Report on

INVENTORY MANAGEMENT SYSTEM

Prepared for

AKM Ahsanul Hoque

adjunct Professor and Consultant

Course Number: Web and Internet Programming Lab

CSE472.2

Prepared by

Lab Section: 2

Team No: 4

S. M. Tanvir Hassan Anik, 2021000000020

Kaniz Fatema Keya, 2021000000033

Safaet Molla, 2020000000029

Nazmul Hasan, 2020000000099

Southeast University

Department of computer Science &

Engineering

Executive Summary

We are group of students with high dedication and will to achieve what we have chosen to do so. We like to give easy solution to complicated business works and save their time. We are focused on improving the position of small businesses, ultimately, helping them to reach the success that they are working on for their company.

The project we are building is called inventory management system. Inventory manager is a web application that will help a business ordering, storing, using, and selling a company's product. This will ease the work for a manager of a business to maintain stocks according to demand, supplies and budget.

Inventory management helps companies identify which and how much stock to order at what time. It tracks inventory from purchase to the sale of goods. The practice identifies and responds to trends to ensure there's always enough stock to fulfill customer orders and proper warning of a shortage.Once sold, inventory becomes revenue. Before it sells, inventory (although reported as an asset on the balance sheet) ties up cash. Therefore, too much stock costs money and reduces cash flow.One measurement of good inventory management is inventory turnover. An accounting measurement, inventory turnover reflects how often stock is sold in a period. A business does not want more stock than sales. Poor inventory turnover can lead to deadstock, or unsold stock.

Our customer base includes the supply chain managers of businesses.

A Supply Chain Manager is a professional who is in charge of every stage of an organization's supply chain, from purchasing raw materials to production. They must ensure that the product comes at just the right time and coordinate storage for it, so nothing goes missing or gets damaged along this complex process. And our goal is to simplify their job using our software.

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Introduction

Project introduction:

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Team introduction:

We are a team built to make web project in the course web and internet programming held by our beloved faculty AKM Ahsanul Hoque, Southeast University. The team consists of four members:

S. M. Tanvir Hassan Anik(2021000000020):

Team leader, involved in all the parts of the project little or more, mainly focused on coding parts.

Kaniz Fatema Keya(2021000000033):

Designer, handle Ux (Frontend)

Safaet Molla(2020000000029):

QA Engineer (Software quality assurance)

Nazmul Hasan(2020000000099):

Information analyst/ requirement engineer

We hope to give our best to help any business grow. We are focused on improving the position of small businesses, ultimately, helping them to reach the success that they are working on for their company.

Background of the study

What triggered the making of our software:

Inventory management is vital to a company's health because it helps make sure there is rarely too much or too little stock on hand, limiting the risk of stockouts and inaccurate records. proper Management of inventory of a company can benefit them by saving money, improve cash flow and satisfy customer. And a software can help supply chain manager to do their job easily as it would have all the records and current status of product availability and current status of the cashflow.

the available applications on the market has many flaws and we promise to make our software according to that which would have minimum flaws and more features which is frequently required by supply chain manager.

Objectives

primary objective:

Accepting orders from customers

Buying and storing products in inventory

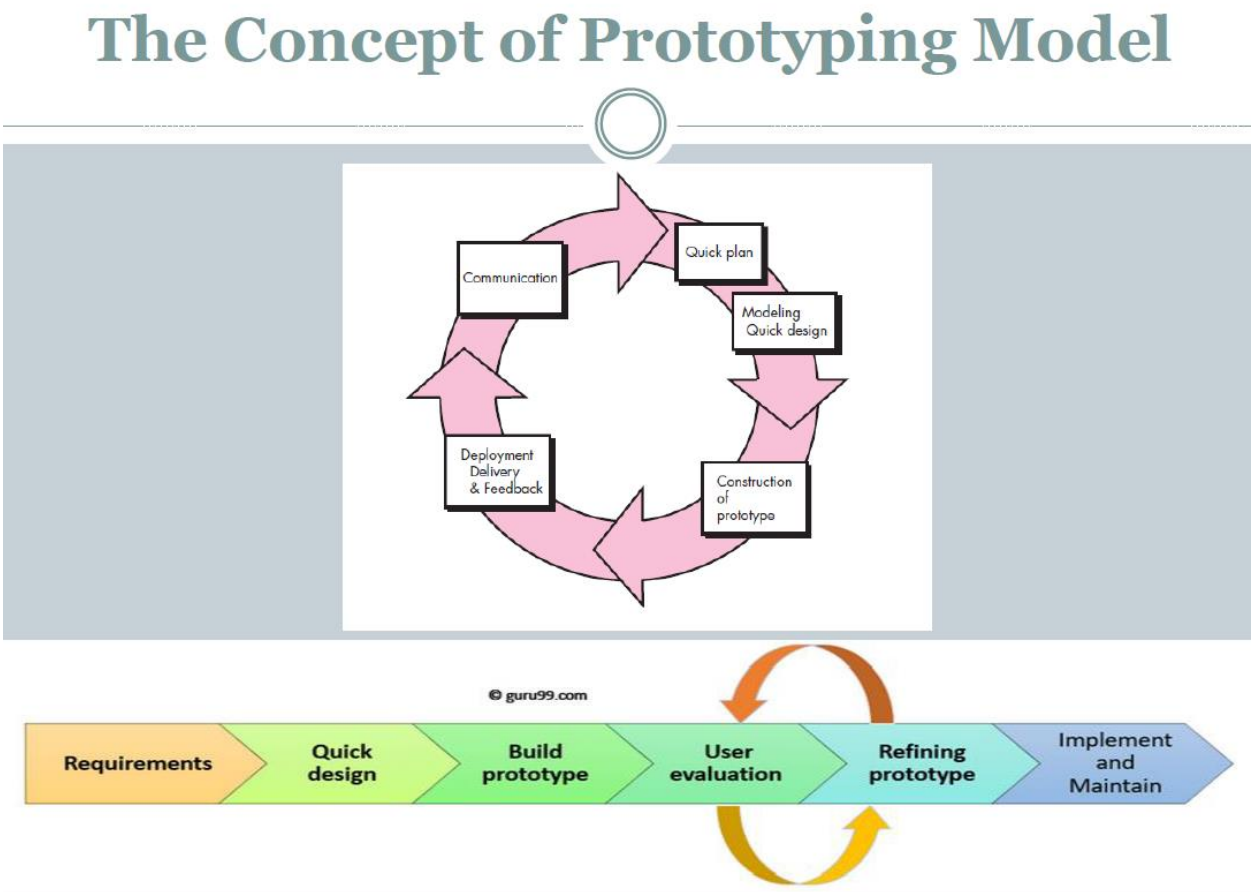
Secondary objective:

Customers can refund product

Predicting what needs to be in stock

Methodology: Process model(Prototyping)

Here in this project we will use the prototyping process model.**Prototyping Model** is a software development model in which prototype is built, tested, and reworked until an acceptable prototype is achieved. It is an iterative, trial and error method which takes place between developer and client.



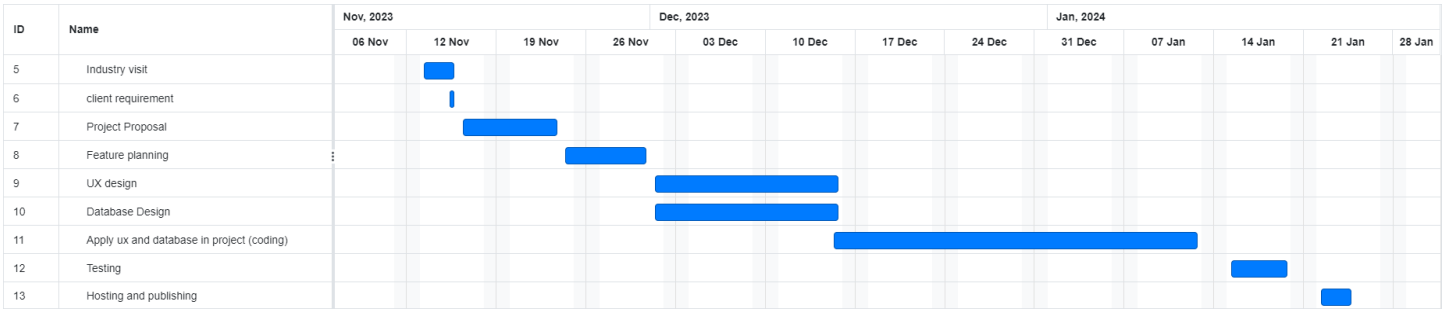
Requirements -> Quick Design -> Build Prototype -> User evaluation -> Refining protype -> Implement and Maintain

Reason for choosing prototype model :

We have chosen this for our project because this model helps to make sure that the user (chain supplier) gets satisfied by giving time to time feedbacks which is our primary goal.

Planning

Gantt chart:



Project planning:

Industry visit -> Client requirements -> Project proposal -> Ux Design -> Database Design -> Testing -> hosting & publishing

Our plan for the project is that first we do some research/requirement gathering and planning then design the database tables, then do the front end part using html,css,js after that we do backend part using raw php, after that we do testing to find and solve bugs last but not least we shall host and publish our project in public domain to make it available to users.

Modeling

Project features:

Introduction:

The application will provide functionalities like seeing the list of products to buy, see all the goods in warehouse, choose which ordered products to accept and which to reject, return and replacement orders. A manager can also see the past transaction histories and analyze overall business state.

Function Definitions:

Functional Requirements

Registration & Login Page	
1	Registration form will have Name, email & password
2	Login form will have email & password

Product Acquiring Page	
1	List of products to acquire
2	Choosing quantity of the product
3	Total cost of the chosen products
4	Total space occupied by the chosen products

Inventory Product List Page	
1	List of products in inventory
2	Set Total space of the storage
3	Total space occupied by the products and remaining space
4	Discard product from inventory

Return & Replacement Page	
1	List of return requested products with quantity
2	Choice of accepting or rejecting the request

History Page	
1	Past purchase list with date and time
2	Past accepted order list with date and time

Analysis Page	
1	Sort most demanded products according to past orders to help forecasting
2	View overall cash flow analysis to understand current business state

Non-functional Requirements:

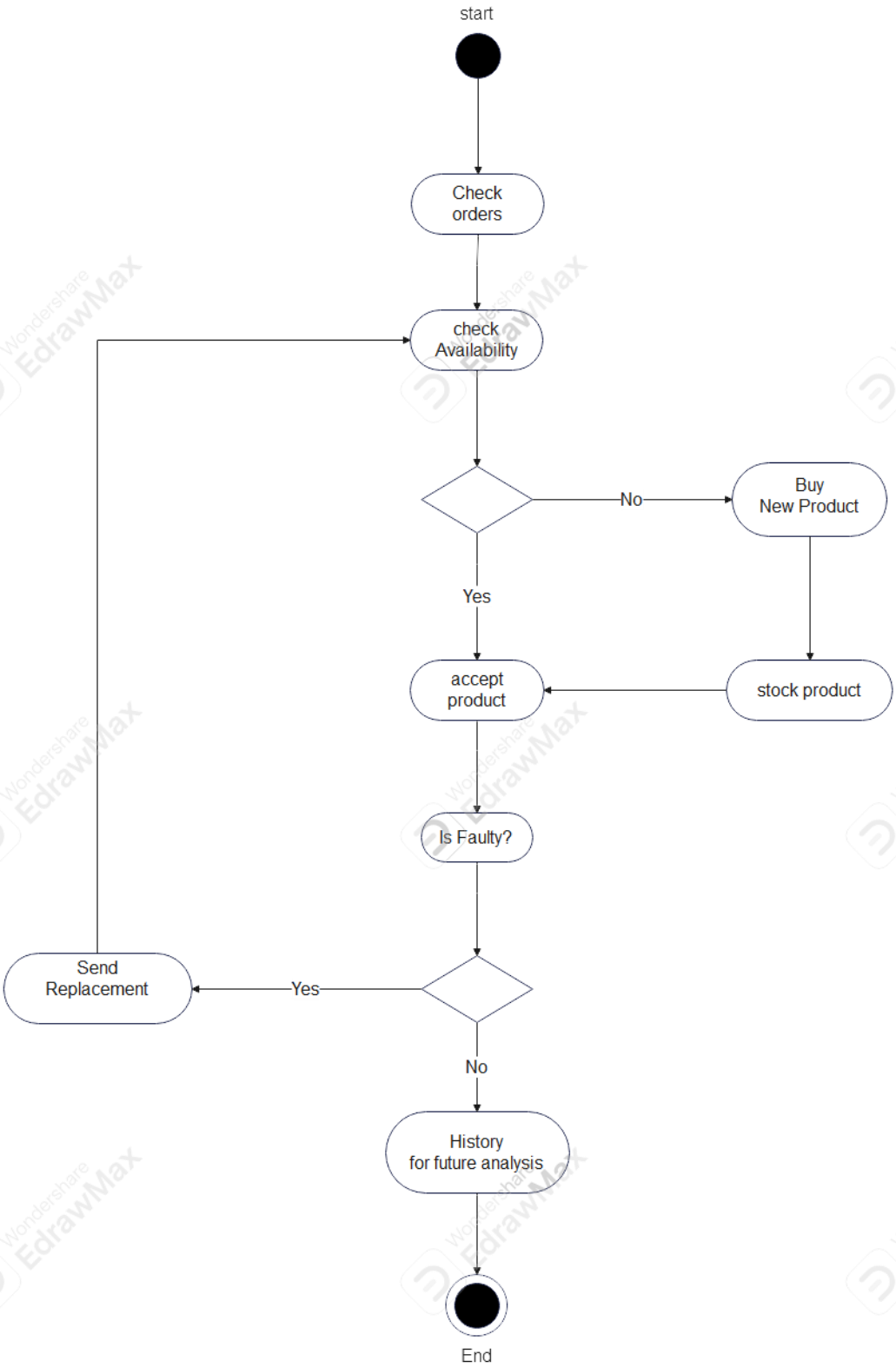
Performance	
1	The hosting site should have enough hardware capabilities
2	The project design and codes should be well optimized to fetch data and show quickly enough
3	Less redirects to reduce load on the server
4	Minimal media (image/audio/video ...) will be used to reduce unwanted pressure during fetch
5	No unnecessary heavy JavaScript usage to reduce resource usage in user device
6	Largest Contentful Paint (LCP) measures the timing for a browser to render the largest text or image block in the viewport which should be 2.5 seconds maximum

Portability	
1	Make the interface dynamic for all size and categories of devices
2	Use bootstrap to make the website browsable in all type of devices
3	The frontend should be well optimized for low end devices to handle

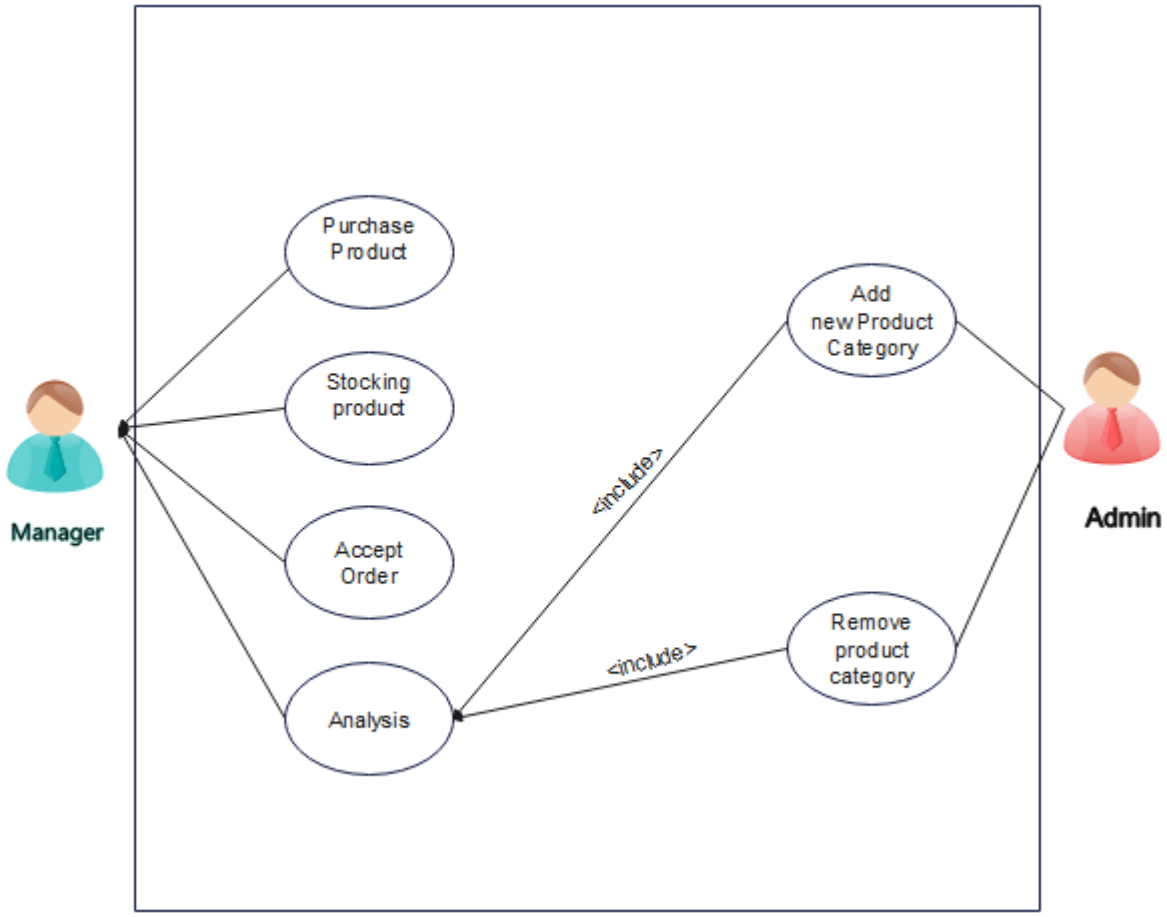
Security	
1	Only developer can alter the database structure, Only Admin should be able to alter the product categories and prices
2	Periodic backup data of the database
3	Input validation: *Input validation* is done so that only properly-formed data passes through the workflow in a web application

User friendliness	
1	The application should have a decent interface and should provide the user good experience.
2	While the coding done in the project, the developers must keep in mind that adding new features and bug fixes should be easier for the future and if new programmer is assigned, they must understand the codes easily.

Architecture flow diagram



Use case diagram



The user can access features like purchasing products, stocking products, accepting orders, and analysis. Whereas admin can add new product category remove product category and can also see analysis page.

Entities and attributes

Entity: Buy products

Attributes:

id INT AUTO_INCREMENT PRIMARY KEY,
productName VARCHAR(255) NOT NULL,
price DECIMAL(10,2) NOT NULL,
space VARCHAR(255) NOT NULL,
quantity INT NOT NULL

Entity: sell products

Attributes:
id INT AUTO_INCREMENT PRIMARY KEY,
productName VARCHAR(255) NOT NULL,
price DECIMAL(10,2) NOT NULL,
quantity INT NOT NULL

Entity: stock products

Attributes:
id INT AUTO_INCREMENT PRIMARY KEY,
productName VARCHAR(255) NOT NULL,
price DECIMAL(10,2) NOT NULL,
space VARCHAR(255) NOT NULL,
quantity INT NOT NULL

Entity: reg

Attributes:
id INT AUTO_INCREMENT PRIMARY KEY,
userName VARCHAR(255) NOT NULL,
password VARCHAR(50) NOT NULL,

Normalization

Usually there are three types of anomalies in DBMS

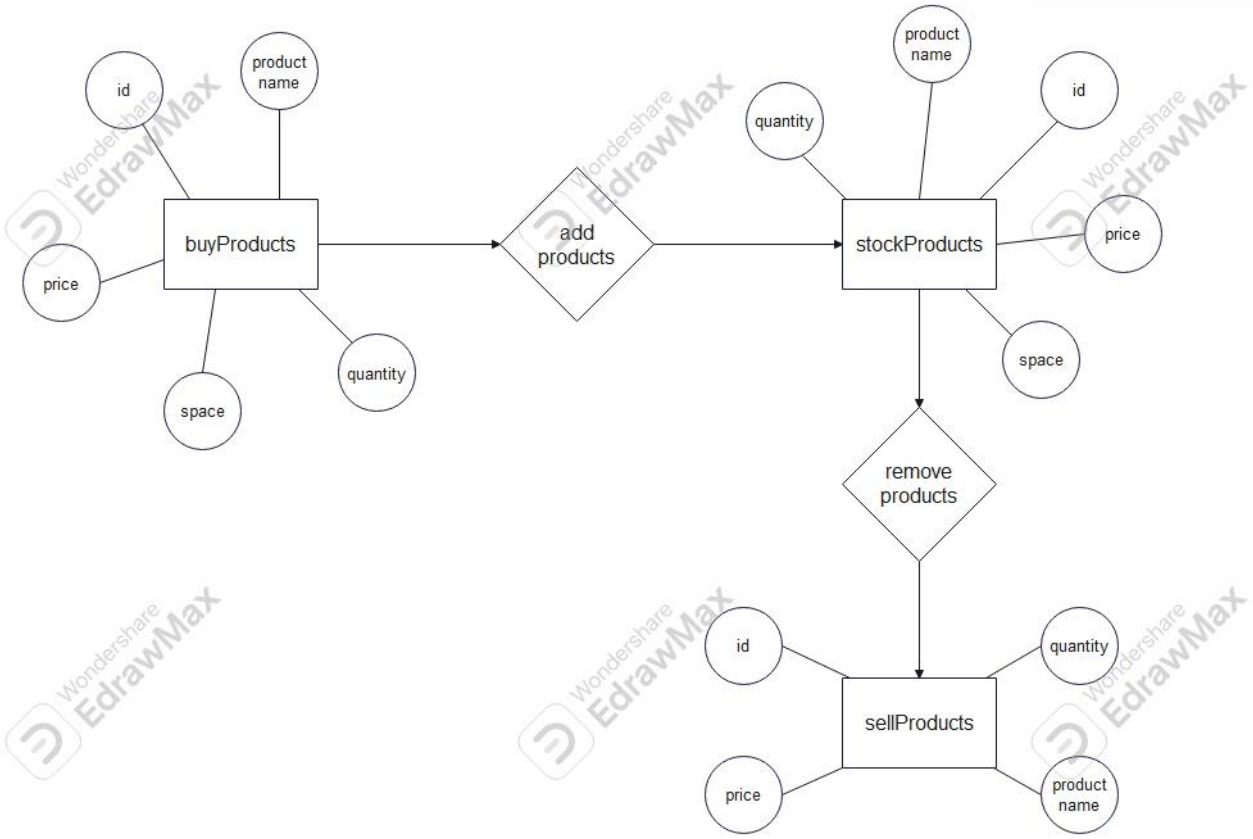
1.Insertion anomaly

2.Updation anomaly

3.Deletion anomaly

We did not face any kind of anomaly thus we did not need any normalization in our project

Entity Relationship Diagram



Construction

Development Environment:

Operating System: Windows

Server: Apache

Languages: php,Javascript,html,css

Database: MySQL

Tools & Technology:

Hardware: Desktop computers(3), Internet connection

Softwares: Xampp, visual studio code, jira, github

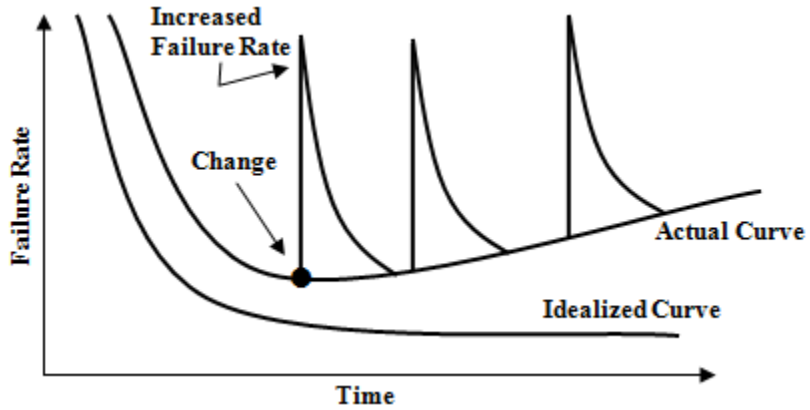
Deployment

Deployment and hosting: We will use **www.000webhost.com** to deploy our project at initial stage

Currently we are running at localhost temporarily as our project is still under development

As we get more funds we would like to deploy our project on **aws.amazon.com**

Support and maintenance: we will implement a feedback system to find bugs and errors and solve the errors as long as our software does not deteriorates.



We shall also add new features to stay ahead of all the competitors

Learning Experiences

Engaging in our web development project we had the opportunity for valuable learning experiences that go beyond just coding. Here are some key learning points that we have learnt from doing our project:

Technical Skills:

Programming Languages: From our project, we learnt or improved your skills in languages like HTML, CSS, JavaScript, and backend language PHP and MySql

Version Control:

Git: Understanding version control systems like Git is crucial for collaborative development. we learnt how to manage code changes, collaborate with others, and troubleshoot issues.

Problem Solving:

Debugging: Web development projects often involve troubleshooting and debugging. we developed problem-solving skills and learned to identify and fix issues in our code.

Critical Thinking: Building web applications requires logical thinking and the ability to break down complex problems into smaller, manageable tasks.

Project Management:

Time Management: Completing a web development project taught us to estimate project timelines, set milestones, and manage your time effectively.

Task Prioritization: We had to work on multiple features simultaneously, requiring us to prioritize tasks based on their importance and dependencies.

Soft Skills:

Communication: Collaborating with team members or clients teaches effective communication skills, including explaining technical concepts to non-technical stakeholders.

Teamwork: We learned how to collaborate, share responsibilities, and work towards a common goal.

Conclusion

Inventory control monitors the movement of products from producer to distributor to final customer. It has an immediate impact on client interactions. By keeping a balance between consumer pleasure and business earnings, effective inventory management makes sure that there are enough products for the company to sell without incurring excessive costs. It is what our online application "Inventory manager" aims to accomplish.

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Appendix

Here are the screenshots of our project

Product List

Product Name	Price	Space	Quantity	Actions
item1	10.00	3	2	Delete
item2	20.00	4	3	Delete
item 3	60.00	5	5	Delete
item 5	40.00	7	10	Delete

Total Space: 113

Total Cost: 780

BUY more

Stock Information

Product Name	Price	Space	Quantity Available
item1	10.00	3	2
item2	20.00	4	3
item 3	60.00	5	5
item 5	40.00	7	10

Sell More

Sell Product List

Product Name	Price	Quantity
item1	10.00	2
item2	20.00	3
item 3	60.00	5
item 5	40.00	10

Total Space: 0

Total Cost: 780

Sell More

Demanded Product list

name	price	quantity
item 3	3232.00	1112
item 5	44.00	676
item	22.00	443
443	22.00	112
item1	256.00	99

Cash flow analysis

Quarter	Q1 of 2023	Q2 of 2023	Q3 of 2023	Q4 of 2023
Revenue	$5,000	$20,000	$24,960	$31,270
Total cost	$26,000	$27,400	$17,370	$10,000
Cash flow	$-21,000	$-7,400	$7,590	$21,270
Cumulative Cashflow	$-21,000	$-28,400	$-20,810	$460

Demand analysis