A Project Report
on
C.S.E INVENTORY

A Project Submitted in Partial Fulfillment of the Requirements for the Degree of
BACHELOR OF ENGINEERING
in
COMPUTER SCIENCE & ENGINEERING
by

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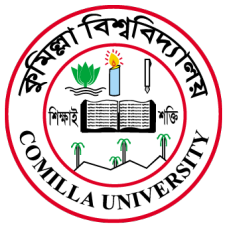

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Abstract

When most people think of inventory management, they think of retail applications. While retail operations rely heavily on inventory management, inventory management systems are widely used in a variety of industries, from manufacturing to utilities, healthcare, education, government, and more. Inventory management systems streamline and centralize the process of controlling the flow and maintenance of inventory to ensure that the right amount of inventory is available at the right time and of the right quality. An inventory management system is the combination of technology (hardware and software) and processes and procedures that oversee the monitoring and maintenance of products, whether those products are assets of an institute, raw materials, and supplies.

Approval

The Project Report "CSE INVENTORY" submitted by MD.TAREK HOSSAIN TUSHER ID: 11908033, MD.ANAMUL HAQUE ID: 11908046, MD.RAFI HASAN ID: 11908051 to the Department of Computer Science & Engineering, Comilla University, has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of Bachelor of Engineering in Computer Science & Engineering and approved as to its style and contents.

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Declaration

We, hereby, declare that the work presented in this Project is the outcome of the investigation performed by us under the supervision of MAHMUDA KHATUN, Department of Computer Science & Engineering, Comilla University. We also declare that no part of this Project and thereof has been or is being submitted elsewhere for the award of any degree or Diploma.

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Acknowledgments

At first, we want to express gratitude to the Almighty Allah for His endless kindness for keeping us mentally and physically fit to complete this project. This project would not get its own shape without the support of the Comilla University which provided us the chance for Bachelor Program in computer science and engineering. Foremost, we would like to express our deepest gratitude to our honorable supervisor, MAHMUDA KHATUN. Her vast knowledge, attitude, behavior and wisdom are have given us the strength to work harder every day. Her directions and guidelines of preparing manuscripts, reports, and presentations made us more dynamic and well-organized throughout the whole project. She gave us enough time from the beginning of the project, though she has a tough schedule of her own task.

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1 Introduction

Inventory management is the process of tracking and controlling an organization's inventory, which includes raw materials, work-in-progress, and finished products. The goal of inventory management is to ensure that the right amount of inventory is available at the right time to meet service requirements while minimizing costs associated with carrying inventory.

The basic reason for holding inventory is to keep up to the production activities unhampered. It is neither physically possible nor economically justifiable to wait for the stock to arrive at the time when they are actually required. Therefore, keeping of inventory is a must for the efficient working of a business unit.

Effective inventory management requires a well-designed system that tracks inventory levels, monitors inventory movements, and generates alerts when inventory falls below a certain level.

Proper inventory management can help organizations reduce costs associated with carrying excess inventory and prevent product shortages. It can also improve supply chain efficiency by reducing lead times and improving forecasting accuracy.

Overall, effective inventory management is an essential aspect of any successful corporation's operation and can have a significant impact on a corporation's bottom line.

1.1 Motivation

The motivation behind an inventory management project is to optimize and streamline the way a company manages its inventory of goods and supplies. Effective inventory management is critical for an organization, as it ensures that the right products are available in the right quantities at the right time, while minimizing costs and waste.

In Inventory Management System, various methods and techniques can be adopted to control the inventory like, prompt maintenance of products, proper labeling of various

products, and fixation of various control levels and application of inventory management techniques which are relevant for inventory management in a system. Inventory Management System will help an organization in dealing with the supply of the products and other activity in order to achieve the maximum coordination and optimum expenditure on products.

1.2 Aims and objectives

The main objectives are:

1.Decresing cost: Effective inventory management can help organization reduce the costs associated with carrying excess inventory.

2. Increasing efficiency: By streamlining inventory management processes, an organization can free up time and resources that can be better spent on other tasks. This can lead to improved productivity and overall efficiency.

3. Enhancing inventory accuracy: This can help ensure that the right products are always available when needed, and can also help reduce the risk of inventory discrepancies or errors.

4.To facilitate furnishing of data for short term and long term planning and control of inventory.

5.To design proper methods for Inventory Management System.

1.3 Project Outline

This project report will be structured as follows:

Chapter 2 introduces the theoritical framework of the project.

In Chapter 3, we present an overall interpretation of the methodology and design of the project work.

In Chapter 4, we discussed about the results and how we implemented the Inventory Management System.

Finally in Chapter 5, we conclude this project report with the future objectives.

2 THEORITICAL FRAMEWORK

2.1 Meaning of Inventory

Inventory is an idle stock of physical goods that contain economic value, and are held in various forms by an organization in its custody awaiting packing, processing, transformation, use or sale in a future point of time. Any organization which is into production, trading, sale and service of a product will necessarily hold stock of various physical resources to aid in future consumption and sale. While inventory is a necessary evil of any such business, it may be noted that the organizations hold inventories for various reasons, which include speculative purposes, functional purposes, physical necessities etc. From the above definition the following points stand out with reference to inventory: 1. All organizations engaged in production or sale of products hold inventory in one form or other. 2. Inventory can be in complete state or incomplete state. 3. Inventory is held to facilitate future consumption, sale or further processing/value addition. 4. All inventoried resources have economic value and can be considered as assets of the organization.

2.2 Types of Inventory

There are several types of inventory that organizations may manage. Here are some common types:

Raw materials inventory: This type of inventory includes materials that are used in the production of finished goods, such as wood, steel, or fabric.

Work-in-progress inventory: This inventory includes goods that are in the process of being manufactured, but are not yet complete.

Finished goods inventory: This type of inventory includes completed products that are ready to be sold or delivered to customers.

Maintenance, repair and operating (MRO) inventory: This type of inventory includes goods that are used to support the production process, such as tools, spare parts, and supplies.

Consignment inventory: This inventory belongs to a supplier, but is held by a customer until it is used or sold.

Safety stock inventory: This inventory is held to protect against unexpected demand or supply chain disruptions.

2.3 Basic reasons to keeping an Inventory

There are three basic reasons for keeping an inventory:

1. TIME: The time lags present in the supply chain, from supplier to user at every stage, requires that you maintain certain amount of inventory to use in this "lead time".

2. UNCERTAINTY: Inventories are maintained as buffers to meet uncertainties in demand, supply and movement of goods.

3. ECONOMIES OF SCALE: Ideal condition of "one unit at a time at a place where user needs it, when he needs it "principle tends to incur lots of costs in terms of logistics. So bulk buying, movement and storing brings.

2.4 Essentials of inventory management

The important requirements of inventory control are:

• A firm needs inventory control system to effectively manage its inventory.

• Proper classification of materials with codes, material standardization and simplification.

• The operation of a system of internal check to ensure that all transactions involving material and equipment are checked by properly authorized and independent persons.

• The operation of a system of perpetual inventory so that it is possible to determine at any time, the amount and value of each kind of material in stock.

• A suitable method of valuation of materials is essential because it affects the cost of jobs and the value of closing stock of materials.

2.5 Advantages of Inventory mangement

Inventory control offers several advantages for organizations, including:

Cost savings: By managing inventory effectively, organizations can reduce costs associated with excess inventory and stockouts. This includes reducing costs associated with storage, handling, and obsolescence of inventory.

Improved customer satisfaction: Inventory control helps organizations ensure that they have the right products available to meet customer demand. This reduces the likelihood of stockouts and backorders, improving customer satisfaction.

Increased efficiency: By optimizing inventory levels, organizations can streamline their supply chain and reduce lead times, improving overall efficiency.

Better decision-making: With accurate and timely inventory data, organizations can make informed decisions about purchasing, production, and sales strategies.

Improved forecasting: Effective inventory control requires accurate demand forecasting. By improving forecasting accuracy, organizations can better plan for future inventory needs and reduce the risk of excess or obsolete inventory.

Increased profitability: By reducing inventory costs and improving efficiency, organizations can improve profitability.

Overall, inventory control is essential for organizations looking to operate efficiently, meet customer demand, and remain competitive in their industry. Effective inventory control can offer a range of benefits that can have a significant impact on a company's bottom line.

2.6 Disadvantages of Inventory management

While inventory control can offer several advantages, there are also some potential disadvantages to consider, including:

Increased costs: Implementing an inventory control system can require an investment in technology, software, and personnel. This can increase costs in the short term.

Time-consuming: Implementing and maintaining an inventory control system can be time-consuming and may require significant resources.

Complexity: Inventory control systems can be complex, requiring a detailed understanding of supply chain management, data analysis, and forecasting.

Inaccurate data: Inaccurate data can lead to incorrect inventory levels, which can result in stockouts or overstocking. This can be a significant problem if inventory levels are based on inaccurate data.

Reduced flexibility: Strict inventory control systems may limit a business's ability to quickly respond to changes in demand or supply chain disruptions.

Increased lead times: Tight inventory control can lead to longer lead times if a business does not have enough safety stock to buffer against unexpected demand or supply chain disruptions.

Difficulty with special cases: Certain types of inventory, such as perishable goods, may require specialized inventory control procedures that can be difficult to implement.

Overall, the benefits of inventory control typically outweigh the potential drawbacks. However, organizations must carefully consider the potential disadvantages and weigh them against the benefits when implementing an inventory control system.

3 Methodology and Design

3.1 Entity Relationship (ER) Diagram

ER Diagram is a visual representation of data that describes how data is related to each other using different ERD Symbols and Notations.

In the Figure 3.1, We see the Entity Relationship (ER) diagram for a inventory management system.

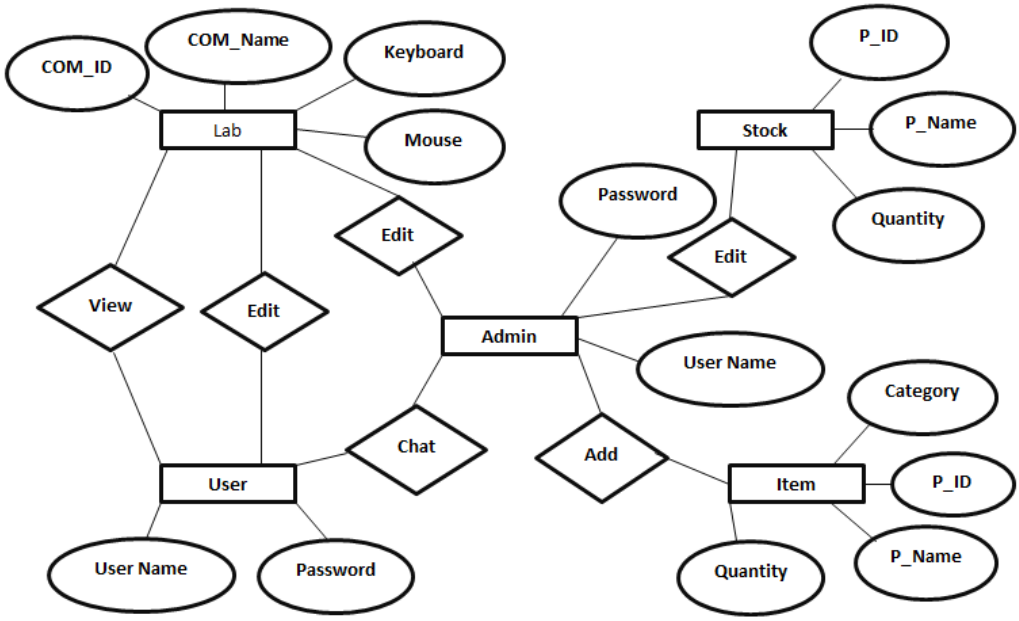

Figure 3.1: Entity Relationship (ER) Diagram

3.2 Use Case Diagram

A use case diagram is a graphic presentation of the system interaction with external environment and the relationship between the main functionalities of the system.

In the Figure 3.2, We see the Use Case diagram for a inventory management system.

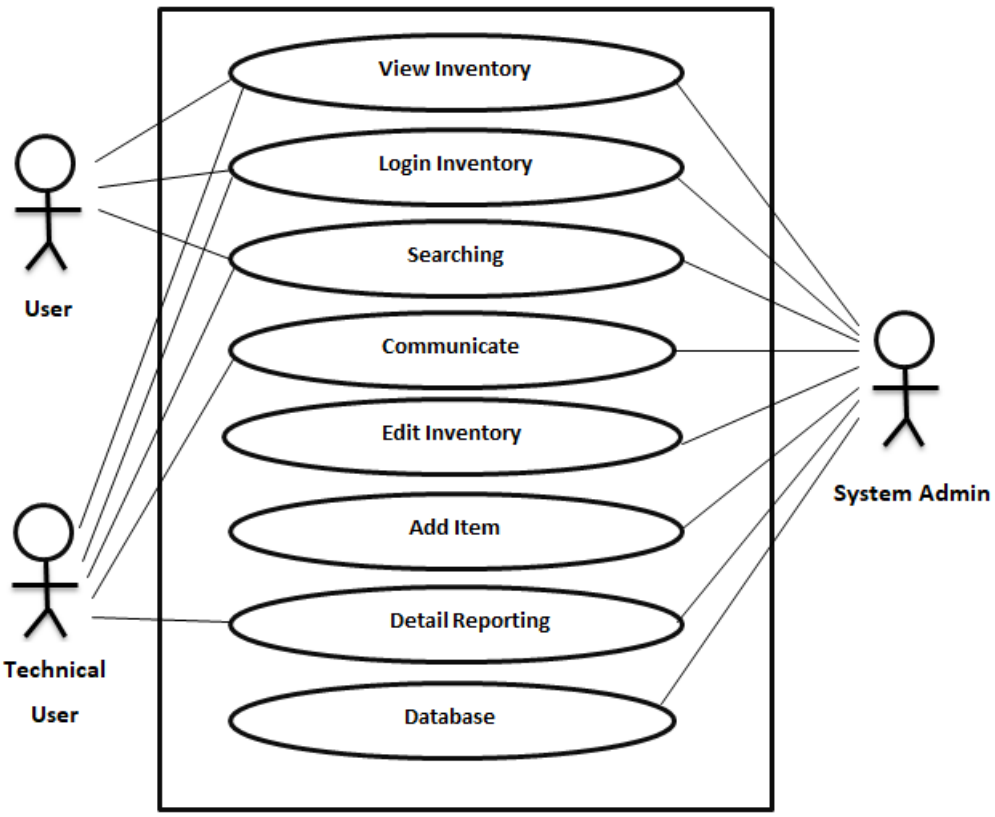

Figure 3.2: Use Case Diagram

4 Implementation

Chapter introductory Implementation is the stage in the project where the theoretical design is turned into a working system.

4.1 Login Page

This is the login page. All users along with admin can login from this page.

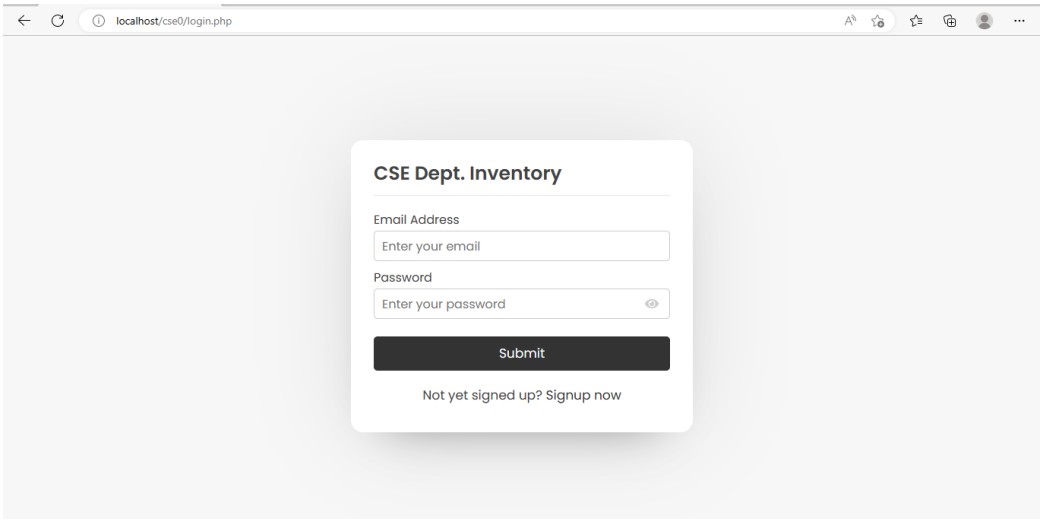

Figure 4.1: Login Page

4.2 Sign up

This is the Sign up page. All users along with admin can sign up from this page.

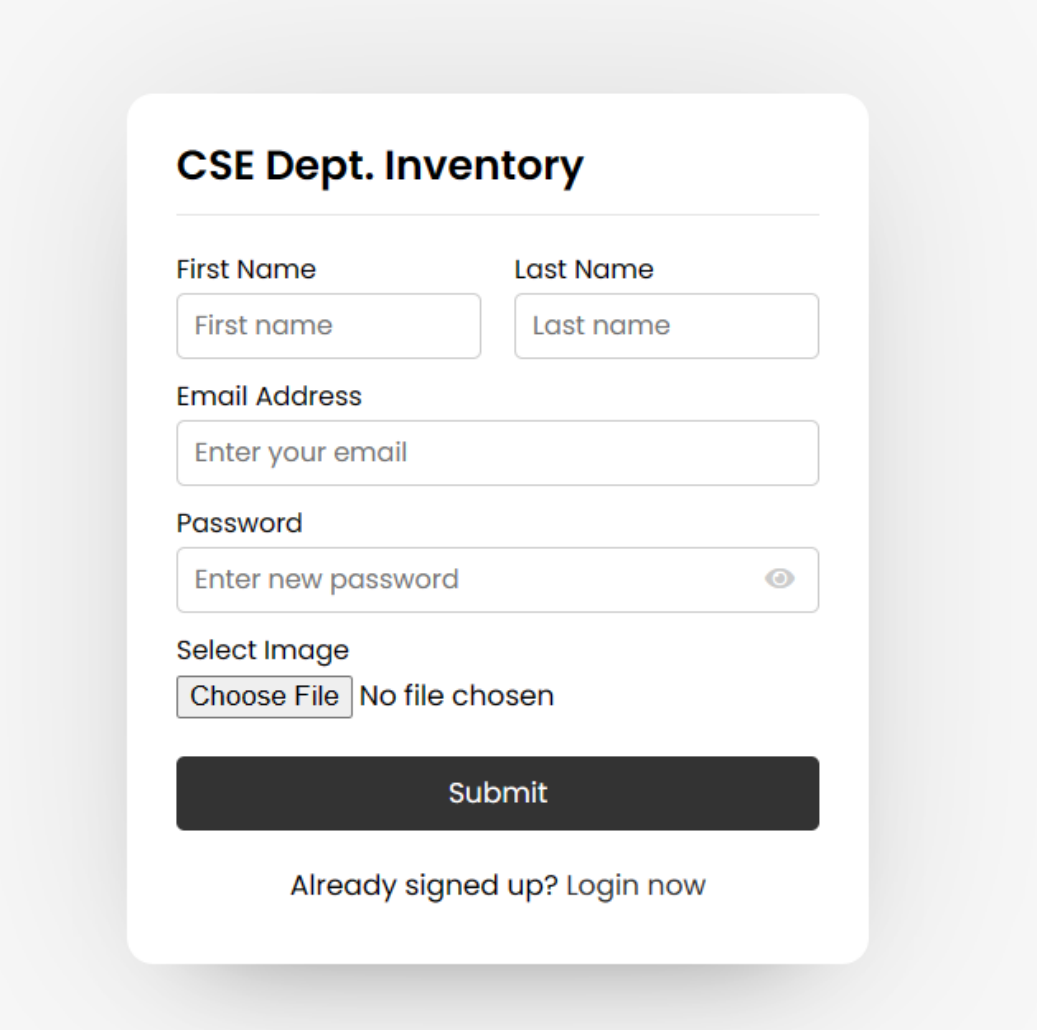

Figure 4.2: Sign up Page

4.3 Admin Dashboard 1

All functionalists for admin can accessed from admin dashboard

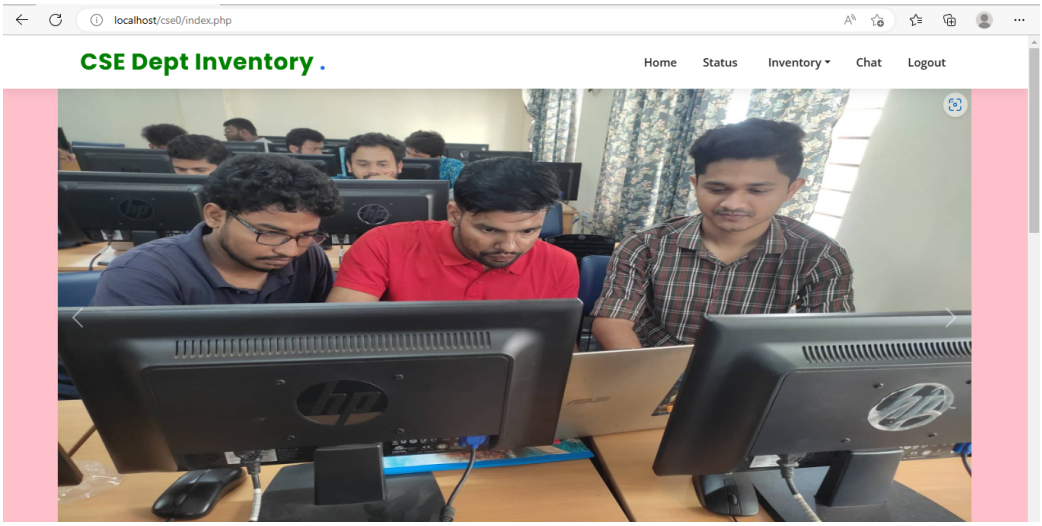

Figure 4.3: Admin Dashboard 1

4.4 Admin Dashboard 2

All functionalists for admin can accessed from admin dashboard

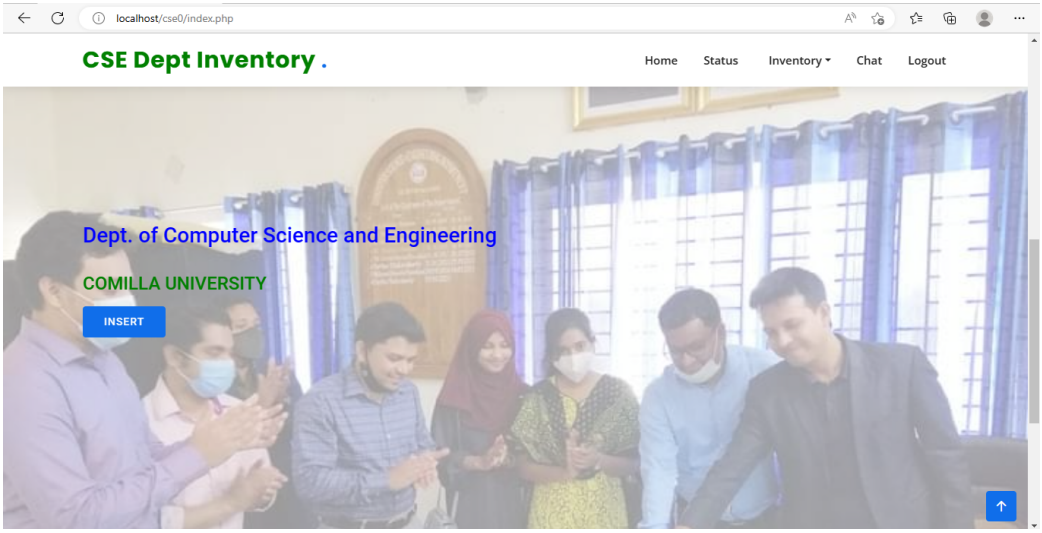

Figure 4.4: Admin Dashboard 2

4.5 Admin Dashboard 3

All functionalists for admin can accessed from admin dashboard

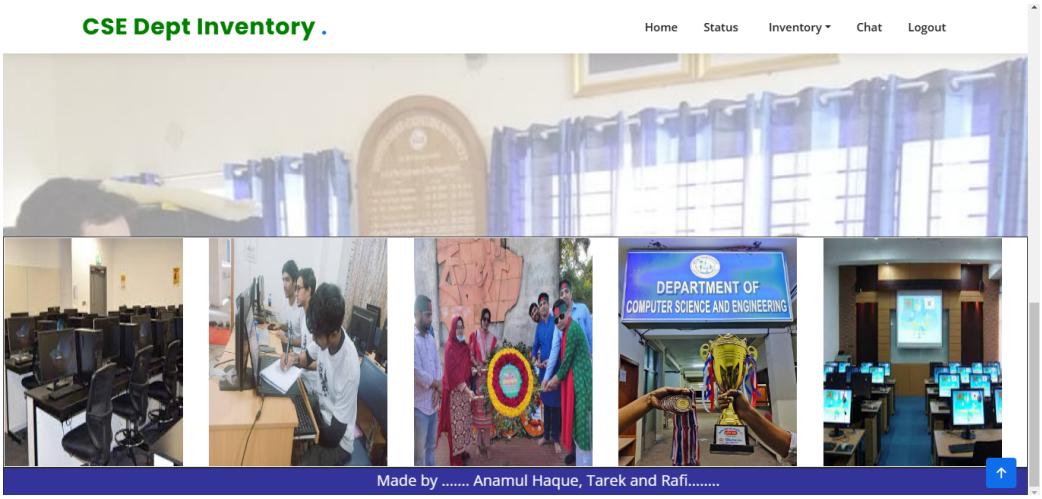

Figure 4.5: Admin Dashboard 3

4.6 All Link Button

All functionalists for admin can accessed from admin dashboard

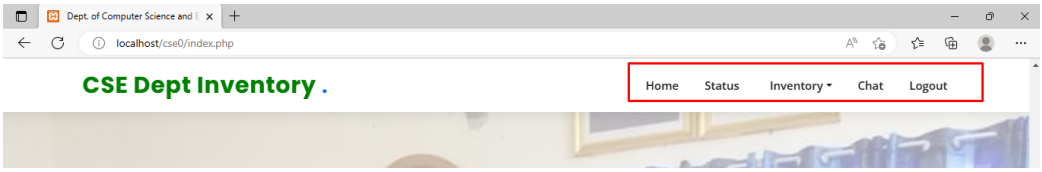

Figure 4.6: All Link Button

4.7 *Status*

The status page indicate the summary in the project.

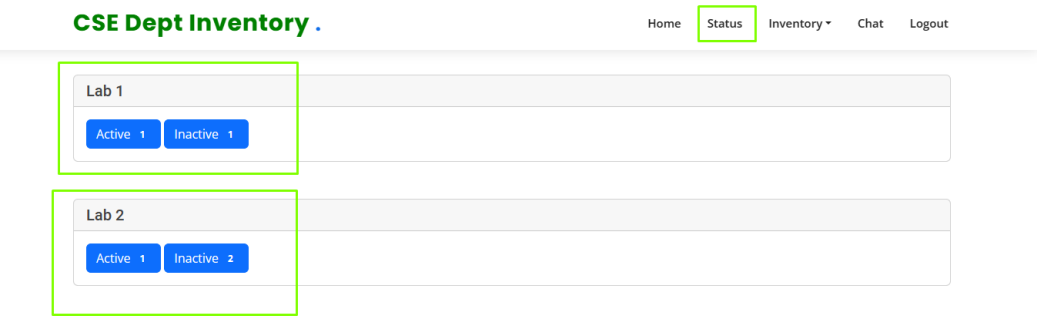

Figure 4.7: Status

4.8 *Insert Update Delete and Search*

Admin can Insert Update delete and search data form the page.

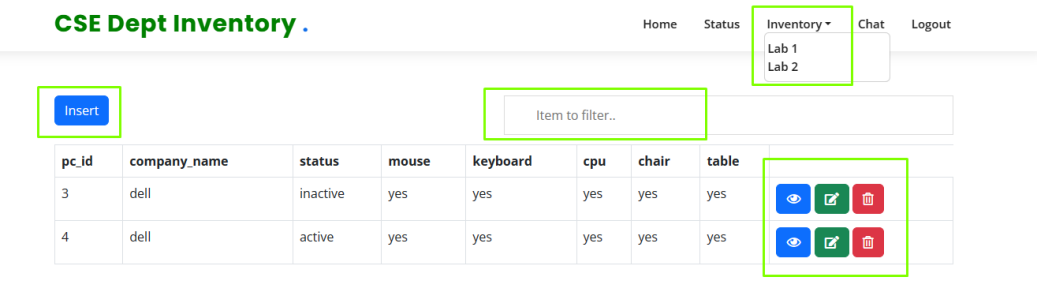

Figure 4.8: Insert Update Delete and Search

4.9 Chatting page

The page indicate dynamic project. Any one can share personal opinion.

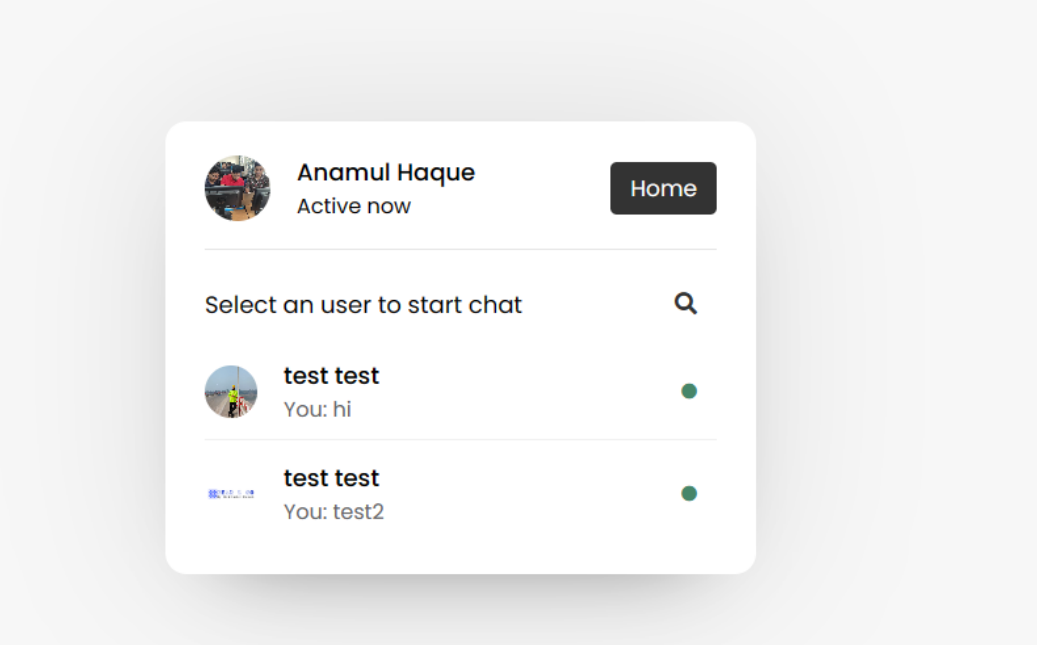

Figure 4.9: Chatting page

5 Conclusion and Future Directions

5.1 Conclusion

After the study, we can come to a conclusion that, effectiveness of inventory management should improve in all the aspects; hence the department can still strengthen its position by looking into the following: 1. The inventory should be fast moving so that inventory cost can be reduced. 2. The damaged products should be entries as soon as authority finds it. 3. Optimum product quantity should be maintained, hence cost can be minimized. 4. Proper inventory control techniques are employed by the inventory control organization within the framework of one of the basic models. Inventory management is the practice of planning directing and controlling of inventory so that it contributes to the departments work. Inventory managers have to provide for the system, when needed; utilize available storage space efficiencies so that products do not exceed the storage space available. Some minor functional problem may occur during operation, but it will not have any minimum effect on kernel part of the system. If anyone report us that bug then we will fixed the bug as soon as possible.

5.2 Future Works

We will fix all limitation. Then make the system stable and bug free. Integrated Management System (IMS) is inspiring us to do something by own that's why we will try to do something commercial work like as IMS. Now IMS lunched with very minimum requirement but we will improve the feature day by day and make idea software for Inventory Management System.

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[1] [2]