07B - Homework

You have been called into a warehouse operation that has a database to track it’s inventory.

The organization / philosophy is as follows:

* Each item in the warehouse is identified with a SKU ( Stock Keeping Unit) This can be thought of as a sticker on the item.
* We have a database table that defines what the valid SKUs are, and gives a brief description ( The SKU\_MASTER table ) There are additional fields in this table such as weight, isHazMat etc that we are ignoring for this problem.
* When an item comes into the warehouse, we put it on some random shelf and create a record in the INVENTORY\_ITEM table. There is an INVENTORY\_ITEM row for every item in the warehouse.
* Each item is at some defined location which contains an Aisle number, Shelf number, and Bin number.
* We keep track of the vendors ( folks who sell us inventory) in the VENDOR table Again there is additional info in the vendor table that is not germane to this problem.
* In order to know what items a vendor sells, and what their cost and availability is, we have a VENDOR\_SKU table. If a vendor can sell us an item, this is shown by an entry in the VENDOR\_SKU table.
* In order to know what we need to purchase, we have a NEEDED\_SKU table. This defines what we need to order from vendors. We have a single entry in this table for every SKU that needs to be ordered, with a quantity ( numNeeded) field to tell us how many to order.

The warehouse has hand held optical scanners to easily record when items are put on a shelf, what the location is, when an item is removed, etc.

The current method of shipping items to a customer is:

* A paper ticket is received which has the order information on it.
* A picker goes to a terminal, discovers where items on the order are located, and goes out to pick the items into a cart.
* If the item is at the location, the picker scans the item and location and the item is removed from inventory.
* If the picker finds that the item is not there ( IE it has been stolen by some other order / picker) he goes back to a terminal and re-enters the SKU for an alternate location.
* When all items are picked, the picker goes to an assembly station to pack and ship the order.
* If there are no items available, the picker runs an application that updates the needed\_SKU table with the number and skus of items that need to be ordered.

We want to reduce the inefficiencies in this system. Specifically the use of paper orders, the picker going to a location to find that the item has already been used on another order, and attempting to create a shipment if we do not have sufficient inventory to complete the shipment.

Your job is to define the new tables, and changes to existing tables, to accomplish this need.

Think about what tables and attributes you need to represent the order we are fulfilling, the customer we are sending it to, etc.

Be sure to have a way that our order information can live In the DB forever. IE don’t simply delete the information when the item is shipped.

Consider how you can tell if an Inventory\_Item has been ‘reserved’ by some other user and is not available to be picked.

