



POINT OF SALES AND INVENTORY MANAGEMENT SYSTEM

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Article DOI: <https://doi.org/10.36713/epra10783>

DOI No: 10.36713/epra10783

ABSTRACT

The whole E-Commerce branch shops a plentiful quantity of facts ordinary which occasionally consequences in lacking gadgets, mistaken stock manipulates and for this reason free the music in their database. This trouble isn't most effective confined to them; However, customers also play a significant role in the development of this situation by doing things like updating the items that are in their shopping carts, leaving the cart with items at any point, which results in difficulties at checkout, and frequently cancelling the orders that they have placed. There is an urgent need for a device that now not most effective shops these varying facts but moreover holds it in a powerful approach. This gadget maintains a terrific music of all the statistics approximately the dealer, supplier, synthetic items and uncooked substances because it makes use of MongoDB to shop the facts at the backend and the frontend is advanced the use of Java on NetBeans to offer a terrific Graphical User Interface (GUI) in order that any individual with nontechnical history can get entry to the stock. The gift paintings might also additionally assist in excessive and agreed stage of purchaser service. It might also additionally cause choose bendy ability and allow us to address perks and troughs in demand.

I. INTRODUCTION

Because of the increasing volume of data produced each second in the online shopping industry, businesses and even IT groups are facing a variety of challenges, not only in terms of storing the information but also finding a way to preserve it in its original form. In most cases, an inventory device will have a number of modules for various stakeholders, such as Department, Warehouse, Raw Materials, Suppliers, and Employees. This can make it difficult for the administrator to store a number of these pieces of information and the relation that exists between them. The information obtained from those modules can be stored, deleted, searched, and kept up to date using this device, which is an environmentally responsible option. Additionally, it has the capability of keeping a record of information such as which character handled an item while it was being stored, which department the character is from, which provider donated the gadgets, and where Warehouse the item is retrieved from. As a result of the fact that the Warehouse is divided into two sections—Raw Material and Finished Goods—this model is also able to differentiate between the various products.

The precise modules that make up an inventory are shown in Fig. 1. These modules include Department, Supplier, Dealer, Employee, and Warehouse. For example, the Department module includes the Department Name, ID, and HOD; the Supplier module includes the Supplier Name, ID, Item issued,

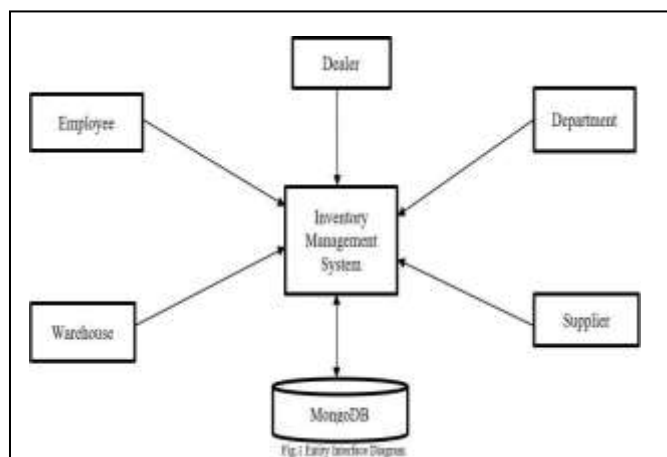
and Item delivered; and the Dealer module includes the Dealer Name and ID.

Through the use of the modules Supplier and Dealer, it is possible to determine the Department that the character belongs to, i.e., the Department to which the company or provider belongs. The module known as "Employee" has fields for "Employee ID," "Name," "Employee's HOD," "Joining Date," and "Salary" for the sole purpose of storing the individual particulars of each worker within the system. The Warehouse module, on the other hand, is broken up into several components, including Raw Materials and Finished Goods. These parts each have their own Name, ID, Manufacturing date, and Amount fields. Because the item that is going to be provided needs to be in the Finished Goods category, and the item that is going to be stored needs to be in the Raw Materials category, the purpose of the back of the branch warehouse is to keep a record of which items need to be provided, and which items need to be stored so that they can be used at a later time.

The administration and safeguarding of stock is a challenge that is encountered seriously across all business sectors. The management of inventories is absolutely necessary for the continuation and expansion of any business. It is possible for any business to fail if the need for stock is ignored. This is especially true if the variables of productivity in the production process are not well controlled, and the business is unable to fulfil the wants and needs of its customers. Inventory control entails making sure that sufficient products are on hand at the

right time when requested by means of customers and the inventory of gadgets need to be in true condition, that means that inventory must know no longer be an excessive amount of or too little also, agencies be located to satisfy clients' needs in time period of amount and quality. Considering development in client satisfaction, the gifted control of inventories has end up significant, due to the fact extra or scarcity of inventories has far off outcomes at the deliver chain fee consequently the want for stock control has been articulated, it's far found that on one hand the want for income and stock control is developing at the same time as on the alternative the opportunities of synthetic intelligence and software program improvement being the essential a part of stock also are processing.

A most important task is to envision the capacity synergy between the business model and the artificial intelligence business model. The challenge of an enterprise and the shops can be taken as a paradigm for example; in order to sell an item, the store or producer needs to maintain a stock of that object to satisfy the demand. It is very difficult to keep an ideal stock report because of the challenging circumstances that are associated with traditional inventories. These challenging circumstances include theft, floods, losses in revenue, and frauds. It is also very difficult to keep an ideal stock report, which causes discrepancies in records. Despite the fact that over the course of many years, inventories have transitioned from guide structures to computerised devices, it is not possible to guarantee the device's performance and effectiveness in situations in which there are multiple saves. As a result, there is a need to provide coordination and tracking of these kinds of shops in a sensible way with a view to boom the recognition of this paper is to broaden an sensible stock control device to coordinate shops of an enterprise, that is applied in an internet – primarily based totally environment.



I. RELATED WORK

A sensible version for both income and stock control was painstakingly developed by Anigbogou et al. (2011). After observing the need for the emergence of stock and intelligence, as well as the disparity between the theory and practises of stock, they focused their work on the mutual

effects of developments in stock control and artificial intelligence. They came to this conclusion after observing the discrepancy between the theory and practises of stock, the plausible technique provided nonetheless own a few regulations due to the fact they're constructed on standalone structures which become now no longer enough sufficient to seize the developing overall performance stock optimization, additionally the database used has a restrained area and cannot accommodate massive statistics.

Neural Network Autoregressive Model, which was used by A. Ramli and colleagues, showed a maximum accuracy of 73.54 percent in predicting the flooding that will occur in Kuala Lumpur. In addition, the authors have proposed that the forecast time can frequently be decreased even further by making use of a variety of prediction models. In order to forecast floods along the Chang Jiang in China, Chau et al. utilised two different hybrid methods, namely, Genetic Algorithm based Artificial Neural Network (ANN-GA) and Adaptive Network based Fuzzy Inference System (AN-FIS). Both of these methods are considered hybrids. The downside of using ANFIS was that it required a large number of parameters, while the disadvantage of using ANN-GA was that it required more time to compute.

Chede et al. (2012) carried out research on fuzzy logic evaluation mainly based on inventory taking into consideration demands and stock quantity convenient. Their paintings was out to be largely reliant wholly on the idea of fuzzy data bases - level adjusting. According to this precept, the development of the "inputs–output" item version can be achieved in degrees, which, in analogy with classical methods, can be taken into consideration as degrees of structural and parametrical identification. In other words, the development of the "inputs–output" item version can be achieved in degrees. The findings suggest that the bushy common sense technique model provided the most appropriate outcome in terms of stock, since the authors were able to get the price for any input within the system in order to maximise the stock. The paintings were most effective a concept at one point and are not being created at this time.

When Loizidies (2013) worked on the Development of a SaaS Inventory Management System, he discovered irregularities within the control of stock at Caterpro Ltd. These irregularities became related to loss and inconsistencies in the statistics that were recorded. Loizidies's findings can be found in the following paragraph. His focus shifted to developing a Software as a Service (SaaS) network, and more specifically, an Inventory control device, with the intention of providing a fundamental tool for monitoring in addition to tracking income and stock to people and small-scale businesses who are unable to come up with the money for the investment of an entire committed stock control structures. His goal was to make this fundamental tool available to as many people and businesses as possible. The application was made more sophisticated by the



utilisation of PHP Designer 8, HTML, and CSS. As a consequence of the findings of the research, a web-based Software as a Service Inventory Management System application was developed for Caterpro Ltd. This application was designed with functions and scripts in order to provide the desired capability to the internet and fulfil the predefined requirements that the company had established. The artworks are now not made with intelligence any longer in their construction.

II. METHODOLOGY

A customer will often place an order in an organisation with the expectation that it will be forwarded to the Sales Manager, who will then decide whether or not to accept the purchase. If the order is okayed, the information about it will be sent to the stock administrator, who will put together the order and also update the database with information such as how many quantities of an item are needed for the order so that the stock can be updated for similarly used items. If the order is approved, the stock administrator will put the order together. Now that the order has been processed, it will be sent to the delivery department so that it may be transported to the customer. However, in this circumstance, generally a portion of the charge is paid earlier as to region the order, which makes the occasional replace of the fee a source of headaches. The device stores and retrieves data using a database called MongoDB, which is used in the backend as a server. Java is used in NetBeans for the frontend, and the combination of the two creates an outstanding graphical user interface (GUI).

The following methodologies can be used:

A. MongoDB

The information is stored in MongoDB in a row-smart manner, which is because it is a non-relational database. It is able to save the unstructured data that an organisation often generates. After this step, the evaluation graph can be converted into binary numbers, and then it can be saved within the database together with the rest of the information. It will store all of the information in a manner that is friendly to the environment, and the database administrator will have the ability to make use of features such as Sharding and Replication to split up or replicate the data across multiple servers in order to protect the system from malfunctioning or becoming unavailable. In retrospect, this ensures a better level of functionality and dependability.

B. Java

Java is utilised in order to build a more advanced interface with the device. By utilising the MongoDB JDK library, a quick and environmentally friendly method of communication is established between the front-give up and the back-give up in order to ensure that the device will not lag at any point in time. Additionally, almost every company currently uses Java as its frontend, which means that developing a device that uses Java might be beneficial for the entire industry.

C. NetBeans

With the help of NetBeans' drag-and-drop functionality, we are able to quickly and easily create a window web page that resembles a shape by making use of the program's multiple components, which include buttons, text areas, and grid perspectives, amongst others. We are also able to set several properties such as colour, font, or shape easily and without the need for any code knowledge. This is important for the case where an organisation want to construct the system in accordance with its specific requirements. It turns into a medium to set up this device on any running device like Windows, Linux, or Mac oS so that it can fulfil the criteria of a heterogeneous device. This means that this device can be established as a software programme on any operating System.

III. RESULTS

The following effects are acquired from the system

A. Department

A department is made (we'll call it SCOPE), and it has an ID, name, block number, head of department, and total number of employees.

B. Finished Good

The Finished Goods desk is storing an item that has its own unique ID, Name, Quantity, Date of Issue, Date of Delivery, Price, Amount Paid, and Amount Due associated with it.

Here, the database administrator is in a position to make full use of the power offered by MongoDB with the assistance of techniques such as sharding and replication, which divide or replicate the data across multiple nodes in order to make the data Available and Partition Tolerant across all of the nodes. However, for additional implementation, Machine Learning Prediction algorithms can be used to anticipate the requirement by analysing the orders from numerous locations. NewSQL can also be used to combine the power of relational and non-relational data like MySQL and MongoDB at the same time in order to manage structured and unstructured data at the same time. This allows for simultaneous management of both established and unstructured data.

IV. CONCLUSION

The multiple issues that come up while keeping unstructured information can be solved by using MongoDB. The statistics are maintained in a row-sensible pattern, and indexing can be carried out. This is something that a few NoSQL databases, such as Cassandra and Neo4j, do not offer. A hybrid machine that was constructed from MongoDB and java turned out to be quick, environmentally friendly, and reliable in processing queries such as load, store, update, and delete while also providing a better user interface (UI) at the same time to make the reason clear and simple.



The intelligent machine design used in these works makes use of a fuzzy good judgement technique to fuzzily determine supply and demand, which serve as major inputs to the machine and enable it to provide stock managers with the intelligent reporting of data necessary for them to make decisions. In a web-primarily based setting, this is carried out in a decentralised manner by utilising a client-server variant of the structure. This device enables real-time stock tracking for a firm that has more than one warehouse or other location for its business activities.

V. FUTURE WORK

The research concluded that most of packaged food industrial employer select the usage of PC platform to Android/ cell devices. The reasons are PC is regularly used on industrial employer and its miles much less tough to govern transaction, are seeking for products that customer want, and manipulate database and stock. In the alternative hand, Android/ cell device is most fulfilling for decrease again office. The reasons are Android is flexible and smooth to use, and it may be used any time and any place. The industrial employer owners can look at and manipulate their sales, stock, and transaction, at any time.

If the economic employer owner would love to open a shop which does now now no longer require internet connection, Aronium is proper for solo hold. If the economic employer owner would love to open a few different holds at one-of-a-type region but despite the fact that want to keep tune of the present- day hold, E-hopper or Loyverse are endorsed rely on what devices they are the usage of. If industrial employer owner would love to use cell devices for smooth setup, Loyverse is endorsed. If industrial employer owner prefers the usage of PC, then E-hopper is endorsed. Then, if industrial employer owner prefers doing delivery together with export and import then odoo is endorsed.

- I. Detail observes approximately all of the cloth changed into now no longer feasible due to time limit.
- II. Some of the data changed into saved private with the aid of using the metal industries branch.
- III. Study changed into limited simplest to the chosen additives withinside the shops branch of metal company.
- IV. Comparative observe can be new studies trouble for the destiny work.

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