboard for inputting data to the present apparatus 100. The display device (output device) 570 is a device including a liquid crystal display (LCD) or the like, and is a device that functions as a user interface when a user uses the functions of the present apparatus 100 or performs various settings. The storage medium I/F 580 is an interface for transmitting and receiving data to and from a storage medium 590 such as a CD-ROM, a DVD-ROM, or a USB memory.

[0030]

Each unit included in the present apparatus 100 may be realized by the CPU 510 executing a program corresponding to each unit stored in the ROM 520 or the auxiliary storage device 540. In addition, each unit included in the present apparatus 100 may have a form in

which processing related to each unit is realized as hardware. In addition, a program according to the present invention may be read from an external server device via the communication I/F 550, or the program according to the present invention may be read from the storage medium 590 via the storage medium I/F 580 to cause the present apparatus 100 to execute the program.

(Processing Example by Order Support Apparatus According to Present Embodiment)

A flow of processing by the present apparatus 100 will be described with reference to Fig. 4. Fig. 4 is a flowchart illustrating a flow of processing by the present apparatus 100.

[0031]

In S10, the stock amount prediction unit 140 calculates a predicted value 270 of a future stock amount 230 (after a predetermined period) for each product 220, based on the information 230 and 240 stored in the product information storage unit 110. The predicted value 270 is, for example, the stock amount 230 after 3 days or 1 week. Further, the predicted value 270 is calculated based on a general prediction method, and the prediction method is not particularly limited.

[0032]

In S20, the first candidate extraction unit 150

extracts the product 220 of which the stock amount 230 is less than the first threshold 250 as the first order candidate product 280. This is general processing of selecting a product to be ordered.

[0033]

In S30, the second candidate extraction unit 160 extracts the product 220 of which the predicted value 270 of the stock amount is less than the second threshold 260 as the second order candidate product 290. Note that the product 220 extracted as the first order candidate product 280 by the first candidate extraction unit 150 is excluded from the second order candidate product 290. This is processing of selecting a product for which there is still room for the stock amount 230 as compared with the first order candidate product 280 but a product order time is close (the product will be ordered soon).

[0034]

As described above, if the order timing for each product 220 is matched as much as possible, it is possible to achieve labor saving for the delivery and display work in the store 210 and improve efficiency of the store work.

[0035]

The second candidate extraction unit 160 may extract, as the second order candidate product 290, a product which is in a predetermined positional relationship

with the first order candidate product 280 and of which the predicted value 270 of the stock amount is less than the second threshold 260, based on the information 300 stored in the product position storage unit 130.

[0036]

At this time, the predetermined positional relationship with the first order candidate product 280 may be a relationship in which the product and the first order candidate product 280 are within a predetermined distance. Further, the predetermined positional relationship with the first order candidate product 280 may be a relationship in which heights of the display shelf in the store 210 for the product and the first order candidate product 280 are the same or within a predetermined difference. Further, the predetermined positional relationship with the first order candidate product 280 may be a relationship in which the product and the first order candidate product 280 are within the predetermined distance, and the heights of the display shelf in the store 210 for the product and the first order candidate product 280 are the same or within the predetermined difference.

The display work of the second order candidate product 290 described above is efficient when performed together with the display work of the first order candidate product 280.

[0037]

In S40, the order unit 170 performs processing related to ordering of the first order candidate product 280 and the second order candidate product 290. The order unit 170 may perform processing of actually ordering the first order candidate product 280 and the second order candidate product 290 to the order destination terminal 320, or may support processing of ordering instead of processing of actually ordering.

[0038]

By performing the processing described above, the present apparatus 100 improves efficiency of the store work by achieving labor saving of the delivery and display work in the store 210 by matching order timing for each product 220 as much as possible.

[0039]

Although the embodiments of the present invention have been described in detail above, the present invention is not limited to the specific embodiments, and various modifications and changes can be made within the scope of the gist of the present invention described in the claims.

Reference Signs List

[0040]

100 order support apparatus

110 product information storage unit
120 order threshold storage unit
130 product position storage unit
140 stock amount prediction unit
150 first candidate extraction unit
160 second candidate extraction unit
170 order unit
210 store
220 product sold in store
230 product stock amount
240 product sales amount trend
250 first threshold
260 second threshold
270 predicted value of product stock amount after
predetermined period
280 first order candidate product
290 second order candidate product
300 display position in store
310 communication network
320 order destination terminal
510 CPU
520 ROM
530 RAM
540 auxiliary storage device
550 communication interface

560 input device
570 output device
580 storage medium interface
590 storage medium

CLAIMS

[Claim 1]

An order support apparatus comprising:

a product information storage unit that stores a stock amount and a sales amount trend for each product sold in a store;

an order threshold storage unit that stores a first threshold related to the stock amount and a second threshold larger than the first threshold for each product;

a stock amount prediction unit that calculates a predicted value of the stock amount after a predetermined period for each product, based on information stored in the product information storage unit;

a first candidate extraction unit that extracts a product of which the stock amount is less than the first threshold as a first order candidate product;

a second candidate extraction unit that extracts a product of which a predicted value of the stock amount is less than the second threshold as a second order candidate product; and

an order unit that performs processing related to ordering of the first order candidate product and the second order candidate product.

[Claim 2]

The order support apparatus according to claim 1,

comprising:

a product position storage unit that stores a display position in the store for each product, wherein

the second candidate extraction unit extracts, as the second order candidate product, a product which is in a predetermined positional relationship with the first order candidate product and of which a predicted value of the stock amount is less than the second threshold, based on information stored in the product position storage unit.

[Claim 3]

The order support apparatus according to claim 2, wherein the predetermined positional relationship is a relationship in which the product and the first order candidate product are within a predetermined distance.

[Claim 4]

The order support apparatus according to claim 2 or 3, wherein the predetermined positional relationship is a relationship in which heights of a display shelf in the store for the product and the first order candidate product are the same or within a predetermined difference.

[Claim 5]

An order support method in an order support apparatus which includes a product information storage unit that stores a stock amount and a sales amount trend for each product sold in a store, and an order threshold

storage unit that stores a first threshold related to the stock amount and a second threshold larger than the first threshold for each product, the order support method comprising:

a step of causing a stock amount prediction unit to calculate a predicted value of the stock amount after a predetermined period for each product, based on information stored in the product information storage unit;

a step of causing a first candidate extraction unit to extract a product of which the stock amount is less than the first threshold as a first order candidate product;

a step of causing a second candidate extraction unit to extract a product of which a predicted value of the stock amount is less than the second threshold as a second order candidate product; and

a step of causing an order unit to perform processing related to ordering of the first order candidate product and the second order candidate product.

[Claim 6]

The order support method according to claim 5, wherein

the order support apparatus includes a product position storage unit that stores a display position in the store for each product, and

the second candidate extraction unit extracts, as

the second order candidate product, a product which is in a predetermined positional relationship with the first order candidate product and of which a predicted value of the stock amount is less than the second threshold, based on information stored in the product position storage unit.

[Claim 7]

The order support method according to claim 6, wherein the predetermined positional relationship is a relationship in which the product and the first order candidate product are within a predetermined distance.

[Claim 8]

The order support apparatus according to claim 6 or 7, wherein the predetermined positional relationship is a relationship in which heights of a display shelf in the store for the product and the first order candidate product are the same or within a predetermined difference.

[Claim 9]

An order support program for causing a computer to execute the method according to any one of claims 5 to 8.