Project Level 2

Inventory Management System using Simple Linear Regression

The Inventory Management System is a real-time inventory database capable of handling large inventories of an organization. This can be used to track the inventory of a single store, or to manage the distribution of stock between several stores of a larger franchise. However, the system merely records sales and restocking data and provides notification of low stock at any location at a specified interval. The goal is to reduce the strain of tracking rather than to handle all store maintenance.

Objectives

The main goal of Inventory Management System is to ensure consistent availability of supplies for consumers. Thus, Inventory Management System is directed toward owners of small to large stores and stock managers who are responsible of maintaining sufficient goods on hand in a retail or manufacturing business. It can scale from a single computer running both client and server software up to multiple stores and warehouses. At last, the owner can use predict module to predict the sales which would be very helpful for decision-making.

Features:

1. **Admin Login**
   Admin specifies his credentials to login into the system.

2. **Add Products**
   System allows admin to add new products which will be available for sale in the system with details as well as update/delete the details including name, manufacturer, and description.

3. **Add Purchase Details and Update stock**
   Here, Admin add the purchase details including quantity of products purchased on a specific date for the added products.

4. **Add Store/Location Details**
   Here, system allows admin to add stores or locations on which sales can be made.

5. **Add Sales Details**
   Here, system allows admin to add sales details on the products as well as their sales date, quantity, stocks sold, the store on which the sale was made and total sale amount.

6. **View Products and Quantity available in Stock**
   Here, admin can view the list of products and the quantity currently in stock, which are currently available in the system.

7. **View Sales on Stores**
   Here, admin can view the list of products sold on different stores or locations during a specified time period.

8. **Predict/Forecast**
   The system uses **Simple Linear Regression** to predict the future sales on a selected product and store/location based on sales history (assume that entered data for different product sales grows over time). Show the graph as show in the following video (you can use any React library you want to draw the graph):
   https://www.youtube.com/watch?v=5BU9ajrYoOU
   You may use any library or build your own JavaScript library:
   http://stackoverflow.com/questions/6195335/linear-regression-in-javascript
   To understand regression you can review the following or any other resource:
   http://onlinestatbook.com/2/regression/intro.html

Advantages

1. **Speed and Efficiency:** A computerized inventory management system makes everything from inputting information to taking inventory easier. The most effective inventory system products raise your operating performance which leads to more productivity. It ensures smooth production operations by maintaining reasonable stocks of materials.
2. **Lowering of Costs:** Many companies invest huge amounts of money for his or her inventory.
3. It facilitates regular and timely supply to customers through adequate stocks of finished products.

Disadvantages

1. **Accuracy Issues: -** A computerized system alone does not ensure accuracy, and the inventory data is only as good as the data entry that created it.

2. The control of inventories is complex because of the many functions it performs. It should be viewed as shared responsibilities.

3. Requires an active internet connection.

Application:

Can be used in companies who have multiple stores for managing their large inventories.

NOTE: You can skip simple regression for now, but it will be bonus for you.