INDIRA GANDHI NATIONAL OPEN UNIVERSITY

DEPARTMENTAL STORE INVENTORY MANAGEMENT

BY

Pooja Gupta (197644324)

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Submitted to the school of computer and information sciences in
partial fulfilment of the requirements for the degree of

BACHELOR OF COMPUTER APPLICATION

INDIRA GANDHI NATIONAL OPEN UNIVERSITY

MAIDAN GARHI
NEW DELHI-110068

**SCHOOL OF COMPUTER AND INFORMATION SCIENCES IGNOU, MAIDAN GARHI,
NEW DELHI – 110 068**

PROFORMA FOR SUGGESTIONS OF BCSP-064 PROJECT PROPOSAL

(Note: All entries of the proforma of suggestions should be filled in with appropriate and complete information. Incomplete proforma of suggestions in any respect will be summarily rejected.)

Enrolment No.: 197644324
Study Centre: 2741
Regional Centre: NOIDA, RC CODE: 39
E-mail: pooja956078@gmail.com **Mobile: 8512034616**

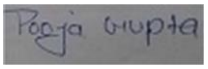
1. **Name and Address of the Student:** **Pooja Gupta (Noida sec 12/22, Chaura Mode)**

2. **Title of the Project:** **Departmental Store Inventory Management System**

3. **Software used in the Project:** **Backend- ASP.Net, MVC, C#, Frontend- Angular 9 Database- MS sql**

4. **Qualification of the Guide :** **MCA**

5. **Industrial / Teaching experience of the Guide (in Years) :** **14yr**
6.

Signature of the Student: **Pooja gupta** 

Date: 30th / Jun / 2023

Guide's Biodata

SCHOOL OF COMPUTER AND INFORMATION SCIENCES
IGNOU, MAIDAN GARHI, NEW DELHI – 110 068

II. PROFORMA OF BCA PROJECT PROPOSAL (BCSP-064)
(Project's Title and Guide's Details)

Enrolment No.: ..... Regional Centre Code: ..... Study Centre: .....

1. Name and Address of the student
.....
.....
.....
E-mail: ..... Telephone No. .....

2. Title of the Project .....

3. Name and Address of the Guide
.....
.....
.....
.....

4. Qualification of the Guide (Attach bio-data also)

Ph.D.	M.Tech.	B.Tech.	MCA	Any other
☐	☐	☐	☑	☐

(Note : i. All the above mentioned Degrees must have been awarded in Computer Science/IT only
ii. A Guide should not guide more than 8 students of BCA at any point of time)

5. Industrial / Teaching experience of the Guide (in Years) ...11 yr.....

6. Software Used for this Project: .....

(Note :
1. Use of Visual Basic and MS-Access as Front End and Back End respectively is forbidden. But, you are permitted to use Visual Basic with other Software. Also, you can use MS-Access with other software)
2. Use of C or C++ Programming Language for Project Related to Database Management is strictly forbidden.

Rohit Kumar.
Signature of the Guide

Signature of the Student

Date: .....

Date: .....

Important: 1. Attach this Proforma along with Guide's Biodata and Project Synopsis in the Project Report.
2. Not more than one student is permitted to work on a project.

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☐ Approved ☐ Not approved

.....
Signature, Designation, Stamp of the Project Proposal Evaluator
Date: .....

Suggestions for reformulating the Project:

CURRICULUM VITAE

JYOTISH KUMAR.

91 + 9015655276

Flat no.- 09/1542, Brindaban Enclave,

Sidharth Vihar,

Gaziabad, (U.P)

Email ID: - kumarjyotish.66@gmail.com

Core Competencies:

A talented, hardworking and an ambitious individual with a strong will & desire to succeed. Have the ability to learn and develop contemporary and progressive systems and procedures. Ability to relate to people through effective communication and presentation skills to achieve the stated organizational goal.

Objectives:

To Seek the Challenge in Professional Organization to Improve My Technical Skills & Knowledge and share that knowledge with your Organization

Training Profile:

- I participated in the **Training the Trainer (TTT)** programme on **IT skills** course BPOI-007 of the **DBPO F&A** programe conducted by the **School of Vocational Education and Training (SOVET)** Directed by **Prof. C. Gajendra Naidu** at **IGNOU, Maidan Garhi, New Delhi-110068.**

Professional Qualification:

- MCA from Indira Gandhi National Open University (IGNOU), New Delhi
- ADCA from Indira Gandhi National Open University (IGNOU), New Delhi
- BCA from Indira Gandhi National Open University (IGNOU), New Delhi

Educational Qualification:

- 10+2 (Science) From Bihar Intermediate Education Council (BIEC), Patna

- 10th from Bihar School Examination Board (BSEB), Patna

Academic Projects:

- Project on **ONLINE SHOPPING** in 'Asp. NET' and 'SQL SERVER 2000' for final semester of MCA.

- Project on **LIC** in 'VB 6.0' & 'ORACLE 8i' for final semester of BCA.

Computer Skills:

- **Operating System** : MS DOS, MS-Windows, win Linux.
- **Language** : C, C++, Assembly, VB and Java, Python, Python Pandas etc.
- **Application Packages** :Ms-Office 97,2000, XP, Adobe Active Share Photoshop
- **Database Packages** : MS Access, Oracle, Sql server 2000. Mysql
- **Internet Tools** : Font page2000, HTML, DHTML, JavaScript, Asp. NET.
- **Hardware** : All Basics type of installation & Assembling.

Work Experience:

- Worked as a **Programme In-charge IGNOU** Study Center **Alliance International School** (C/O – **Alliance Word School, Sector-56, Noida**) **study Center Code- 2736(P), RC Noida (U P)**.

- Worked as an **Academic coordinator** Group of school **SOS Hermann Gmeiner School** (Jammu, Bhimtal, Varanshi, Palla Nuh, Faridabad).

- Worked as an approved **Academic Counsellor in IGNOU** Study Center **Alliance International School** (C/O – **Alliance Word School, Sector-56, Noida**) **study Center Code- 2736(P) , RC Noida (U P)**.

- Working as a Project Guide for BCA/MCA and Mini Project.

- Worked as **External Examiner** for **IGNOU TEPE** Exam **Centre Code -07111(Dot Com Academia C/O** N R Convent School Nangloi New Delhi) **RC –III Dwaraka New Delhi**

- Worked as a **Co-ordinator IGNOU** Study Center **Institute of Vocational Studies** (C/O - **International Basava School, Dwaraka Sector-23**) **Special study Center Code- 07127 (D), RC-III New Delhi**.

- Worked as an **Academic Counsellor in IGNOU** Study Center **SC-0747 Alliance Educare & Research Pvt. Ltd. RC-I New Delhi**

- Worked as an **Academic Counsellor in IGNOU** Study Center **SC-0747 Alliance Educare & Research Pvt. Ltd.** for **IT skills** course **BPOI-007** of the **DBPO F&A** programe conducted by the **School of Vocational Education and Training (SOVET). RC-I New Delhi**

- Worked as a **Programme In-charge IGNOU** Study Center **CHIP Education Pvt Ltd.** (**L.P.S Hauz Khas**) **Center Code- 0747**. **RC-I New Delhi**

- Worked as a **Examination Superintendent for TEPE – JUNE, 2011** session. **Exam centre code – 0747. RC-I New Delhi**

- Worked as an **Examiner TEPE every** session since **2008** at **SC-0747 RC-I New Delhi.**

- Worked as a Lecturer in **ACMT (Alliance collage of Management Technology) IGNOU Community College (CAE-1214)** in **L.P.S Center code CMT-1214**. For **Computer Hardware and Networking. RC-I New Delhi.**

- Worked as an **Academic Counsellor in IGNOU** Study Center **PIONEER** (Lado Sarai) **Center Code- 0750. RC-I New Delhi.**

- Worked in **INFOLAND Institute of Advance Computing** as a Faculty in Delhi.

- Worked as a **Developer in EVIZ Technology (Asp.NET & Sql Server 2005)** Lajpat Nagar Delhi-4.

- Worked in **Sify** ***iway*** **(Broad band)** as an Associate, S/W, H/W & Network Maintenance.

- Worked in **MEGASOFT Computer Education** as a Faculty.

- Worked in **Sify** ***iway*** **(Broad band)** as a Computer Operator.

Job Title : **IT Assistant,** M.T. School, Patna (Bihar)
Dates of Employment : **February 2003 till May 2005**

Job Title : **As a Science Faculty,** Gyan Niketan, Patna (Bihar)
Dates of Employment : **February 1997 to till October 2002**

IT Assistant

IT Assistant has to handle all the requirement of the school, by being a part of the school. Being an IT . Assistant Was the key point of contact for the School faculty and Students.

Responsibilities:

- Take care of project
- All Types of class scheduling.
- Managing all classes **BCA, MCA, BA, B Com, BBA(R) and BPP** Programmes.
- Receive **assignments**, arrange for their **evaluation** from approved **academic counsellors**, provide **feedback** to the students and submit the **award list** to the **RC**. as per schedule prepared by the University.
- Sending regular **Monthly Feedback Reports** (MFR) to the Regional centre.
- Provide information about the programmes of **IGNOU** to the prospective learners.

Specialization Subject:

- *Networking, TCP/IP. (MCS-042, BCS-041, BCS-052)*
- *Operating System. (MCS-041, MCS-022)*
- *Software Engineering. (BCS-051, MCS-034)*
- *System Analysis and Design. (MCS-014)*
- *Computer Fundamental. (BCS-011)*
- *C, C++, Java, Data Structure (MCS-011, BCS-031, MCS-024, MCS-021)*
- *Computer Organization & Assembly (MCS-012)*
- *Unix/Linux (MCS-022)*
- *Management Information system (MCS-052)*
- *E-commerce (BCS-062)*
- *Database Management System(MCS-023, MCS-043)*
- *Object Oriented Module and Design(MCS-032)*
- *Web Programming (BCS-053)*
- *Analysis and Design Algorithm (MCS-031)*

Personal Details:

Father's Name	: Late UmaKant Marik.
Mother's Name	: Smt. Shyama Marik.
Date of Birth	: 30th Dec 1975.
Sex	: Male.
Marital Status	: Married.
Nationality	: Indian.
Languages Known	: English & Hindi.

***Hobbies*:** Work With Computers, Swimming & interacting with People.

Declaration:

I here by declare that all information quoted is true to the best my knowledge. If you give me a chance to serve your esteemed organization, I promise to achieve something for the organization.

Thanking you in anticipation of my favorable reply.

Date: - 05/02/2021.

Place: - Ghaziabad. (Jyotish Kumar)

069743

नामांकन संख्या
Enrolment No. 023088676

इन्दिरा गांधी राष्ट्रीय मुक्त विश्वविद्यालय
INDIRA GANDHI NATIONAL OPEN UNIVERSITY

प्रमाणित किया जाता है कि
This is to certify that *Jyotish Kumar*

को निम्नांकित पाठ्यक्रमों को पूरा करने और
after having passed the prescribed courses of study in the

June 07 की परीक्षा उत्तीर्ण करने पर स्नातकोत्तर उपाधि
examination is hereby awarded the Degree of

Master of Computer Applications

प्रदान की जाती है।

श्रेणी / Division *Second*

कुलसचिव
Registrar

कुलपति
Vice Chancellor

Jyotish Kumar

नई दिल्ली / New Delhi
दिनांक / Dated August 31, 2007

ACKNOWLEDGEMENT

The satisfaction that accompanies that the successful completion of any task would be incomplete without the mention of people whose ceaseless cooperation made it possible, whose constant guidance and encouragement crown all efforts with success.

We are grateful to our project guide **Mr. Jyotish Kumar** for the Guidance, inspiration and constructive suggestions that helpful us in the preparation of this project.

We also thank our colleagues who have helped in successful Completion of the project.

Name of Student

CERIFICATE OF ORIGINALITY

This is to certify that the report entitled "[redacted]" Submitted to **Indira Gandhi National Open University** in partial fulfillment of the requirement for the award of the degree of BACHLER OF COMPUTER APPLICATION(**BCA**), is an original work carried out by Enrolment No- under the guidance **Mr. JYOTISH KUMAR.**

The matter embodied in this project is genuine work done by the student and has not been submitted whether to this University or to any other University / Institute for the fulfillment of the requirement of any course of study.

Jyotish Kumar

Signature of the Student

Signature of the Guide

Name and Address of the student

Jyotish Kumar

Name of the Guide

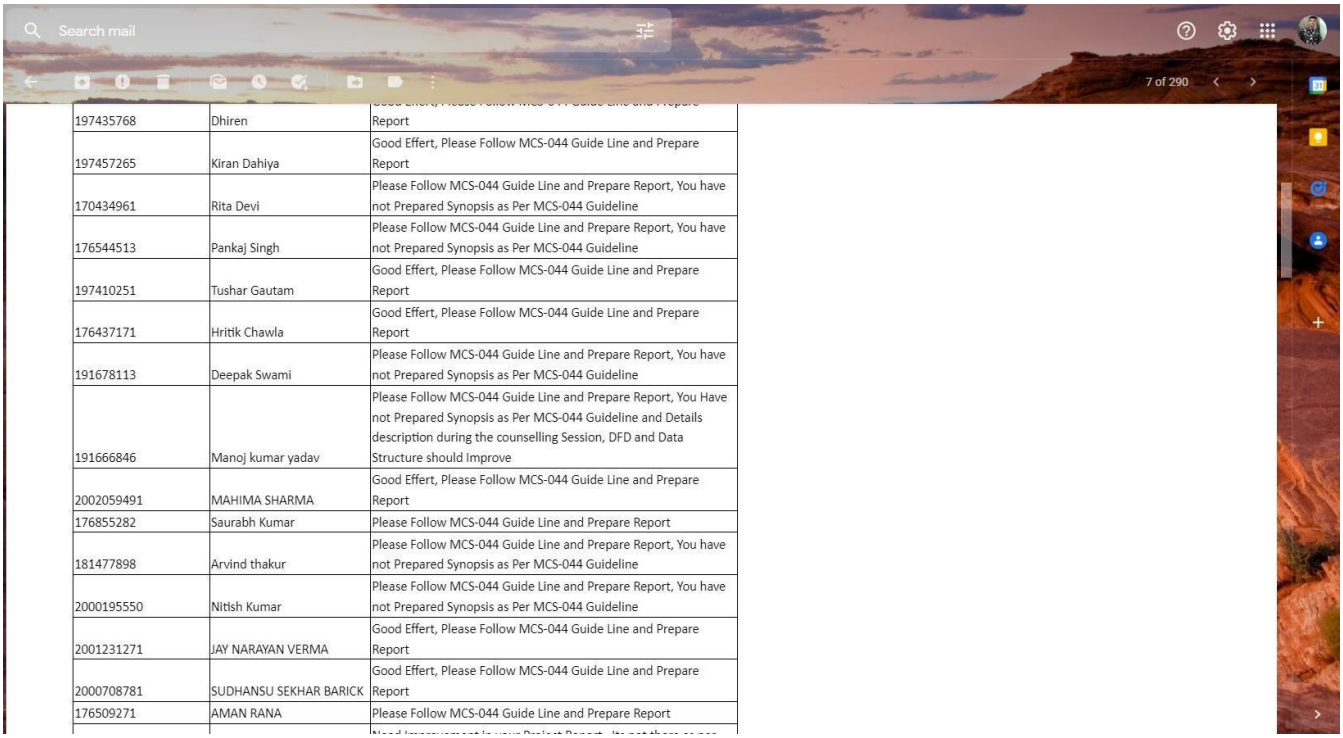
For Office Use Only

☐ ☐

Approved **Not Approved**

Suggestions for reformulating the Project:

Original Copy of the Approved Proforma of the Project Proposal (Email screenshot)



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197457265	Kiran Dahiya	Good Effert, Please Follow MCS-044 Guide Line and Prepare Report
170434961	Rita Devi	Please Follow MCS-044 Guide Line and Prepare Report, You have not Prepared Synopsis as Per MCS-044 Guideline
176544513	Pankaj Singh	Please Follow MCS-044 Guide Line and Prepare Report, You have not Prepared Synopsis as Per MCS-044 Guideline
197410251	Tushar Gautam	Good Effert, Please Follow MCS-044 Guide Line and Prepare Report
176437171	Hritik Chawla	Good Effert, Please Follow MCS-044 Guide Line and Prepare Report
191678113	Deepak Swami	Please Follow MCS-044 Guide Line and Prepare Report, You have not Prepared Synopsis as Per MCS-044 Guideline
191666846	Manoj kumar yadav	Please Follow MCS-044 Guide Line and Prepare Report, You Have not Prepared Synopsis as Per MCS-044 Guideline and Details description during the counselling Session, DFD and Data Structure should Improve
2002059491	MAHIMA SHARMA	Good Effert, Please Follow MCS-044 Guide Line and Prepare Report
176855282	Saurabh Kumar	Please Follow MCS-044 Guide Line and Prepare Report
181477898	Arvind thakur	Please Follow MCS-044 Guide Line and Prepare Report, You have not Prepared Synopsis as Per MCS-044 Guideline
2000195550	Nitish Kumar	Please Follow MCS-044 Guide Line and Prepare Report, You have not Prepared Synopsis as Per MCS-044 Guideline
2001231271	JAY NARAYAN VERMA	Good Effert, Please Follow MCS-044 Guide Line and Prepare Report
2000708781	SUDHANSU SEKHAR BARICK	Good Effert, Please Follow MCS-044 Guide Line and Prepare Report
176509271	AMAN RANA	Please Follow MCS-044 Guide Line and Prepare Report

CERTIFICATE OF AUTHENTICATED WORK

This is to certify that the project report entitled **DEPARTMENTAL STORE INVENTORY MANAGEMENT** submitted to Indira Gandhi National Open University in partial fulfilment of the requirement for the award of the degree of BACHELOR OF COMPUTER APPLICATIONS (BCA) is an original work carried out by Mr. Jyotish Kumar under my guidance. The matter embodied in this project is authentic and is genuine work done by the student and has not been submitted whether to this University or to any other University / Institute for the fulfilment of the requirement of any course of study.

Abstract

Abstraction is an indispensable part of the design process and is essential for problem partitioning. Partitioning essentially is the exercise in determining the system components are not isolated from each other but interacts with other components. Abstraction is used for exiting components as well as components that are being designed. Using this abstraction behavior of the entire system can be understood.

Acknowledgement

Our team would sincerely like to thank our teacher,
MR. Jyotish Kumar sir, for giving us an opportunity to make this project and always acting as a constant support to us during the making of the project. We would like to thank all those who have directly and indirectly helped us make the project. Furthermore, I would also like to acknowledge with much appreciation, the important role of whose contribution in encouragement helped us plan better. Finally, we would like to express our sincere gratitude to IGNOU, which provided me with a platform to hone our skills.

S.no	Topic
1	Introduction (Background of Problem) - Aim and Objectives - Purpose - Scope - Applicability - Achievement
2	Survey of Technology
3	Requirement analysis - Problem definition - Project planning and scheduling - Software and hardware requirement
4	SYSTEM DESIGN - Basic Modules - Data Design Project Structure - Schema Design - Data Integrity and Constraints - Procedural Design - Logic Diagrams - Data Structures • DFD • ER Diagram - User interface design
5	IMPLEMENTATION AND TESTING - Implementation Approaches - Coding Details and Code Efficiency - Code Efficiency - Modifications and Improvements - Testing Approach

INTRODUCTION

This system is named as a Departmental Store Inventory Management System. This system is designed to easily maintain the data of inventory and orders. This system is made to keep the records about the products, orders, purchases etc. history.

Admin user can login into the system using the email id or the user id and password. After signing in into this system there are the options to view different departments store, check products range and check stock out products and other details etc. The Department Store Inventory Management system must be able to maintain the records of registered stores branch with their contact details for future objective fulfillment.

The system must be able to send information to the branches about the Delivery date, running offers, special discounts through mails. Daily many new orders generate from branches, so keeping the details and records using it is very easy. There are many other options also like adding new branches with their manager etc.

New and unique ids are given to every branch who gets registered over this system. Department Store Inventory System offers branch's convenience. They can visit the website 24*7 to compare prices and make purchases, without having to leave their home or office. For sellers, online selling offers a way to cut cost and expand their market. Sellers do not need to maintain a store, build staff etc.

Automated billing system cuts the chances of error in billing and also the chances of frauds. Users can pay through online as well cash on delivery.

AIM AND OBJECTIVES

The main objective of the project or system "Departmental Store Inventory Management System" is to improve the services for the department store inventory management for branches and provide design accuracy, flexibility, availability, database and representing entire entities of the system. It helps the management to manage departmental store inventory and branches get many orders and easy control mechanism to make their records.

Main objective of the departmental store inventory management system are: -

- The system must be able to identify store inventory.
- Branches could themselves be able to check products, product details, types of payment, term and the rest of FAQ's.
- To create a platform for store/customer where they can buy products, compare products etc.
- To develop a system of Departmental Store Inventory Management from begin to end with an error free, long lasting, high efficiency.

Purpose

A typical online store **enables the customer to browse the firm's range of products and services, view photos or images of the products, along with information about the product specifications, features and prices**. Online stores usually enable shoppers to use "search" features to find specific models, brands or items.

Scope

- Determination of economic order quantity
- Formulation of policy
- Determination of the lead time
- Effectiveness towards running of the store
- Organization structure
- Determination of safety stock • Minimum material handling and storage cost.

Applicability

An inventory management system is a crucial part of any business, which need a proper management system It helps businesses in managing the stock items, keeping track of items, and their details and let the management know about their real-time availability status. The system alerts you about the out-of-stock scenario, analyzes your business's inventory needs, and can even automate your ordering. This way, it is an essential part of any business that contributes to the business in making everything aligned and ordered.

Achievements

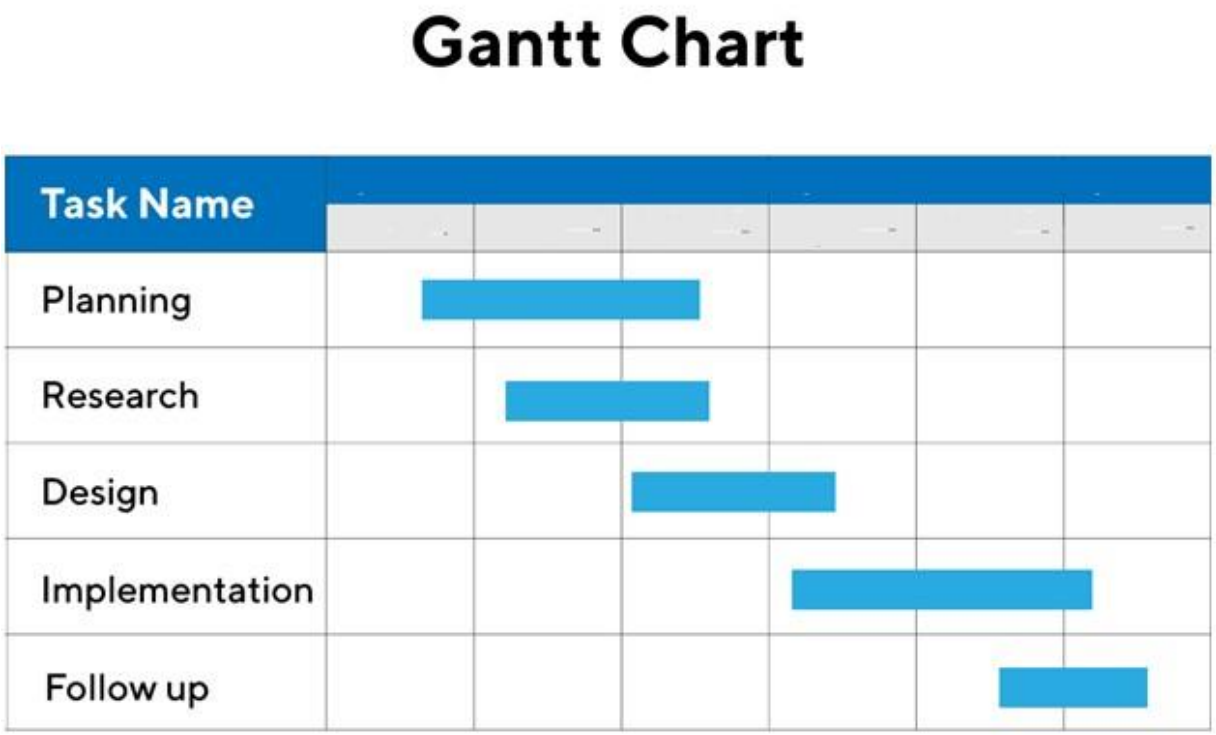
- Improved Productivity and Efficiency
- Avoid Stock-outs and Over-stock
- Quality Management
- Planned Management
- Balanced Supply and Demand
- Easy Inventory Management
- Improved Profitability

Problem definition

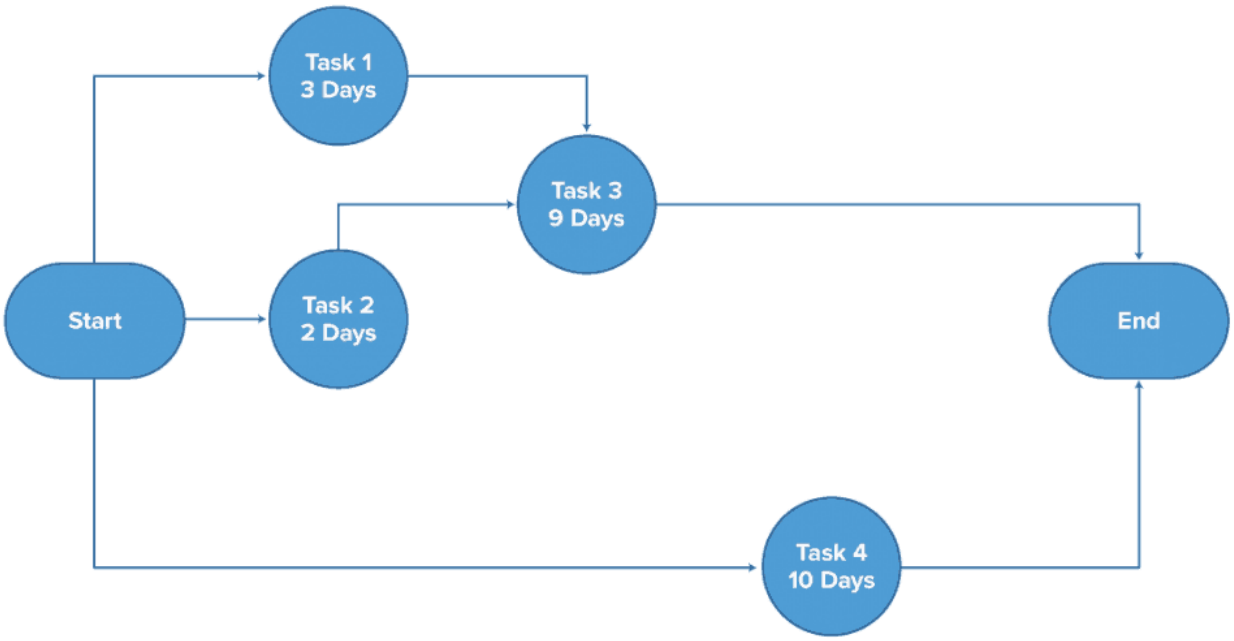
There are a lot of websites on internet whereby it offers a variety of product and services for consumer can find and buy through online such as shoe, apparel, sun glasses and more Moreover, the online also provides some of the services which is paying bill online, booking a transport ticket and more. In this research, we are looking the problem addressed in this research which is the view of online store management system by seller.

However, there are several reasons hinder in the seller are involved in online store management because some of the store keepers are not willing to take part in online purchased due to some valid reason.

Project Planning and Scheduling



PERT CHART



Survey of Technology

ASP.Net

- ASP.NET is an open-source framework that was designed by Microsoft and its community
- It combines MVC structure and Web API into a powerful tool that allows developers to create reliable and responsive web sites
- Web-based applications
- ASP.NET drastically reduces the amount of code required to build large applications
- With built-in Windows authentication and per-application configuration, your applications are safe and secured
- It is purely server-side technology so, ASP.NET code executes on the server before it is sent to the browser

MVC

- **MVC** supports rapid and parallel development
- Ability to provide multiple views
- Support for asynchronous technique
- The modification does not affect the entire model

- **MVC** model returns the data without formatting
- Development of the application becomes fast
- Easy for multiple developers to collaborate and work together
- Easier to Update the application
- Easier to Debug as we have multiple levels properly written in the application

C#

- **Object**-Oriented Language
- Automatic Garbage Collection
- **Cross** Platform
- Backward **Compatibility**
- Better Integrity and **Interoperability**

MS SQL

- Using the SQL queries, the user can quickly and efficiently retrieve a large amount of records from a database
- In the standard SQL, it is very easy to manage the database system. It doesn't require a substantial amount of code to manage the database system
- Long established are used by the SQL databases that are being used by ISO and ANSI
- SQL is a domain language used to communicate with the database. It is also used to receive answers to the complex questions in seconds
- Using the SQL language, the users can make different views of the database structure
- Efficiently manage your log and data files

Angular

- Progressive Web Apps: - Use modern web platform capabilities to deliver app-like experiences. High performance, offline, and zero-step installation
- Code Generation: - Angular turns your templates into code that's highly optimized for today's JavaScript virtual machines, giving you all the benefits of hand-written code with the productivity of a framework

Templates: - Quickly create UI views with simple and powerful template syntax.

Software and hardware requirements

Hardware Required: - Server side	For Client: - Intel Dual Core or Above
• 2 GB RAM • 100 GB Hard Disk • Network Interface	• 4 GB RAM • 80 GB Hard Disk • Network Interface

SOFTWARE REQUIREMENTS

Project Specific Requirements

This project is being developed by keeping in mind that the client as well as staffs should ease up their work and access the services easily.

- ✞ Visit Site
- ✞ Login
- ✞ Add product/stock
- ✞ Search product
- ✞ Customer details
- ✞ Checkout/order place
- ✞ Inventory

GENERAL SPECIFIC REQUIREMNETS

This project is very simple to use and automate the office functionaries. A simple non tech background staff can easily operate on this application. Some of the points that should be generally included: -

- Computer with a web browser is required
- Computer literate staff for operating the application
- An expertise to keep an eye on over all functioning of the application
- An in house or cloud server with proper backup mechanism for data security

Last but not the least, this application is well developed, keeping in mind that, after successful implementation and operation, this is definitely going to help the both Client and staffs. Other Salient Features Includes: -

- Data Security and Reliability
- Time efficient
- Cost effective
- Proper data validations
- Analytical Reports 8
- Simple and Easy to fill different web pages
- Customizable as per requirement ⭘ Proper data backup and recovery ⭘ Data Consistency and accuracy

Tools and Technologies

- Tools: Visual Studio and Visual Code
- Technology: Asp.Net ⭘ Platform: - Windows
- Operating System: Windows 10
- Software Required: - ✦ Server Side:
    - Language: C#
    - Framework: MVC
    - Database: MS SQL

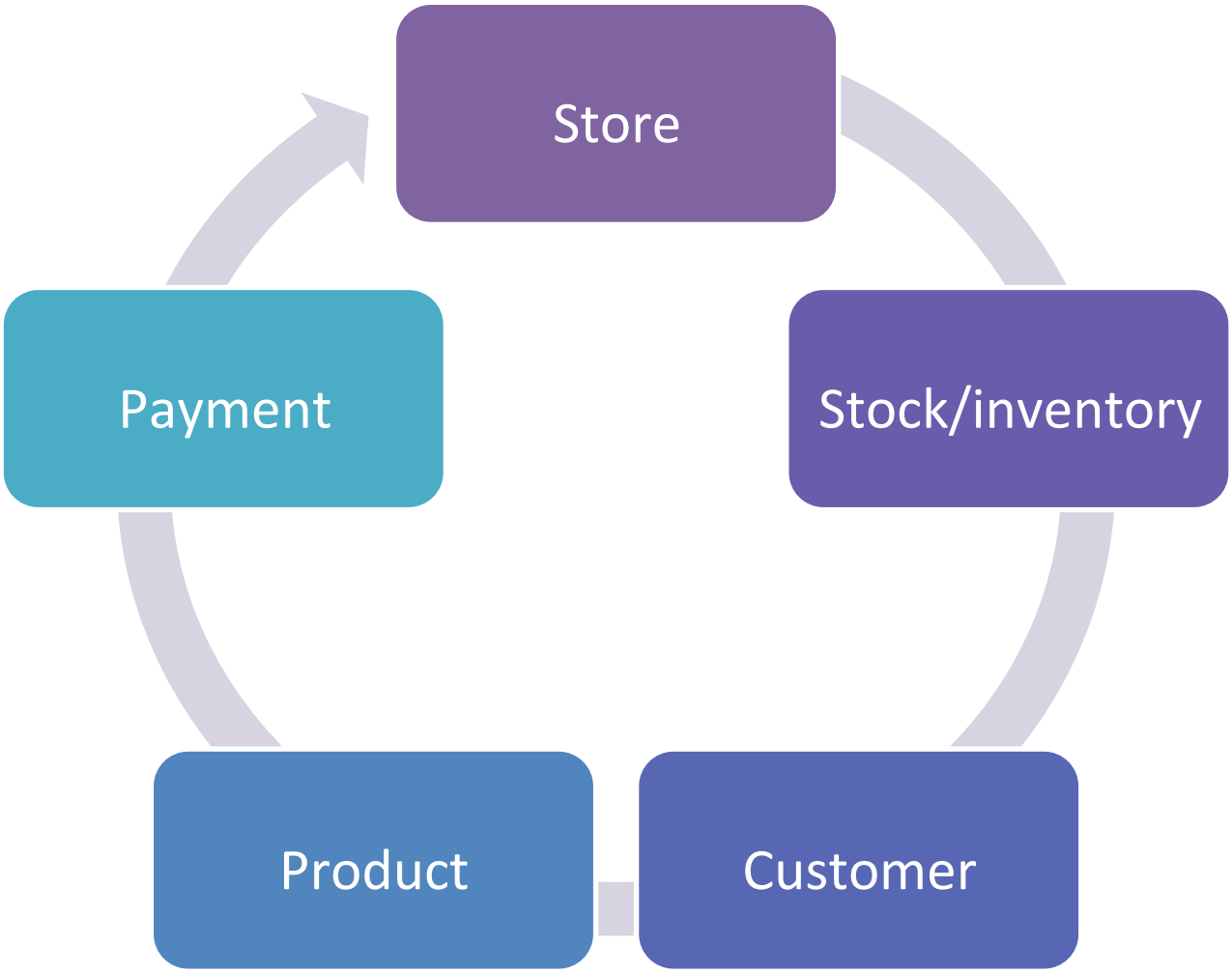
✦ Client Side:

- Scripting Language: Angular, jQuery & Typescript
- Frontend: HTML & CSS

PROCESS FLOW

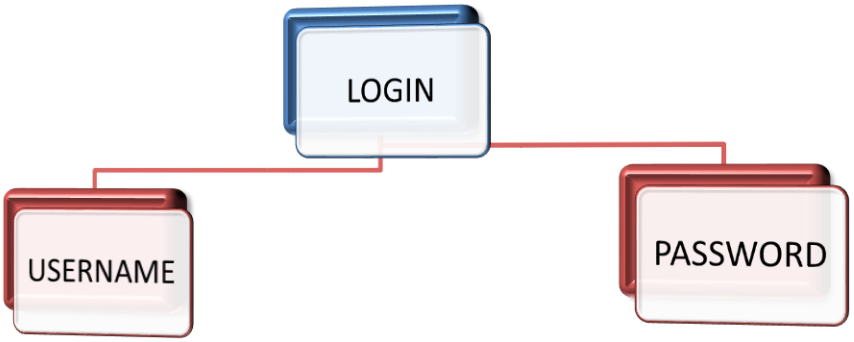
The Process Flow provides a visual representation of the steps in a process. Flow is also referred to as Process Mapping or Flow Diagrams. Constructing a flow chart is often one of the first activities of a process improvement effort, because of the following benefits: -

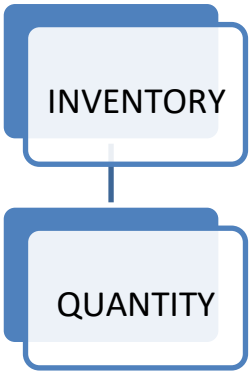
Gives everyone a clear understanding of the process
Helps to identify non-value-added operations
Facilitates teamwork and communication
Keeps everyone on the same page



Data design and project structure

List of inputs





List of outputs

Login, Registration and Profile

- Store name
- Location
- User name

Inventory

- Product Name
- Quantity
- Price

Shopping Cart

- Customer Name & id
- Quantity
- Product name
- Price

Order detail

- Product Itinerary
- Price Summary

Order List

- Order Number
- Order Date

Order Details

- Order Number
- Order Date
- Order Status
- Product Name
- Quantity
- Price

Schema design, data integrity and constraints

Admin			
Data Field	**Data Type**	**Constraint**	**Description**
Id	int	Primary key	Admin Id
Username	nvarchar(50)	NOT NULL	Admin User Name
Password	nvarchar(30)	NOT NULL	Admin Login Password

Customer			
Data Field	**Data Type**	**Constraint**	**Description**
Id	bigint	Primary key	Customer Id
Name	nvarchar(300)	NOT NULL	Name
Mobileno	nvarchar(10)	NOT NULL	Mobile no of customer
Createdate	Datetime	Not null	Record created date

Category			
Data Field	**Data Type**	**Constraint**	**Description**
Id	int	Primary key	Category Id
Name	nvarchar(200)	NOT NULL	Category Name

Product			
Data Field	**Data Type**	**Constraint**	**Description**
Id	bigint	Primary key	Product Id
Name	nvarchar(300)	NOT NULL	Product Name
CategoryId	int	NOT NULL	Category Id
ManufacturerId	int	NOT NULL	Manufacturer Id
CostPrice	decimal(10, 2)	NOT NULL	Purchase Price
SellingPrice	decimal(10, 2)	NOT NULL	Selling Price
Mrp	decimal(10, 2)	NOT NUL	MRP of product
Createdate	Datetime	NOT NULL	Record created date

Order_Product			
Data Field	**Data Type**	**Constraint**	**Description**
Orderid	PK, bigint	NOT NULL	Order id
ProductId	PK, bigint	NOT NULL	Product Id

Quantity	Int	NOT NULL	Quantity
Price	Decimal(10, 2)	NOT NULL	Product Selling Price
Total	Computed, Decimal(21, 2)	NOT NULL	Total of Price and Shipment

Orders			
Data Field	**Data Type**	**Constraint**	**Description**
Id	bigint	Primary key	Order Id
Storeid	Int	NOT NULL	Store id
CustomerId	bigint	NOT NULL	Customer Id
MobileNo	nvarchar(10)	NOT NULL	Mobile Number
TotalAmount	decimal(10, 2)	NOT NULL	Order Total Amount
PaymentMethod	nchar(10)	NOT NULL	Payment method
OrderDate	datetime	NOT NULL	Order Place Date

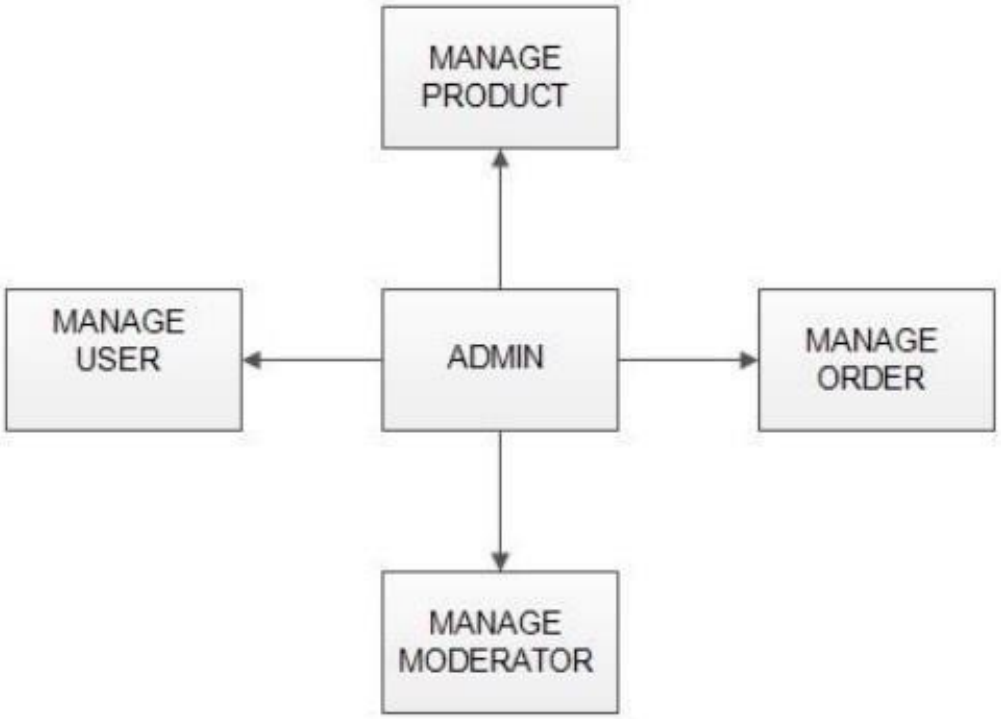
Store			
Data Field	**Data Type**	**Constraint**	**Description**
Id	PK, bigint	Not null	Store id
Username	Nvarchar(100)	Not null	User name
Password	Nvarchar(30)	Not null	Password
Name	Nvarchar(300)	Not null	Name of store
Mobileno	Nvarchar(10)	Not null	Mobile no of store
Address	Nvarchar(max)	Not null	Address of store

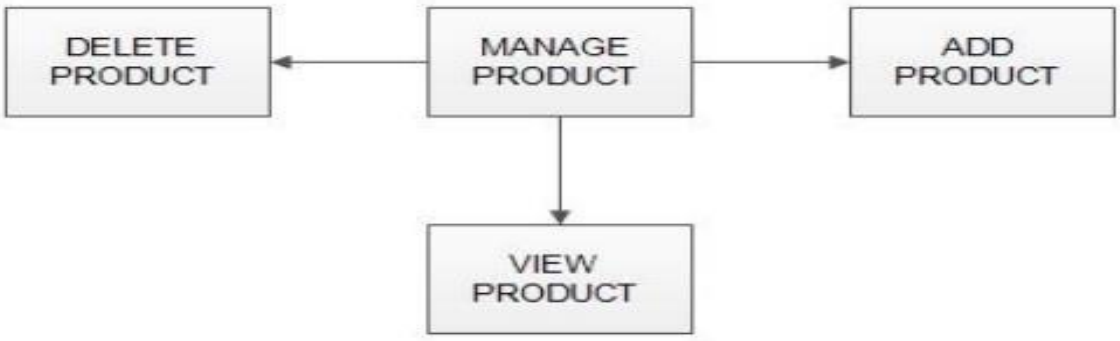
Createdate	Datetime	Not null	Record created date

Stores_category			
Data Field	**Data Type**	**Constraint**	**Description**
Id	PK, bigint	Not null	Store id
Store_id	Int	Not null	Store id
Category_id	Int	Not null	Category id

Stores_product			
Data Field	**Data Type**	**Constraint**	**Description**
Id	PK, bigint	Not null	Store id
Store_id	Int	Not null	Store id
Product_id	Int	Not null	Product id
Quantity	Int	Not null	Quantity
Createdate	Datetime	Not null	Record created date

Logic diagrams

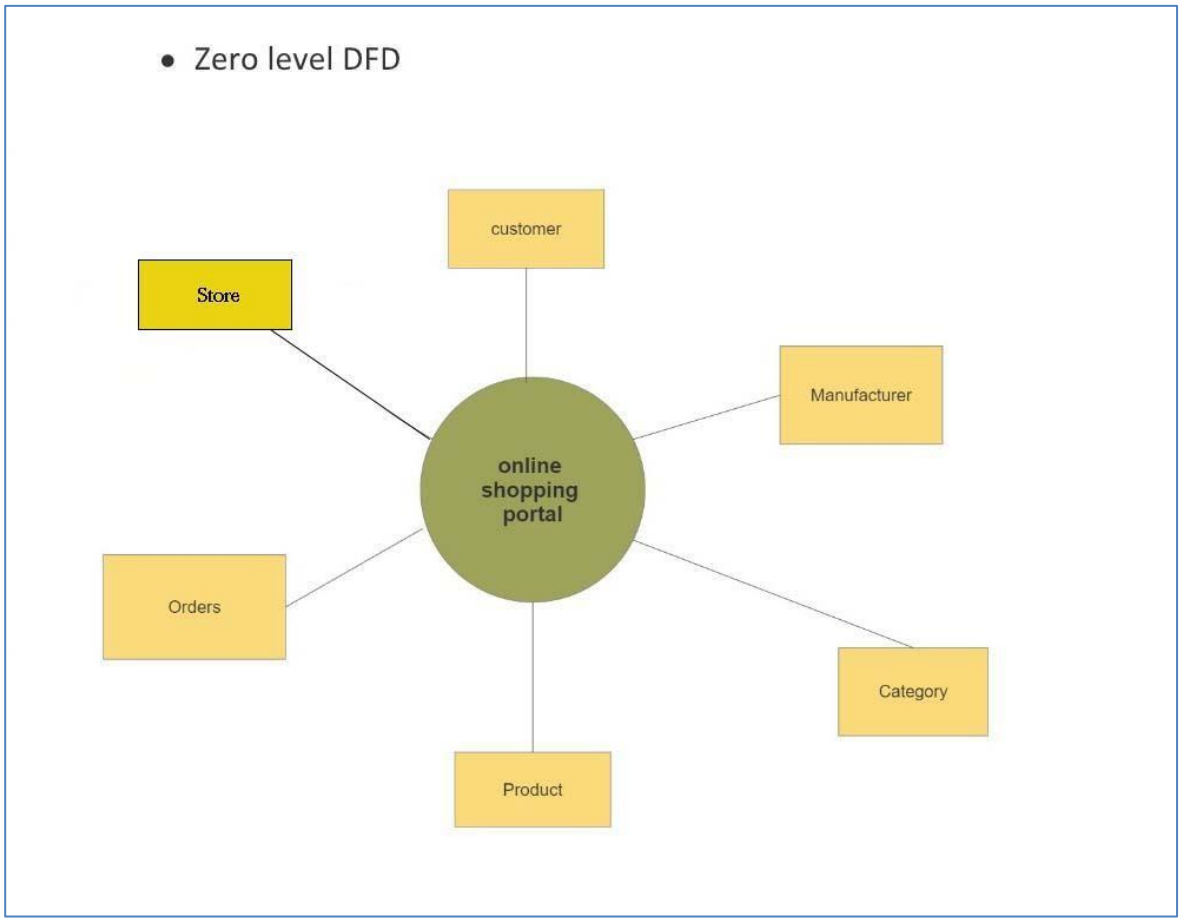




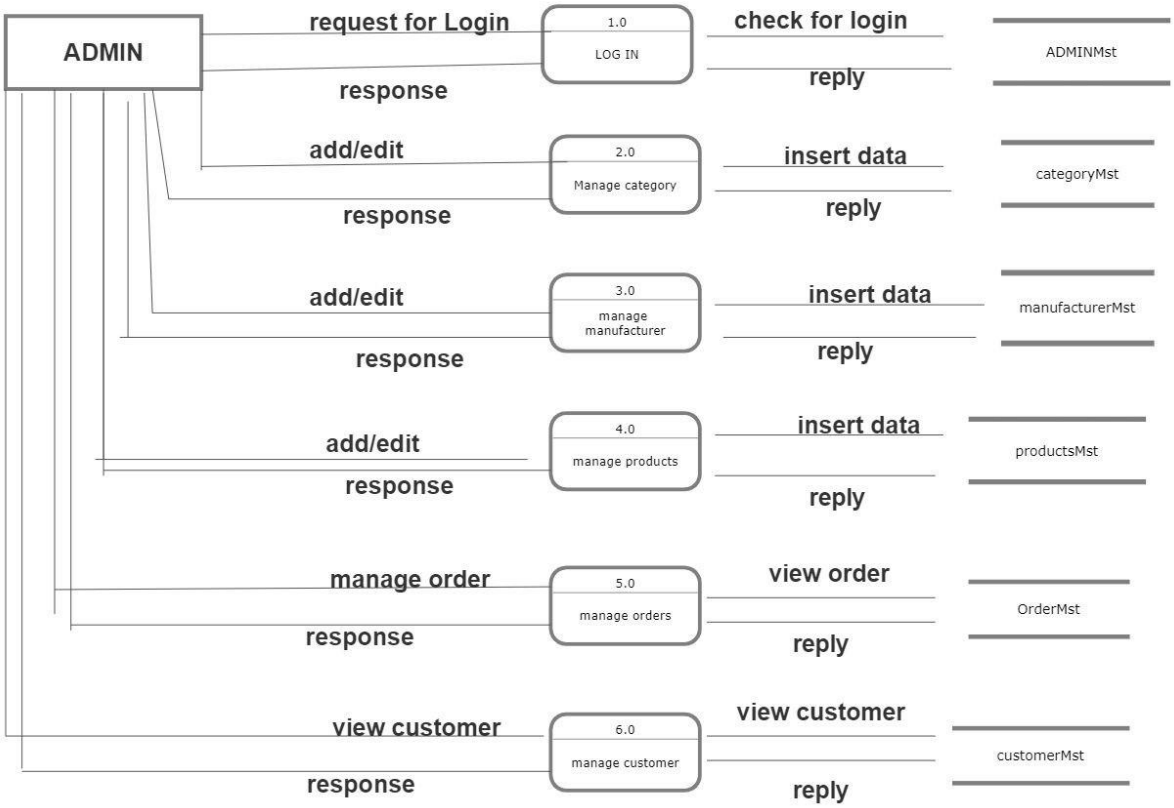
Data Structure

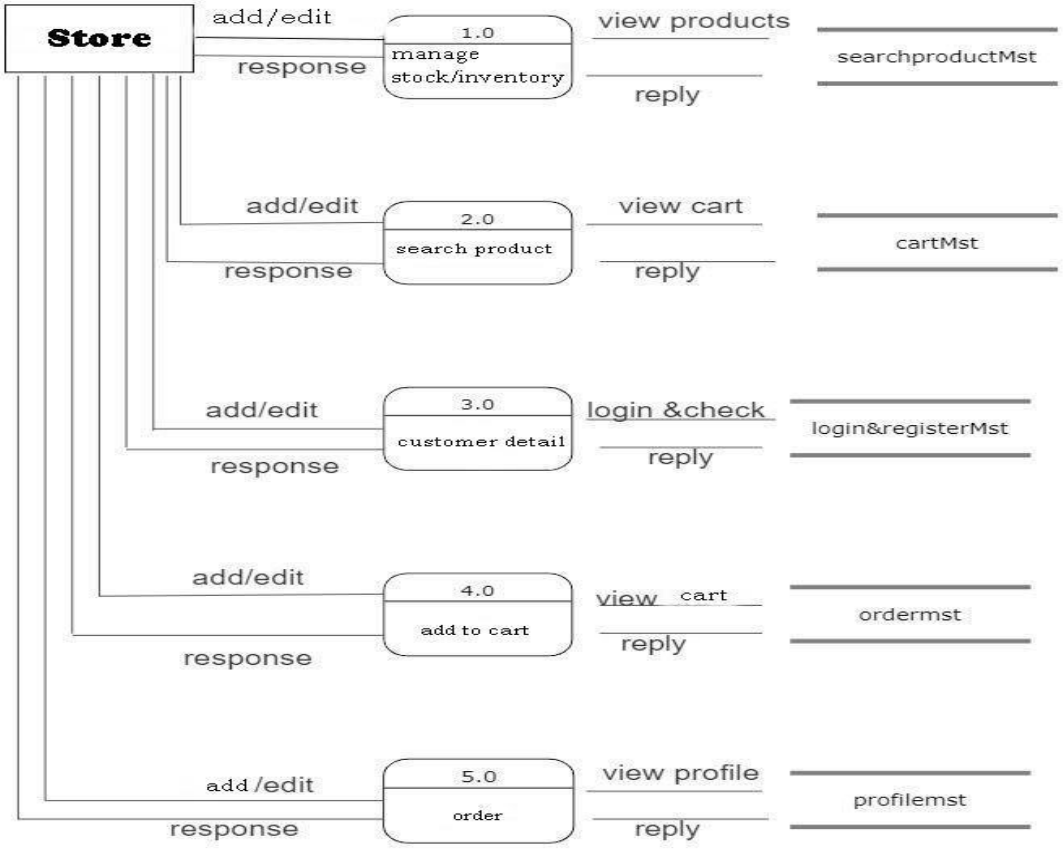
DFD (Data Flow Diagram)

- **Zero level DFD**

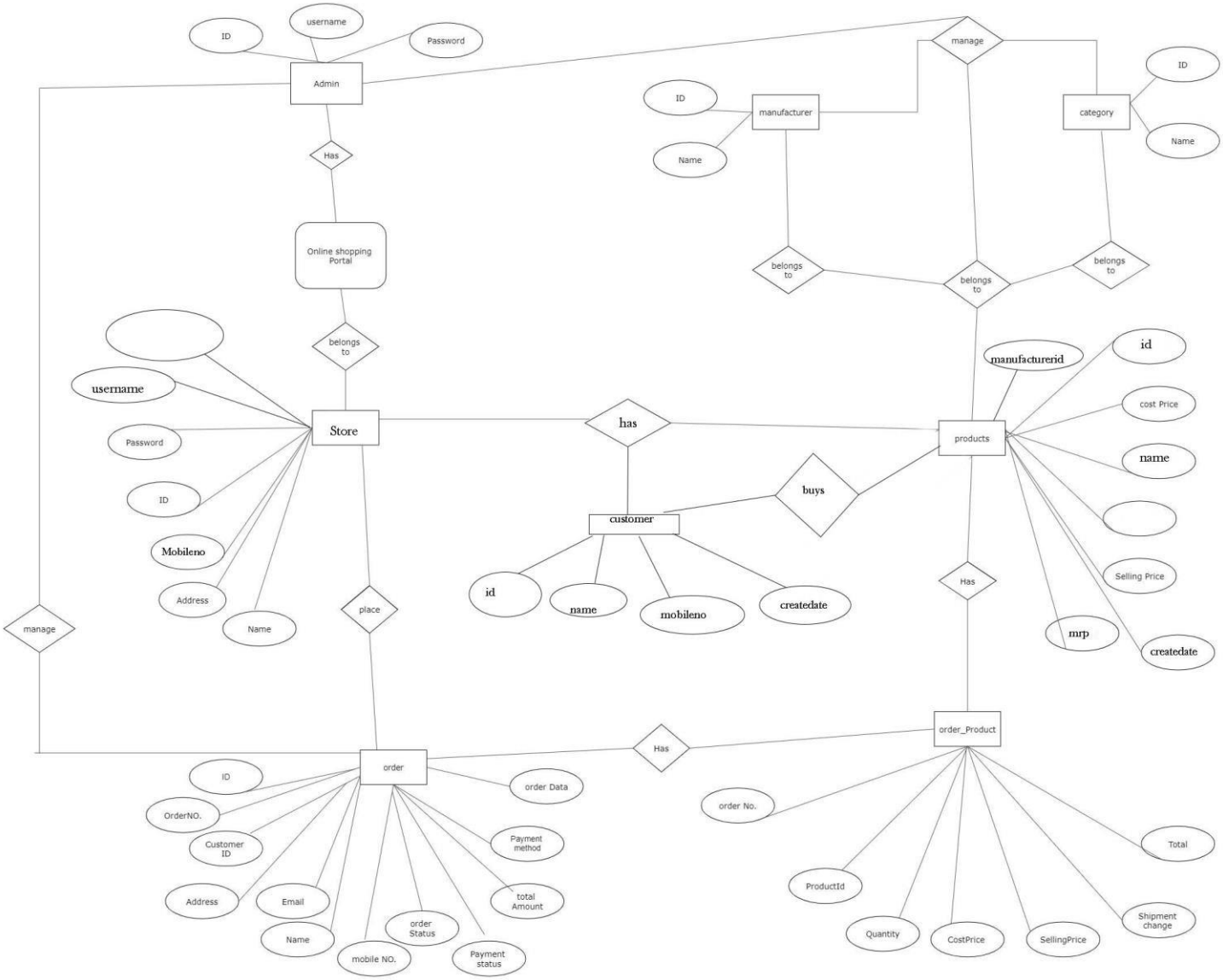


- **1st level DFD**





ERD (Entity Relationship Diagram)



Algorithm design

An algorithm is a series of instructions, often referred to as a “process,” which is to be followed when solving a particular problem. While technically not restricted by definition, the word is almost invariably associated with computers, since computerprocessed algorithms can tackle much larger problems than a human, much more quickly. Since modern computing uses algorithms much more frequently than at any other point in human history, a field has grown up around their design, analysis, and refinement. The field of algorithm design requires a strong mathematical background, with computer science degrees being particularly sought-after qualifications. It offers a growing number

of highly compensated career options, as the need for more (as well as more sophisticated) algorithms continues to increase.

Conceptual Design

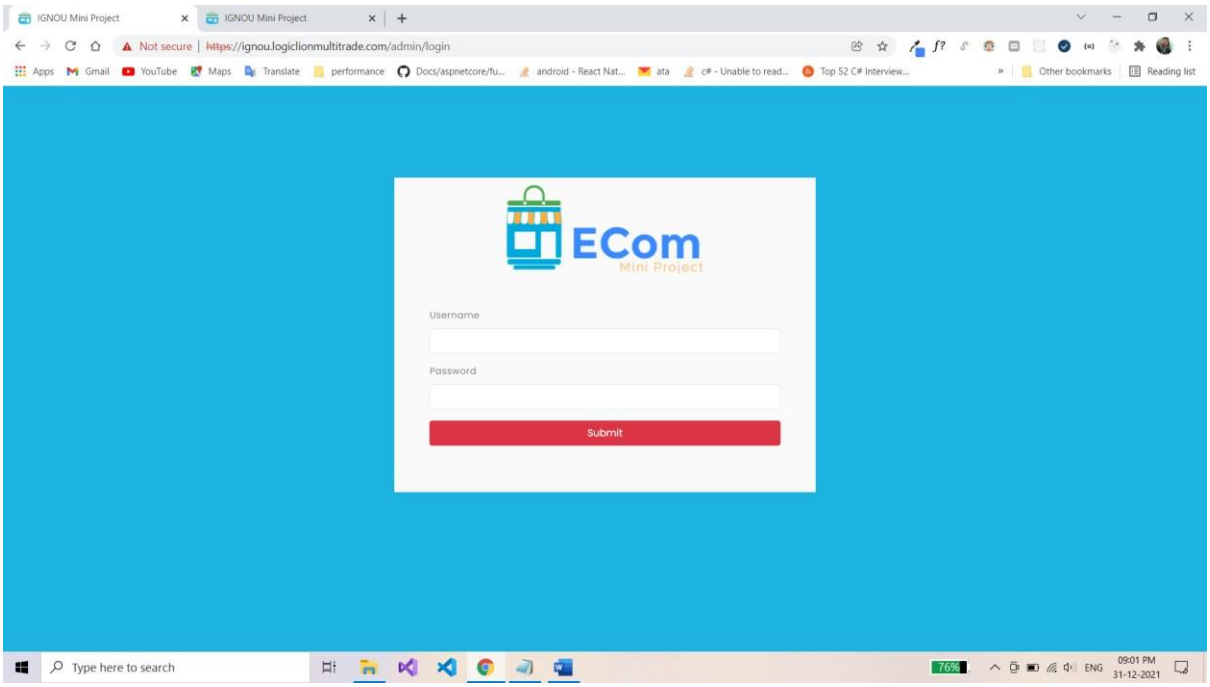
At their simplest level, algorithms are fundamentally just a set of instructions required to complete a task. The development of algorithms, though they generally weren't called that, has been a popular habit and a professional pursuit for all of recorded history. Long before the dawn of the modern computer age, people established set routines for how they would go about their daily tasks, often writing down lists of steps to take to accomplish important goals, reducing the risk of forgetting something important. This, essentially, is what an algorithm is. Designers take a similar approach to the development of algorithms for computational purposes: first, they look at a problem. Then, they outline the steps that would be required to resolve it. Finally, they develop a series of mathematical operations to accomplish those steps.

From Small Tasks to Big Data

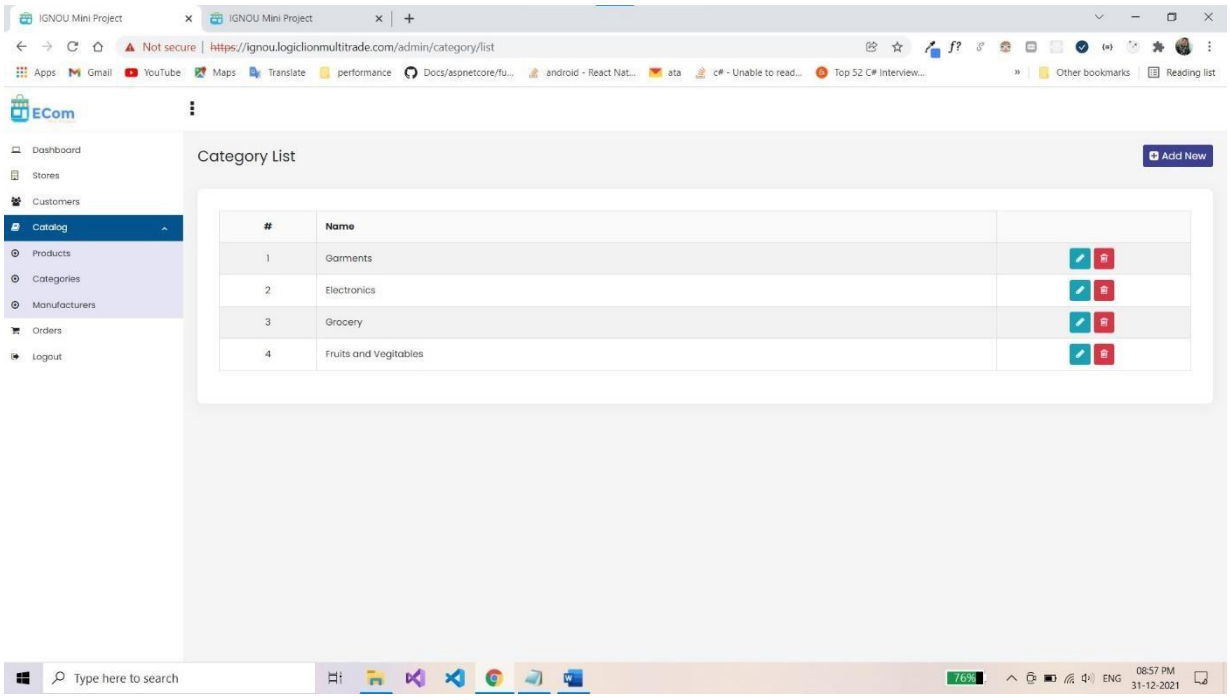
A simple task can be solved by an algorithm generated with a few minutes, or at most a morning's work. The level of complexity runs a long gauntlet, however, arriving at problems so complicated that they have stymied countless mathematicians for years — or even centuries. Modern computer confronts problems at this level in such areas as cyber-security, as well as big data handling — the efficient and thorough sorting of sets of data so large that even a standard computer would be unable to process them in a timely fashion. Examples of big data might include "every article on Wikipedia," "every indexed and archived webpage going back to 1998," or "the last six months of online purchases made in America."

User Interface Design

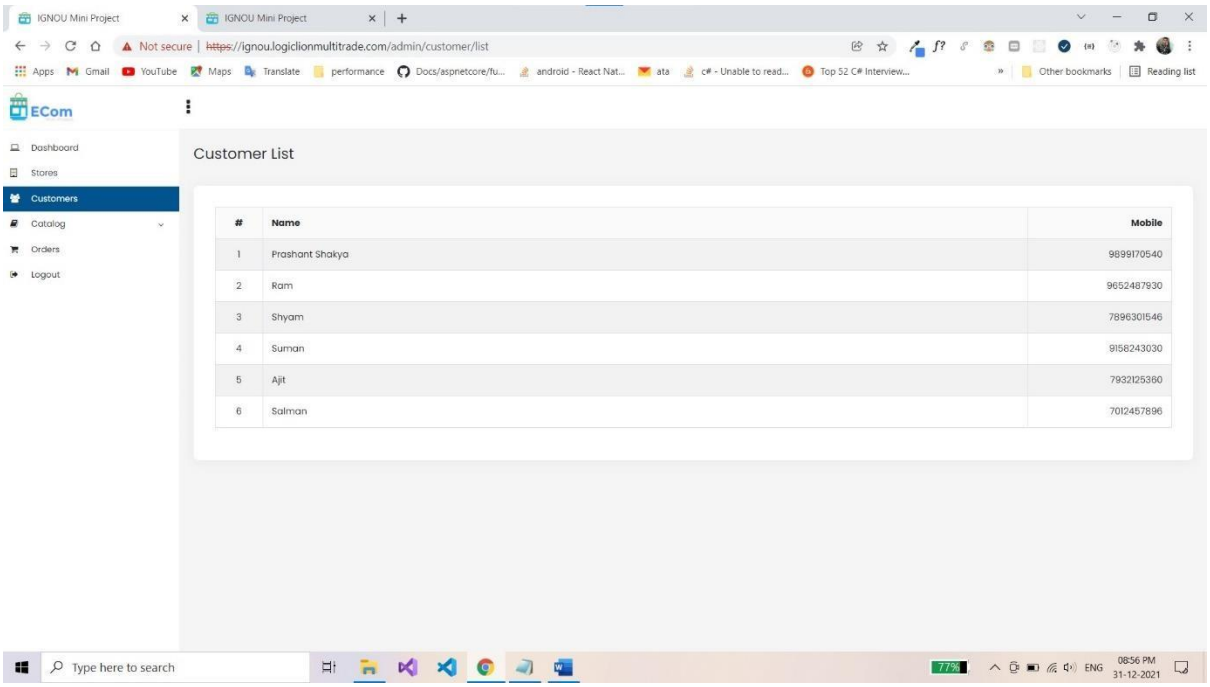
Login page



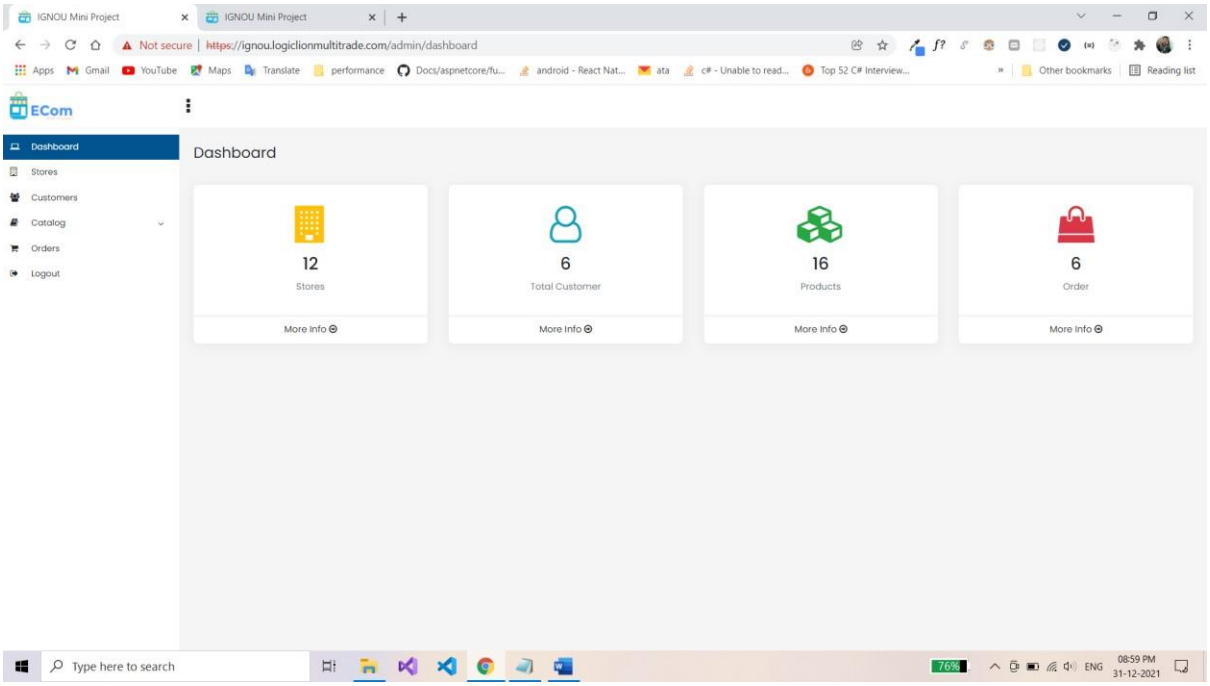
category page



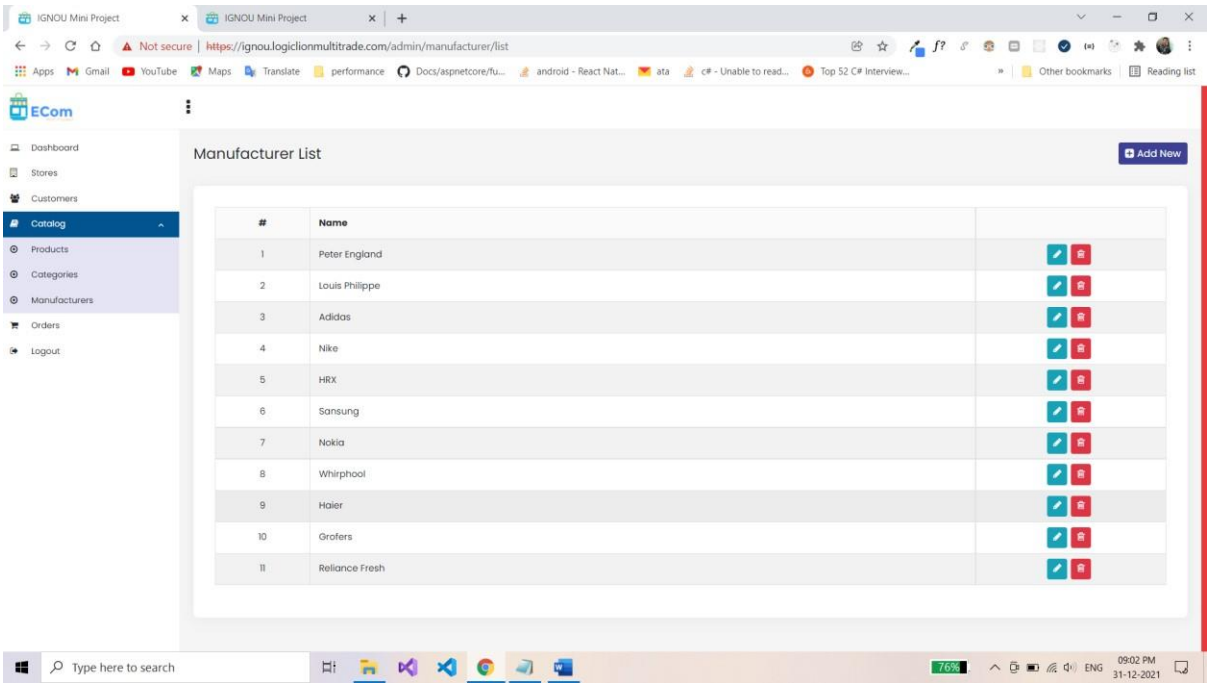
Customer page



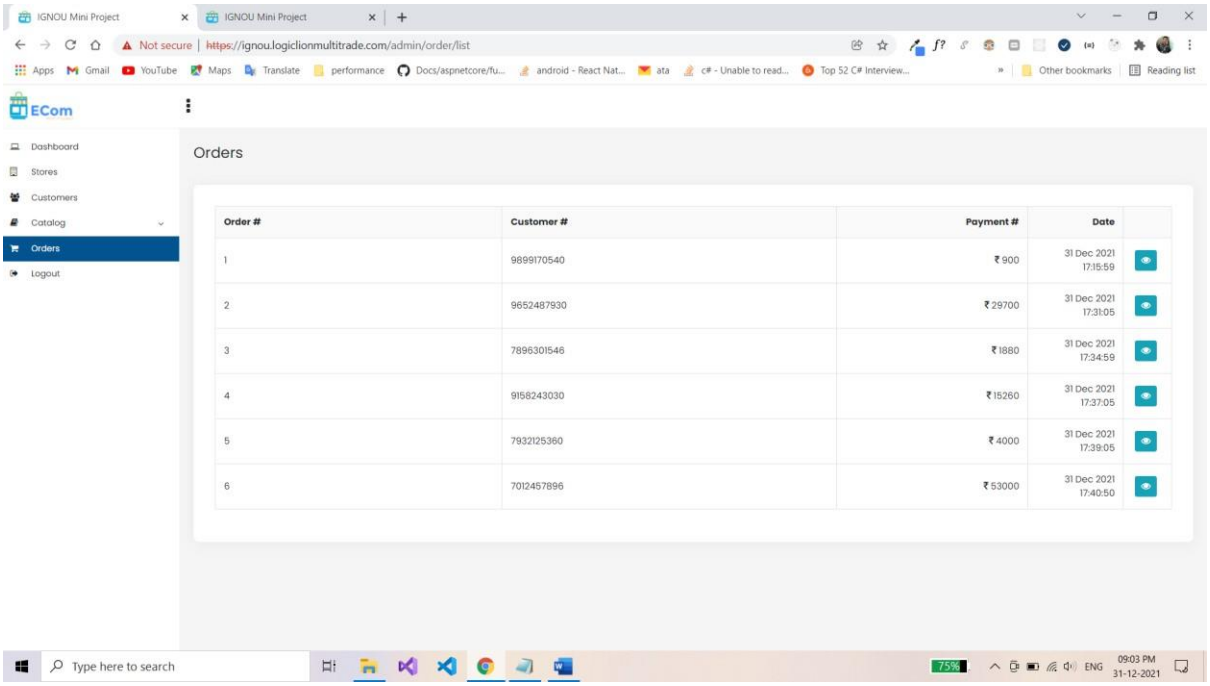
Dashboard page



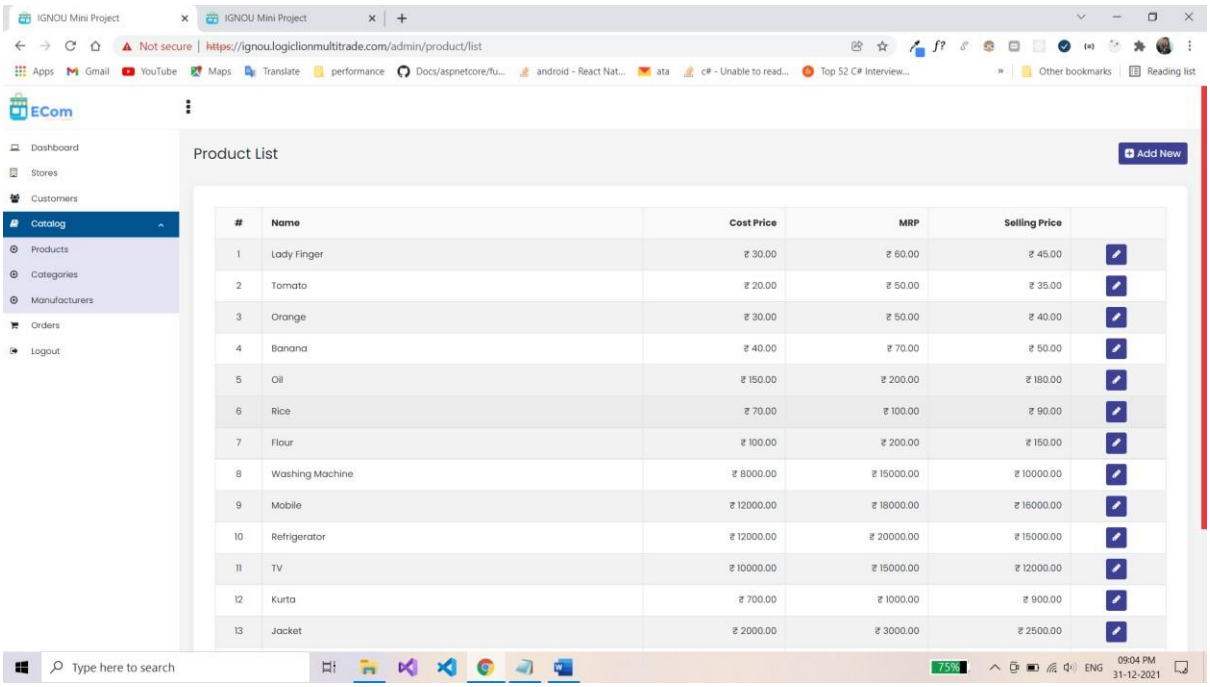
Manufacturer page



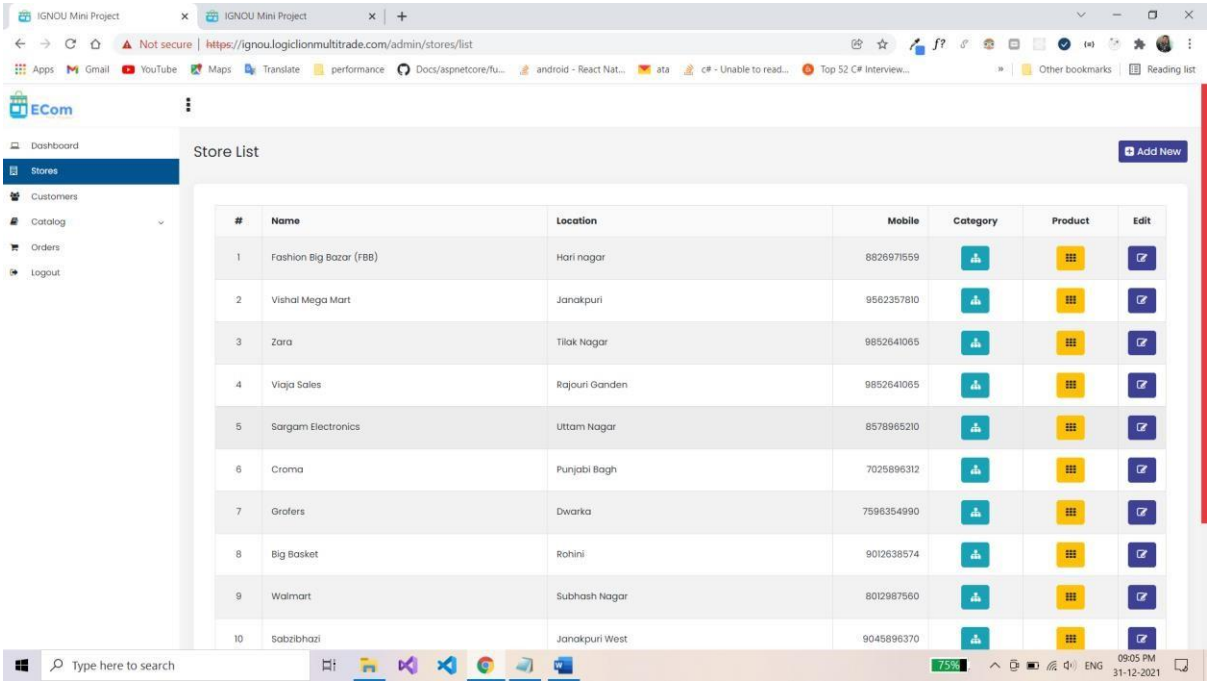
Order page



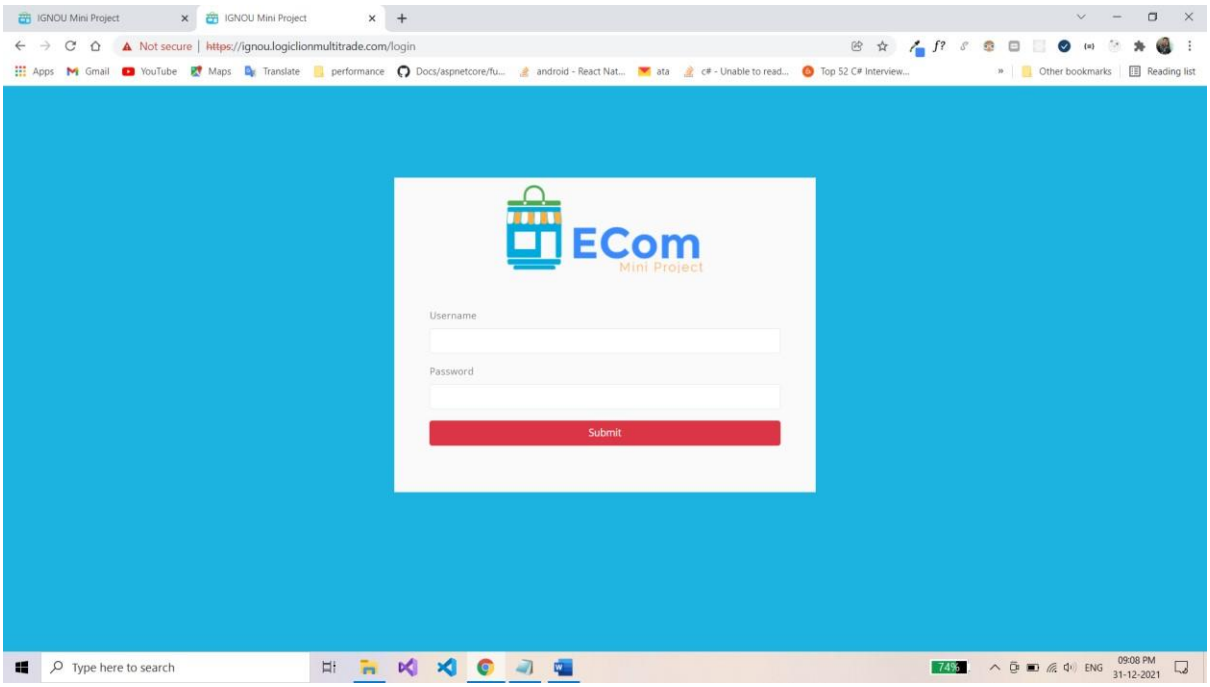
Product page



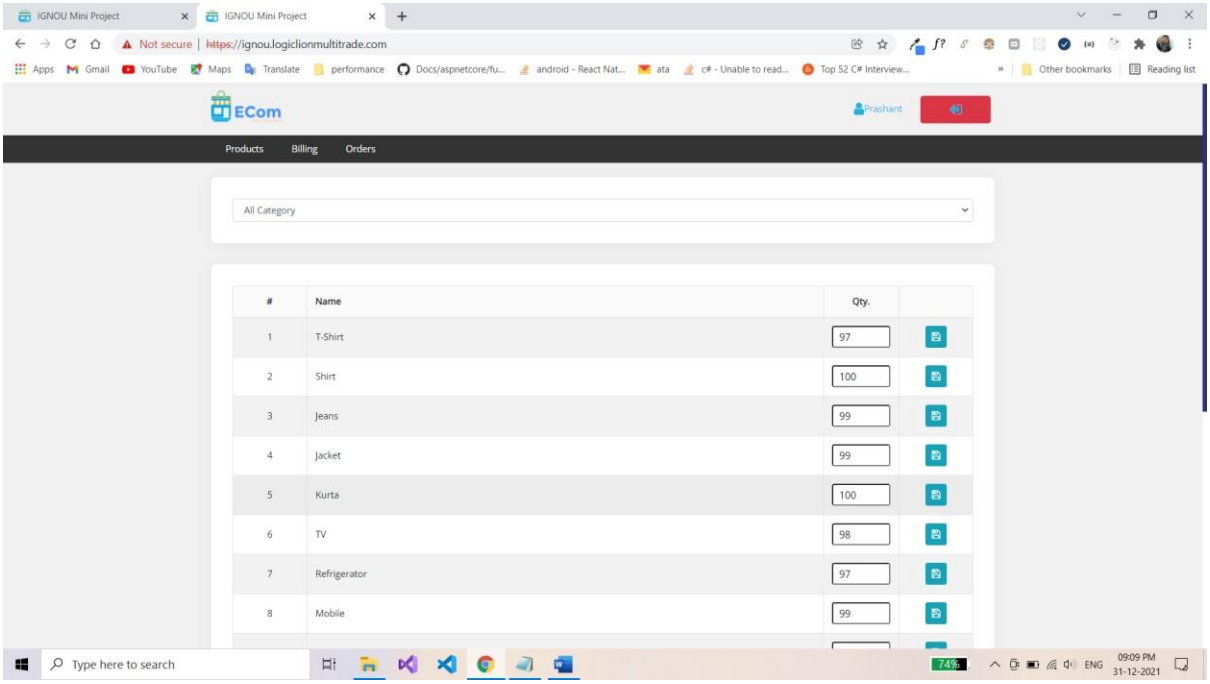
Store page



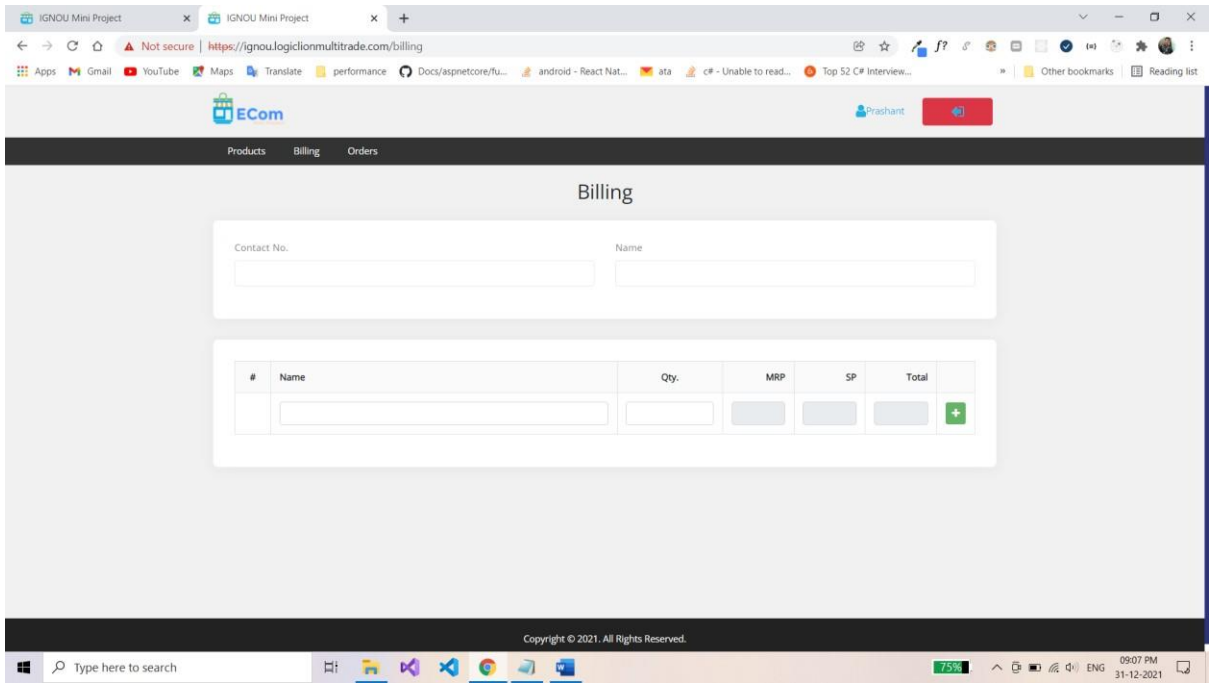
Store login



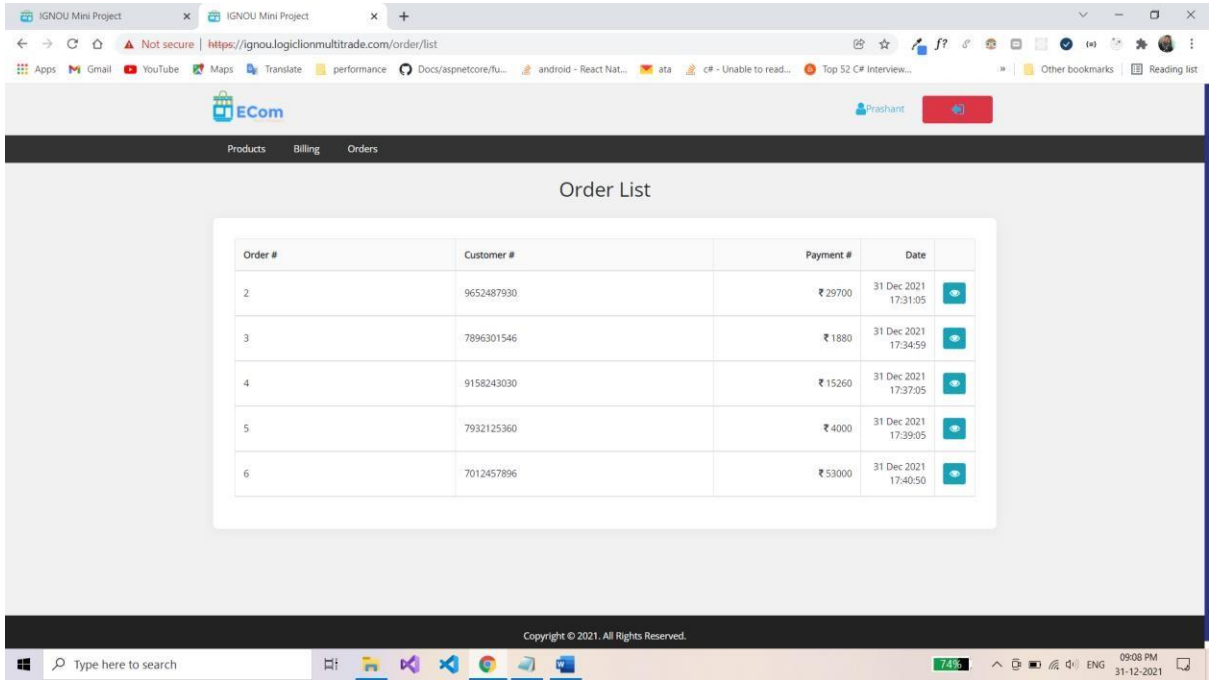
Store product page



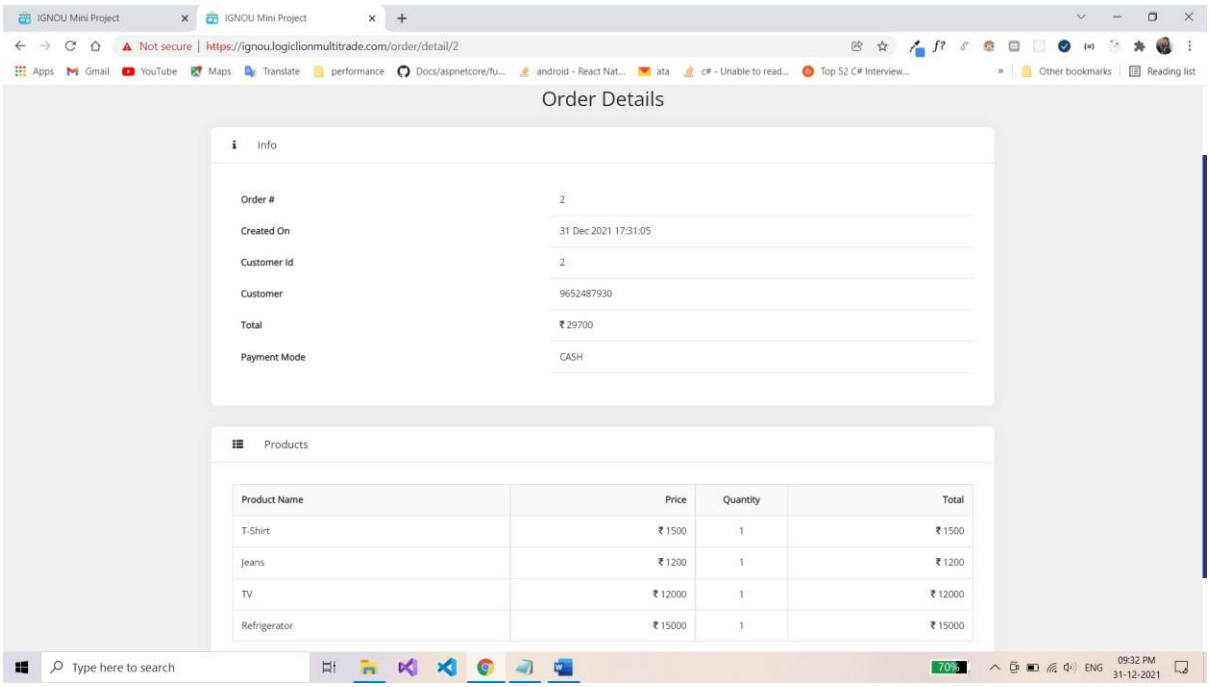
Store billing page



Store order list



Store order list



Security issues

- **Injection.** An injection happens when a bad actor sends invalid data to the web app to make it operate differently from the intended purpose of the application.
- **Broken Authentication.** A broken authentication vulnerability allows a bad actor to gain control over an account within a system or the entire system.

- **Sensitive Data Exposure.** Sensitive data exposure means data is vulnerable to being exploited by a bad actor when it should have been protected.
- **XML External Entities (XXE).** A type of attack against an application that parses XML input and occurs when XML input containing a reference to an external entity is processed by a weakly configured XML parser.
- **Broken Access Control.** When components of a web application are accessible instead of being protected like they should be, leaving them vulnerable to data breaches.
- **Security Misconfigurations.** Incorrectly misconfiguring a web application provides bad actors with an easy way in to exploit sensitive information.
- **Cross Site Scripting (XSS).** An XSS attack means a bad actor injects malicious client-side scripts into a web application.
- **Insecure Deserialization**. Bad actors will exploit anything that interacts with a web application—from URLs to serialized objects—to gain access.
- **Using Components with Known Vulnerabilities.** Instances such as missed software and update change logs can serve as big tip-offs for bad actors looking for ins into a web application. Disregarding updates can allow a known vulnerability to survive within a system.
- **Insufficient Logging and Monitoring.** Lack of efficient logging and monitoring processes increases the chances of a web app being compromised.

Test Cases Designs

A test case is exactly what it sounds like: a test scenario measuring functionality across a set of actions or conditions to verify the expected result. They apply to any software application, can use manual testing or an automated test, and can make use of test case management tools.

A key thing to remember when it comes to writing test cases is that they are intended to test a basic variable or task such as whether or not a discount code applies to the right product on an e-commerce web page. This allows a software tester more flexibility in how to test code and features.

Implementation and Approaches

Code details and code Efficiency

Code efficiency is a broad term used to depict the reliability, speed and programming methodology used in developing codes for an application. Code efficiency is directly linked with algorithmic efficiency and the speed of runtime execution for software. It is the key element in ensuring high performance. The goal of code efficiency is to reduce resource consumption and completion time as much as possible with minimum risk to the business or operating environment. The software product quality can be accessed and evaluated with the help of the efficiency of the code used.

Code efficiency plays a significant role in applications in a high-execution-speed environment where performance and scalability are paramount.

One of the recommended best practices in coding is to ensure good code efficiency. Well-developed programming codes should be able to handle complex algorithms.

Recommendations for code efficiency include: -

- To remove unnecessary code or code that goes to redundant processing
- To make use of optimal memory and non-volatile storage

- To ensure the best speed or run time for completing the algorithm
- To make use of reusable components wherever possible
- To make use of error and exception handling at all layers of software, such as the user interface, logic and data flow
- To create programming code that ensures data integrity and consistency
- To develop programming code that's compliant with the design logic and flow
- To make use of coding practices applicable to the related software
- To optimize the use of data access and data management practices
- To use the best keywords, data types and variables, and other available programming concepts to implement the related algorithm

Testing approaches

Test Strategy document (Test Approach document) is a static document that specifies how QA process is carried out in the company. It defines the main goals that need to be achieved and measures used to implement them. Clearly written testing strategy determines the scale of the project and helps the team take into account all the activities related to the testing process. Unfortunately, not all software development and testing companies ask their Project Managers and testers to build such documents. Even if they do, QA experts sometimes ignore strategic documentation while working on some project. Today we will dive into the concept of Test Approach document so that it's clearly understandable why it's so important for testing engineers to use it as an everyday guidance.

Unit testing

unit testing is a software testing method by which individual units of source code—sets of one or more computer program modules together with associated control data, usage procedures, and operating procedures—are tested to determine whether they are fit for use.

Integrated testing

INTEGRATION TESTING is defined as a type of testing where software modules are integrated logically and tested as a group. A typical software project consists of multiple software modules, coded by different programmers. The purpose of this level of testing is to expose defects in the interaction between these software modules when they are integrated

Integration Testing focuses on checking data communication amongst these modules. Hence it is also termed as **'I & T'** (Integration and Testing), **'String Testing'** and sometimes **'Thread Testing'**.

Following are the typical design techniques in software engineering:

1. Deriving test cases directly from a requirement specification or black box test design technique. The Techniques include:

    - Boundary Value Analysis (BVA)
    - Equivalence Partitioning (EP)
    - Decision Table Testing
    - State Transition Diagrams
    - Use Case Testing

2. Deriving test cases directly from the structure of a component or system:

    - Statement Coverage
    - Branch Coverage
    - Path Coverage

- LCSAJ Testing

3. Deriving test cases based on tester's experience on similar systems or testers intuition: Error Guessing

Test Report

In this project we came up with an idea of computerizing the whole working of a shop welling electronic goods i.e., creating a record of all the customers and all the items available in the store. The project is for computerizing the working in the marketplace. The system takes care of all the requirements of the shop and is capable to provide easy and effective storage of information related to customers and the items available.

User documentation

The following list includes the steps that should be taken by the user, the conditions that should be met for the successful execution of the test case, and the end result that should be met for the test cases to pass.

- Input: Username and Password
- Output: Valid Destination Page
- Valid Range: User Name Alphanumeric, Password Alphanumeric
- End Messages/Result i. If (User == Valid User), an order form appears to complete the checkout process ii. If (User != Valid User), an error message is displayed on the Login interface. 2. TC02: To test, the users can view the items they add to the shopping cart. 61
- Description of Purpose: The system shows all the saved items in shopping cart for a particular user. The user can choose to check out the items or go back to continue shopping.
- Input: The user adds an item to the shopping cart from any of the available categories.
- Output: The shopping-cart page pops up, showing the item that is added by the user.

- End messages/Result i. If (Selection == Item and document == exists), the user is able to add that item to the cart, and the item shows up in the shopping cart, prompting user to delete the item, to continue shopping, or to check out the item. ii. If (Selection = Item and Selection = View Cart), an empty shopping cart pops up with buttons to check out or to continue shopping. 3. TC03: To test, the admin can upload new/revised categories and items.

- Description: The Admin can add or upload more items to a category or can add a completely new category. The admin can also modify the price, information and shipping taxes, etc. for the existing items and categories. • Input i. User=Admin ii. Selection=Items iii. Selection=Categories

- Output: New or modified items or categories in the shopping cart.

- End messages/Result i. If (User type = “Admin” &Selection = (Items || Category) && Item/Category =existing), then display the modified items or categories in the shopping cart. 62 ii. If (User type == “Admin” &Selection == (Items || Category) & Item/ Category=existing), then display newly added items or categories in the shopping cart.

4. TC04: To test, the admin can view all the users registered in the system.

- Description: The Admin can view all the users who are registered in the system in the database.

- Input i. User Name Alphanumeric, Password Alphanumeric ii. User==Admin iii. Selection==View Database

- Output: User List

- End messages/Result i. If (login type == “Admin” & Database.clicked = ‘true’ and list.clicked=true and userlist.exists=true), then display users. ii. If (login type == “Admin” &Database.clicked = ‘true’ and list.clicked=true and userlist.exists=false), then display the empty database. 5. TC05: To test, the admin can view the information about all users who successfully placed an order.

- Description: For the Admin, a database, which contains all information about the users, is created after each user checks out the items and successfully places an order.

- Input i. User Name Alphanumeric, Password Alphanumeric ii. User==Admin 63 iii. Selection==DatabaseUsers Info

- Output: A database with the user's information or an empty database.
- End messages/Result i. If (login type == "Admin" & Checkout.clicked = 'true' and Place Order.clicked=true and userlist.exists=true), then display the database containing the user's personal information. ii. If (login type = "Admin" &Checkout.clicked = 'true' and PlaceOrder.clicked=true and userlist.exists = false), then display the empty database. iii. If (login type = "Admin" & Checkout.clicked = 'true' and PlaceOrder.clicked=false and userlist.exists=true), then do not update the row in the database. 6. TC06: To test that users cannot checkout with an empty shopping cart.
- Description: If there are no items in the shopping cart, the checkout button is disabled, and the users cannot click the checkout button. A user cannot check out with an empty cart.
- Input i. User Name Alphanumeric, Password Alphanumeric ii. User==Users iii. Selection==View Cart No Items in the Shopping Cart
- Output: Disabled checkout button.
- End messages/Result i. If (login type == "Users" & Items.AddToCart = 'false' &ViewCart.clicked='true'), then display the empty shopping cart with no items and a disabled checkout button. 64 ii. If (login type == "Users" & Items.AddToCart = 'true' &ViewCart.clicked='true' &Checkout.clicked=='true'), then display items in the shopping cart with the checkout button enabled so that users can check out. 7. TC07: To test that user are not able to submit an order form if the information in any of the fields is invalid.
- Description: The users cannot place a successful order if any information on the order form is invalid (i.e., A zip code is a 5-digit number, so any non-numeric value will be invalid.) or if any of the information is incomplete or left blank.
- Input i. User Name Alphanumeric, Password Alphanumeric ii. User==Users iii. Selection==CheckoutOrder Form Place Order
- Output: User successfully or unsuccessfully places the order.
- End messages/Result i. If (login type == "User" &CheckoutButton.clicked = 'true' andOrderFormInformation.Valid=='false' or OrderFormInformation.Invalid=='false'&& PlaceOrder.clicked=true), then display an error message after the place order button is clicked. ii. If (login type == "User" &CheckoutButton.clicked = 'true' andOrderFormInformation.Valid=='true' and

OrderFormInformation.Invalid==’true’PlaceOrder.clicked=true), then successfully place the order and display the success message.

Future Scope and Limitations of the Project

This website/project can be enhanced with following feature in future based on business needs:

1. Ability to add promotional offers to attract more viewers, this can lead to great popularity of the college.
2. Implementation of full automated system for different depart and process of a college may be attached in the same domain and can be put forward to consolidated interface for any type of information. This may also provide freedom from hectic paper work and manual operations.
3. Further enhancements in application may lead to addition of payment gateway which includes making online automated payment, SMS gateway which includes proper acknowledgement for payment and regular alerts for some important releases and launches.
4. Use of Secured Socket Layer (https) protocol to provide enhanced security for website.
5. Using appropriate SEO and SMO mechanisms and proper keyword researching, College sites can take a boost ride in the ranking race of millions of other sites.
6. When this application linked with main website of college, then more consolidated environment for enrolling, gathering information and comparatively more interaction of user will take place.

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