`Warehouse Manager` User Manual

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Introduction

Warehouse Manager is a business application designed to allow you to manage several aspects of your personal warehouse based enterprise from your computer. Warehouse Manager provides you with a quick and easy way to store and access your buiness data and use it to perform mission critical decisions. If you are the manager of a warehouse based company and are tired of some of the error prone burdens associated with manual information management and decision making then Warehouse Manager is for you.

About this Manual

This User Manual describes how to use Warehouse Manager. It serves as a means to describe the user interface and how to use it to accomplish common tasks. This manual also describes the underlying assumptions Warehouse Manager makes about the underlying data model. You may want to read through the manual to familiarize yourself with Warehouse Manager and exploit its capabilities to their fullest.

Using the Software Product

Warehouse Manager has been designed with the user in mind and care has been taken to make the application as user friendly as possible. With Warehouse Manager you will never have to key in the same data twice. Warehouse Manager stores your data in a database and presents it to you whenever you need to access it so you don't even have to remember it. Warehouse Manager consists of several screens each allowing you to carry out a set of related taks. Each screen presents a logical view of some portion of data held in the database and consists of one or more tables, input widgets, and buttons, altogether allowing you to carry out data selection and manipulation. In most cases data is selected by clicking on the corresponding table rows. In the case where data is being selected from a popup window the selection is completed by clicking on the corresponding done push button. Usually when data is selected from a table it is also displayed in more detail on nearby widgets displaying dates, numeric data, lines of text, or other information. On most screens buttons allowing the user to add, modify, or delete can also be found. These buttons allow the user to initiate the specified action. For modification and deletion though, it is necessary to select the appropriate row to be modified or deleted first. When manipulating data it is important that you complete (or cancel) each action by clicking on the appropriate submit or cancel push button provided for this purpose.

Currently the user interface implementation is comprised of several components the most obvious being a menu bar and a tab widget. The menu bar is where basic tasks such as connecting to a particular database or reading this manual can be found. The tab widget is used to select among one of twelve main screens each of which may involve subscreens and subselection popup windows. The twelve screens are named Inventory, Customers, Representatives, Suppliers, Sales, Sold Items, Purchases, Purchased Items, Containers, Categories, Item Catalogue, and History. Their purpose and workings are described in the following sections. To speed things up you may wish to use the tab key to move the input focus from widget to widget. When the tab widget has the input focus you may use the right and left arrow keys to move from one main screen to another. Similarly whenever a table has the input focus you may use the up and down keys to select data. Furthermore enabled tables may be sorted according to the fields appearing in their headers by clicking on them.

Suppliers, Representatives, and Customers

This software product assumes items coming from suppliers first enter and then exit the warehouse at a later time as representatives sell them to customers. Given these

premises Warehouse Manager allows you to manage personal information pertaining to these three entities.

Accessing and Manipulating Data

Warehouse Manager allows you to access contact information with a simple tab widget selection and table row selection. You may simply click on the table presented to you on the left hand side and scroll down to the record of interest. Warehouse Manager will present on the left hand side of the screen complete information pertaining to the selected entity. The same screen is also used to manipulate data. As mentioned earlier, once this information is entered you will not have to enter it ever again on other screens as such information will be automatically extracted from the database and presented to you by the application on screens where such information is required. This approach makes the overall process of data management is thus made less error prone across the application while enforcing constraints which allow the data in your database to be consistent and thus suitable for being analyzed at a later time.

The process of adding, modifying, or deleting a record on each of the Suppliers, Representatives, and Customers screens is similar so these operations will be described for Suppliers. To add a supplier, simply click Add, and key in all mandatory fields and whichever optional fields you wish. The Submit push button will become enabled when the application is ready to accept the entered information. Click it to complete the operation. Modifying and Deleting are analogous, except you must select the desired record to be modified or deleted from the corresponding data table first.

Suppliers Constraints

Suppliers are identified by supplier name. Hence it is not possible to add or modify suppliers in such a way that the added or modified supplier name matches that of an existing supplier. Removal of a supplier implies removal of all brand and items associated with such supplier and removal of all container categories and containers associated with such supplier. However, such operation is not permitted in the case where purchases from the given supplier have been made. In particular no nonempty containers associated with a given supplier can ever be discarded by the application. This is because nonemptyness of a given container implies the existence of a purchase from the given supplier which prevents deletion of the given supplier, hence preventing deletion of nonempty containers. Removal of a supplier whose items participate in sales to customers is also not permitted.

Customers Constraints

Customers are identified by customer name. Hence it is not possible to add or modify customers in such a way that the added or modified customer name matches that of an existing customer. Removal of a customer to which merchandise has been sold is not permitted.

Representatives Constraints

Representatives are identified by representative ID. Hence it is not possible to add or modify representatives in such a way that the added or modified representative ID matches that of an existing representative. Removal of a representative which has participated in sales is not permitted.

Item Catalogue

The Item Catalogue screen allows you to define items which are being considered for future purchase from suppliers and provides a means to introduce items to the application. The user may wish to either add items prior to their purchase using this screen or add them as they are being purchased from the Purchases screen. In the latter case, the application will automatically add the purchased items to the item catalogue.

The Item Catalogue screen implements three master detail data tables. Selecting a supplier allows the user to access information pertaining to all brands related to that particular supplier. Once supplier and brand are selected the user may access information about all items pertaining to that particular supplier and brand.

The supplier information entered in the Item Catalogue screen consists of the supplier name alone. Once a supplier name is entered in the supplier catalogue an entry is added to the Suppliers screen so that the user may entered more detailed information pertaining to such supplier at a later time if desired.

The user may associate a prospective sales item price with each item made known to the application. This represents the advertised customer price to be told to customers as they inquire about particular items. The user may wish to either enter such information as items are being defined or ignore it and modify it at a later time if needed.

Item Catalogue Constraints

Suppliers are identified by supplier name. Brands are identified by supplier name and supplier brand. Items are identified by supplier name, supplier brand, and item code. The usual restrictions to adding and modifying these entities apply. That is, no two supplier names may be identical, no two combinations of supplier name and brand may be identical, and no two combinations of supplier name, supplier brand, and item code may be identical. Nevertheless, it is acceptable for two distinct suppliers to have identical brands, or even for two distinct brands to have identical item codes.

Removal of a supplier implies removal of all brand and items associated with such supplier and removal of all container categories and containers associated with such supplier. However, such operation is not permitted in the case where purchases from the given supplier have been made. In particular no nonempty containers associated with a given supplier can ever be discarded by the application. This is because nonemptyness of a given container implies the existence of a purchase from the given supplier which prevents deletion of the given supplier, hence preventing deletion of nonempty containers. Removal of a supplier whose items participate in sales to customers is also not permitted.

Removal of a brand implies removal of all items associated with corresponding supplier and brand and removal of all container categories and containers associated with such supplier and brand. However, such operation is not permitted in the case where purchases from the given supplier with given brand have been made. In particular no nonempty containers associated with a given supplier and brand can ever be discarded by the application. This is because nonemptyness of a given container implies the existence of a purchase from the given supplier with given brand which prevents deletion of the given brand, hence preventing deletion of nonempty containers. Removal of a supplier brand with associated items participating in sales is also not permitted.

Removal of an item code is not permitted in the case where purchases from the given supplier with given brand and item code have been made. In particular no nonempty containers associated with a given supplier, brand, and item code can ever be discarded by the application. This is because nonemptyness of a given container implies the existence of a purchase from the given supplier with given brand and item code which prevents deletion of the given item code, hence preventing deletion of

nonempty containers. Removal of an item which participates in sales is also not permitted.

Purchases

The Purchases screen allows you to keep track of purchases. The action of receiving items purchased from suppliers or returning damaged items to suppliers are carried out independently on the Purchased Items screen. Neither do suppliers need be defined in the Suppliers screen, nor do items need be defined in the Item Catalogue screen prior to items being purchased. Entries for these will be added to the appropriate screens by the application as purchases are carried out from the Purchases screen.

To carry out a purchase, click on the Add push button and enter the date, supplier name, order number, and an optional order description. The supplier name is entered via the popup window invoked by clicking on the button to the right of the supplier name widget. The popup widget presents allows the user to modify information pertaining to known supplier names, and finally select the entry of interest by selecting it in the data table and clicking on the done push button. As always, the user must click on the Submit push button to complete the operation.

Once a purchase is created, the user typically proceeds to adding items to the given purchase using the screen on the right hand side. A popup window is provided to select brand and item corresponding to the supplier from which the purchase is being carried out. Purchase items will appear in the purchased items data table. The user may also choose to modify or cancel a purchase at a later time which is made possible using the usual application controls. Note that received items may not be deleted from the Purchases screen.

Purchases Constraints

Purchases are identified by purchase number. Hence it is not possible to add or modify purchases in such a way that the added or modified purchase number matches that of an existing purchase. Removal of a purchase implies removal of all items comprising such purchase from the purhcase itself but not from the item catalogue. Removal of a purchase with associated received items is not permitted.

Purchase Items Constraints

Purchase items are identified by purchase number, supplier name, supplier brand, and item code. Hence it is not possible to add or modify such items in such a way that the added or modified item has the same identifying information as an existing one. Should the number of requested items of a given kind need to be modified the change can be carried out by adjusting the corresponding quantity field. Removal of an item from a given purchase is not permitted in the case where some quantity of the given item has already been received.

Purchased Items

Once purchases have been filed items may arrive from suppliers and must be unpacked so that they may be stored in the warehouse inventory. This happens when items from pending orders are received. Unpacked items which have not yet been stored in warehouse containers are considered to be loose and can be stored separately from the Containers screen. The Purchased Items screen is used to record when items are received from suppliers. The Purchased Items screen is also used to ship damaged items back to the supplier. The application assumes that all damaged

items result from customer returns. In order to ship an item back to a supplier the user must first ensure that enough damaged items exist in the warehouse.

The application groups items received as part of supplier purchases by date. Hence if more than one parcel arrives with items from the same order on the same date, the user will have to click on the Modify push button to adjust the number of received items coming from a particular purchase as they are received.

Received Purchased Items Constraints

The event of receiving some quantity of a purchased item is identified by date received, purchase number, supplier name, supplier brand, and item code. Hence it is not possible to add or modify such events in such a way that the added or modified event has the same identifying information as an existing one.

Should the number of items received on a particular date corresponding to a given event need to be modified the change can be carried out by adjusting the corresponding quantity field. Removal or modification of such an event is not permitted in the case where the number of loose items is less that the modified or deleted number of corresponding items received according to the given event.

Sent Purchased Items Constraints

The event of sending some quantity of a purchased item is identified by date received, purchase number, supplier name, supplier brand, and item code. Hence it is not possible to add or modify such events in such a way that the added or modified event has the same identifying information as an existing one.

Container Categories and Tax Categories

The application assumes that the warehouse is comprised of a bunch of containers, each of which falls into one of several user defined categories. Such categories can be set up from the Categories screen. It is also assumed that each category is identified by a unique user specified ID and references a unique product supplier and brand. Each category also references one or more user defined tax categories consisting of a tax category description and tax category percentage. Tax categories are used for classifying merchandise according to expenses associated with products crossing national borders.

Container Categories Constraints

Container Categories are identified by category ID. Hence it is not possible to add or modify container categories in such a way that the added or modified container category ID matches that of an existing tax category. Removal of a container category such that nonempty containers associated with such tax category exist is not permitted. On the other hand removal of a container category implies removal of all necessarily empty containers associated with such tax category.

Tax Categories Constraints

Tax Categories are identified by category description. Hence it is not possible to add or modify tax categories in such a way that the added or modified category description matches that of an existing tax category. Removal of a tax category which is part of a container category is not permitted.

Containers

Merchandise is sold from warehouse containers. In the case of items being sold prior to them being available in the warehouse, an empty container for such items needs to be defined so that representatives may sell the merchandise according to container category and container number. The Containers screen allows you to decide which items must go inside which containers. Each container will contain one type of item. However, at a later time you may decide that a given container may contain items of a different kind. This operation is possible since when an item is sold, the application records along with the current category ID and container number also the supplier name, brand, and item code of the item being sold. Thus should the category ID and container number be used at a later time to store a different kind of item it is still possible to find out what item was requested by the customer. Hence ombinations of container item and container number may be reused over time as desired.

To add a container, you must first click on the Add push button. Then you must select an appropriate container item from the items table on the top right hand side. Tax categories matching the selected supplier and brand combination will be displayed on the bottom right hand side table and the user must select one of these. In case any of the two tables on the right hand side happens to be empty or not contain the desired data, the user will have to first add such data from the corresponding Items and Categories table. Once a selection exists in both tables you must specifiy a container number and the number of items to move to the container. The table on the left hand side will be then updated upon clicking the Submit push button.

The Available field of the table on the left hand side represents the number of items of a given kind which have arrived at the warehouse but have not yet been stored in their appropriate warehouse containers. The number of items stored cannot exceed the number of available itmes. Upon modification and removal of items from containers the corresponding number of available loose items is updated. This step is usually only necessary when items need be returned to the supplier.

The user should note that the quantity field may be zero at container creation in case the user needs to define a category for ordered items which have not yet arrived and wants to have representative sell them using preassigned container category and container number. This operation can be carried out from the Sales screen. Note that as expected, the user will not be able to record shipment of items to customers unless they are first present in their respective containers. Shush shipment is carried out from the Sold Items screen.

Finally, it is assumed that the warehouse is initially empty. Should this not be the case, in the worse of all circumstances it is always possible to add a phony supplier and a phony order containing everything in the warehouse, so as to initialize the warehouse contents.

Containers Constraints

Containers are identified by category ID and container number. Hence it is not possible to add or modify containers in such a way that the added or modified container ID and container number matches that of an existing container. Each container identifies one kind of item from the Item Catalogue as well as one kind of container category. Hence items added to such containers must necessarily match in supplier name, supplier brand, and item code. Removal of a container which contains items implies loosening all items stored within that container prior to container disposal.

Sales

The Purchases and Sales screens have similar user interfaces. While items need not be defined in the Items screen prior to their purchase, appropriate containers must be set up in the Containers screen prior to the sale of items described therein to take

place. Items may even be sold from empty containers. In either case, merchandise will need to be loosened from the appropriate containers prior to it being shipped to customers. No items may be shipped to customers until they are available in the warehouse. The process of shipping items to customers is recorded from the Sold Items window.

Representatives need not be defined in the Representatives screen prior to sales taking place. However complete information pertaining to a given representative may only be edited from the Representatives screen and not from the sales screen.

To carry out a sale, first complete the date, sale ID, sale representative, and customer information. The representative and customer must be entered via their respective popup forms which can be seen when the push buttons to the right of the widgets to be filled in by the application are clicked. In these popup forms, the user typically selects the appropriate field by choosing the corresponding table row and clicks the done button. Once a sale is created, the user proceeds to add items to the given sale using the screen on the right hand side. A popup window is provided to select supplier, brand, and item. Only those items which have been registered with a given container will show up.

In case the user decides to modify or cancel a sale at a later time this is also possible using the usual application controls, just as in the purchases screen.

Note that recording a particular sale does not imply immediate recepit or shipment of items. Pending items will be queued and the user must record corresponding shipments through the Sold Items screen.

Sales Constraints

Sales are identified by sale number. Hence it is not possible to add or modify sales in such a way that the added or modified sale number matches that of an existing sale. Removal of a sale with associated sent items is not permitted.

Sale Items Constraints

Sale items are identified by sale number, supplier name, supplier brand, and item code. Hence it is not possible to add or modify such items in such a way that the added or modified item has the same identifying information as an existing one. Should the number of requested items of a given kind need to be modified the change can be carried out by adjusting the corresponding quantity field. Removal of an item from a given sale is not permitted in the case where some quantity of the given item has already been sent.

Receiving and Shipping Customer and Supplier Items

The Sold Items screens are used to record the sending of sold items to customers as well as the receiving of damaged items from customers. The user may select among these two screens using the provided combo box situated under the tab widget.

Items must be available as loose items in order to be sent. However in order to cater to those situations where an ordered item is sold out or no longer being produced at the supplier site, the application makes it possible to substitute specific quantities of ordered items with substituted items, which, must be available as loose items in the warehouse. In such cases the sold items are recorded as being satisfied and the number of substitute items specified is decremented from the warehouse inventory.

When the customer sends an item to the warehouse, the application is able to allow the user select whether the sent item was the original one or whether it was a replacement in which case the user must select the item it was supposed to replace. In

either case the number of replaced items received is added to the warehouse and the number of satisfied items of the substituted type is decremented.

Inventory

The Inventory window gives you a broad view of the current state of the warehouse, including all items from the item catalogue independently of whether any reside in the warehouse, all containers and their associated category information regardless of whether such containers contain any items, advertized price to be announced to interested customers, average purchase and sale prices of items over the entire history of the warehouse, how many good items are in stock, and how many damaged items are in stock. Concerning good items, the application also displays how many are loose and how many have been stored in containers. Furthermore, the incoming and outgoing fields can be used to check how many purchased items yet have to be received, and how many sold items yet have to be sent.

As the user selects rows from the item table, two other tables update themselves to display all orders of the given items which have been carried out, including a breakdown of which customers await which orders. Thus when items are received the user can decide how to distribute the received items among customers waiting for them. The user can also gain some appreciation of the popularity of an item by looking at these windows comparing date and quantity information.

History

The History view allows you to inspect the state of the warehouse on any given date. Click on the Take Snapshot button to record the state of the warehouse on the current date. It is recommended that this is done as frequently as possible, ideally on a daily basis, as this will add value to the application data thus enhancing accuracy of data analusis. Closing the application using the Exit menu option will automatically take a snapshot of the current state of the warehouse.

Bug Reporting and Feedback

Several efforts have been made to ensure the usability of this program meets the demands of real users. In the end, what matters is end user satisfaction. In an attempt to make this product even more useful the author would like to encourage your feedback, good or bad. While no guarantee is made that your suggestions will be incorporated, serious consideration will be given to all requests. Chances are you may even wish to contribute to this software product in which case you are free to join in. Whether your would like to enhance it with new features or simply port it to another language your contributions will be more than welcome, and your participation and ideas will be greatly appreciated. Finally, I would like to thank all those people whom over the development of the software product have contributed their thoughts and with their enthusiasm and ideas have kept this project alive.

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