SUPERIOR COLLEGE LAHORE

Faculty of Computer Science & IT

Final Year Project
PROJECT REPORT

[Business Management System]

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Project Report

[Business Management System]

Change Record

Author(s)	Version	Date	Notes	Supervisor's Signature
AZEEM	1.0		Original Draft	
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APPROVAL

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_____

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Date:_____ Signature:_____

PROJECT MANAGER

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_____

Date:_____ Signature:_____

HEAD OF THE DEPARTMENT

Comments: _____

_____

Date:_____ Signature:_____

Dedication

This work is dedicated to ALLAH Almighty WHO gave us knowledge, strength and patient to finish this work.

Our Dedication

Also goes to our parents and our project Supervisor Sir: JUNAID ARSHAD and Our Project Manager Sir: FAHAD SABAH.

Acknowledgements

In the name of Allah Who is most Merciful and Beneficent. I would like to express my special thanks of appreciation to our project manager sir FAHAD SABAH as well as our project supervisor sir JUNAID ARSHAD, who helped us a lot to complete this project.

Secondly I would also like to thank my mother and friend who helped me a lot in finishing this work. I am making this project not only for marks but to also increase my knowledge.

Executive Summary

We are developing a windows application for the purpose of business management. The name of our application is Business Management System. Our application will help businessmen to maintain their business efficiently. This application will provide facility to store the record of stock, cash, sales, purchase and profit. This application is useful for small scale business and

shopkeeper. By using this application we can save millions of record in data base and we can easily retrieve our records from database quickly and can also perform various activities like sales, purchase, stock management and crud operation to maintain our record in efficient manner.

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Chapter 1

Introduction

Chapter 1: Introduction

BMS is window based business management application. Our application is beneficial for business Owners. A business man can manage his business efficiently by using this application. BMS can be used to store the details of the inventory, update the inventory based on the sales details, produce receipts for sales, generate sales and inventory reports etc. This is one integrated system that contains both the user component and the admin component used by the administrators for performing admin level functions such as adding new items to the inventory, changing the price of an item etc.

1.1. Background

The reason of developing the window base application is to help the people, reduce paper Work to save time or thereby increasing the efficiency and decreasing the work load. Most of the businessmen are using manual file system to store the record of business components. Manual file system is a very time consuming process. It is difficult to search a record quickly from numbers of records. Computer replaced this manual file system with computerized file system like MS Excel, Peach Tree etc. Computerized file system is more efficient versus manual file system. But computerized file system is not organized because it is difficult to handle a lot of files. Our system is very efficient versus computerized file system.BMS provides only one platform to handle multiple tasks. A businessman can get accurate status of his business in one click. BMS provides a very efficient database to store millions of record. It is very easy to add, search, update and delete any record rapidly. BMS is very user friendly software. A person who knows basic knowledge of computer also uses this software. On the other hand existing systems that are very closely to our system are very difficult and complex in use. Some existing software is listed below.

- Quick Book
- Manager

Above software are also business related software but very difficult in use. A complete training is required to operate this software. But BMS is a user friendly and easy to understand opposed to existing software. In Existing system Order taker goes at shops and notes sales order manually.

1.2. Motivations and Challenges

The motivation behind this solution is Manual file system is a very time consuming process. It is difficult to search a record quickly from numbers of records. These facts motivate me to build a solution which will help users in business management. BMS provides only one platform to handle multiple tasks. BMS provides a very efficient database to store millions of record. It is very easy to add, search, update and delete any record rapidly. BMS is very user friendly software.

1.3. Goals and Objectives

Our goal is to keep record of inventory and provides very efficient Database for handling data. BMS can calculate accurate value of stock after every transaction. BMS generates reports related to stock after every transaction regarding to sales and purchase items. User can create invoices. An administrator can create purchase invoices for purchased items. BMs can store supplier's record. User can access all the records easily by search their reference number.

Objectives:

- Software should be User friendly and easy to understand.
- Software should be robust and efficient.
- Software should be reliable and recoverable.
- Software should be affordable.
- Software should be organized and must be consist of one file only.
- BMS should keep record related to credit sales and purchase

1.4. Literature Review/Existing Solutions

We are researching on existing project but there are not many solutions available in the market. Existing systems that are very closely to our system are very difficult and complex in use. Some existing software is listed below.

- Quick Book
- Manager

Above software are also business related software but very difficult in use. A complete training is required to operate this software. But BMS is a user friendly and easy to understand opposed to existing software. In Existing system Order taker goes at shops and notes sales order manually.

1.5. Gap Analysis

Manual book keeping that is very time consuming system. Computerized file system like Excel and other accounting software are not organized and difficult to manage a lot of files.

Existing software that are comparable with our project are Quick Book, Manager Etc are very complex and not user friendly. Existing software are very costly so it is hard to purchase these software for everyone. After analysis of the software we decide to develop user friendly and affordable software which is Business Management System.

1.6. Proposed Solution

Our Business management software provides a complete and comprehensive solution to manage a business efficiently. Proposed solutions for above problems are written below.

- Software should be User friendly and easy to understand.
- Software should be robust and efficient and affordable.
- Software should be reliable and recoverable and must be consist of one file only. .

BMS provide only one platform for performing several tasks.BMS is reliable and secure software. So every person can manage his business by using BMS.

1.7. Project Plan

First of all we shall gather all requirements related to business management system. In second phase we shall analyze requirement are feasible or not. In third phase we shall create documentation of our project. In last phase we develop application and testing simultaneously.

1.7.1. Work Breakdown Structure

WBS #	WBS Deliverable	Activity #	Activity to Complete the Deliverable	Duration (# of Days)	Responsible Team Member(s) & Role(s)
1	Software Requirement Specification	1	Requirement gathering and Analysis	4 week	AZEEM
2	Design and Code Implementation	2	Register and Login	6week	AZEEM and SAJIDA
3	Design and Code Implementation	3	Products and categories	4 week	AZEEM and SAJIDA
4	Design and Code Implementation	4	Supplier and Purchase	4 week	AZEEM and KASHIF
5	Design and Code Implementation	5	Sales and Invoices	6 week	AZEEM and AQSA
6	Design and Code Implementation	6	Reports	4 week	AZEEM
7	Testing	7	Testing and maintenance	2 week	AZEEM

1.7.2. Gantt chart

GANTT CHART		Dec-18		Jan-19				Feb-19				Mar-19				Apr-19				May-19				Jun-19				Jul-19				Time Summary
Activity ID	Activity Name	w1	w2	w3	w4	w5	w6	w7	w8	w9	w10	w11	w12	w13	w14	w15	w16	w17	w18	w19	w20	w21	w22	w23	w24	w25	w26	w27	w28	w29	w30	Percentage
1	Requirements																															7%
2	Requirements Analysis																															6%
3	Documentation																															5%
4	Design (Graphical User Interface)																															18%
5	Code Implimentation																															45%
6	Integration																															14%
7	Testing																															15%

Figure: 1.1

Chapter 2

Software Requirement Specifications

Chapter 2: Software Requirement Specifications

2.1. Introduction

BMS is desktop application for business management. Our software is beneficial for business Owners. A business man can manage his business efficiently by using this software. BMS can be used to store the details of the inventory, update the inventory based on the sales details, produce receipts for sales, generate sales and inventory reports etc. This is one integrated system that contains both the user component used by Order taker and the admin component used by the administrators for performing admin level functions such as adding new items to the inventory, changing the price of an item etc.

2.1.1. Purpose

Purpose of this application is to facilitate business by reducing complexity and cost. The main purpose of this app is to make user friendly environment for end user and time saving, rather than waste time on manual file system.

2.1.2. Document Conventions

Software requirement specification gathered after analysis of business requirements and according to the need of customer requirement. All standard rules applied in this application as per SRS and in this document.

2.1.3. Intended Audience and Reading Suggestions

Document is beneficial for developer, project manager, and students of information technology, business manager and organizations. A complete description details along with software requirement specification are added in this document.

2.1.4. Product Scope

BMS keeps record of inventory and provides very efficient Database for handling data.BMS gives access to add, update, search and delete inventory items in just few clicks. One's can handle data by using BMS very easily.BMS can calculate accurate value of stock after every

transaction. BMS generates reports related to stock after every transaction regarding to sales and purchase items. Order takers can create invoices by using mobile application.

2.1.5. References

2.2. Overall Description

2.2.1. Product Perspective

BMS is a desktop application. It is a very efficient tool for resolving business related issues.BMS includes products management, stock management, sales management, purchase management, reports review etc. So a person who wants to automate his business record, BMS is best tool for this purpose. BMS keeps record of all transactions and provide quick overview of all the records. It is very efficient and fast way to retrieve any record by using this application.BMS can also reduce the complexity of existing system because the interface of BMS is very easy to understand. BMS also reduced the cost factor in compare to existing system.

2.2.2. Product Functions

All the functions include in Business management system are listed below as per software requirement specification.

- User registration
- User Login system
- Add products or stock items
- Add Categories
- Add supplier and their contacts
- Create Invoices or generate bills for all sales transactions
- Update Record or modify and type of record
- Delete record of unwanted or expire data
- View Reports related to sales, purchase and stock etc
- Logout from the system

Upcoming features that may include later

- Mobile application for customer's orders
- Bar code reader support for retail sales

2.2.3. User Classes and Characteristics

BMS administrator: Admin class has all the rights and access of all features of the application. Admin also allocates the resources to the other user according to their work requirements. Admin can change rights of the users and functionalities of the software.

BMS user class: User can login to the system and can use as per his requirement. BMS user can use this application under the resources, provided by admin of the organization. Different users will have different rights of the software.

2.2.4. Operating Environment

- The application operating environment is windows operating system. The application will install on all type of window like win 7, win 8.1 and windows 10 etc.
- Hardware requirements are up to 2 GB of ram and 80 GB hard disk.
- Software requirements are Microsoft dot net frame work and SQL server.

2.2.5. Design and Implementation Constraints

- BMS software will be developed by using Microsoft Visual Studio and Dot net frame work.
- All the graphical user interface or front end will develop in Microsoft Visual Studio.
- C# will use as programming language for backend development and structure of the software will based on the concepts of Object oriented programming.
- Microsoft SQL server will use for the storage of data.
- Only admin and registered users can use this application.
- Admin can change system functionalities like activate or deactivate user login account or change the price of the products and receive accounts due to security point of view.

2.2.6. User Documentation

We will design video tutorial for admin and user to understand the functionalities of the software. This video tutorial will include all the setting and features of this application for user and admin to make sure user friendly environment of the application.

2.2.7. Assumptions and Dependencies

- After comparing many existing software related to business management, our assumption is that BMS is user friendly and cost effective software.
- We assume that a person who has basic knowledge of computer can use this software.
- To develop a desktop application for small organization.
- Make a BMS to easily manage and to be secured.

2.3. External Interface Requirements

2.3.1. User Interfaces

- The first page of this app, after installation at customer's computer is database connectivity, after first time connection with database this page can't appear again.
- After installation of app, First of all user have to register for secure login.
- In login window only register users can login to the system.
- When user will login to BMS, dashboard will appear for further processes.

2.3.2. Hardware Interfaces

- Dual core or higher processor
- Up to 2GB of Ram
- UP to 80GB of Hard Disk
- L.C.D for display

- Printer for invoice printing

2.3.3. Software Interfaces

The recommended software, listed below to develop and use this application.

- Microsoft visual studio 2017.
- .Net frame work 4.5
- Microsoft SQL Server 2008

2.3.4. Communications Interfaces

Desktop computer having specification of Dual core or higher processor, up to 2GB of Ram and up to 80GB of Hard Disk, can run our application efficiently. For the installation of BMS, there must be install .Net framework, SQL server and Acrobat reader on client's computer.

2.4. System Features

2.4.1. Register

2.4.1.1. Description and Priority

User registration is a process to add user's data in data base for the purpose of login to the system for further use. User can easily register himself by filling some specific field for secure login authentication. Priority of this feature is high because no one can login to the system without registration.

2.4.1.2. Stimulus/Response Sequences

User Action: User can run the application from its desktop computer

Response: Application will launch and user registration page will appear.

User Action: User will write basic information in the given text boxes and after completing the form, he will click on submit button for register process.

Response: System will receive the user's data, after analyses of user's information either these are valid or invalid. In case of invalid or missing information, the system will show a

Error message for the specific incorrect information or send a Success message, in case of valid information.

2.4.1.3. Functional Requirements

REQ-SF1-1: BMS must be installing in client's computer and SQL server also

REQ-SF1-2: User will run the application from his computer

REQ-SF1-3: User can't be already registered in the application

2.4.2. LOGIN

2.4.2.1. Description and Priority

Login is an authentication feature for accessing the application

2.4.2.2. Stimulus/Response Sequences

User Action: User writes his username and password in login window

Response: System will open home page after successful authentication

2.4.2.3. Functional Requirements

REQ-SF2-1: User will run the application

REQ-SF2-2: User must be registered in application

REQ-SF2-3: User must be write correct username and password

2.4.3. Add Products

2.4.3.1. Description and Priority

Only admin can use this feature. Add products feature is used for add new stock in data base.

2.4.3.2. Stimulus/Response Sequences

User Action: Admin will click on the button of Products for adding new Products

Response: System will open the window of products to fulfill the requirement of add new products

1.1.1.1. Functional Requirements

REQ-SF3-1: User will run the application

REQ-SF3-2: User must be registered in application

REQ-SF3-3: User must be logged into the application

REQ-SF3-4: Admin must be click on the button of add Products

2.4.4. Add Categories

2.4.4.1. Description and Priority

This feature is used for add new categories. Add categories pages will record product's categories details

2.4.4.2. Stimulus/Response Sequences

User Action: User will click on the button of add categories

Response: System will open the window of categories to store the data related to categories. Priority of this feature is medium

2.4.4.3. Functional Requirements

REQ-SF4-1: User will run the application

REQ-SF4-2: User must be logged into the application

REQ-SF4-3: User will click on add category button for add new customers

2.4.5. Add supplier

2.4.5.1. Description and Priority

User can add new suppliers in the system by using this feature to keep the record of purchases and accounts payable. Priority of this feature is medium

2.4.5.2. Stimulus/Response Sequences

User Action: User will click the button on customers

Response: System will show the window of customers

2.4.5.3. Functional Requirements

REQ-SF5-1: User will run the application

REQ-SF5-2: User must be logged into the application

REQ-SF5-3: User will click on add supplier button for add new supplier

2.4.6. Create Invoices

2.4.6.1. Description and Priority

This feature is used to record all the sales transactions. Priority of this feature is medium. Admin and user both can use this feature

2.4.6.2. Stimulus/Response Sequences

User Action: Admin will click on the button of add expenses

Response: System will open the window of Expenses.

2.4.6.3. Functional Requirements

REQ-SF6-1: User will run the application

REQ-SF6-2: User must be logged into the application

REQ-SF6-3: User will click on Invoices button

2.4.7. Update Record

2.4.7.1. Description and Priority

Update record is the important feature of this application. Only admin can modify or update any record.

2.4.7.2. Stimulus/Response Sequences

User Action: User will select the record and then click on the button of update record

Response: System will verify and modify the existing record

2.4.7.3. Functional Requirements

REQ-SF7-1: User must be run the application

REQ-SF7-2: User must be logged into the system

REQ-SF7-3: User will have to click on update record button

2.4.8. Delete record

2.4.8.1. Description and Priority

This feature is used to delete expire and unwanted data. Only admin can use this feature. Priority of this is low

2.4.8.2. Stimulus/Response Sequences

User Action: User will select item for delete

Response: System will verify from admin before deleting any record

2.4.8.3. Functional Requirements

REQ-SF8-1: User must be run the application

REQ-SF8-2: User must be logged into the system

REQ-SF8-3: User will click on update record button to use this feature

2.4.9. View Reports

2.4.9.1. Description and Priority

This feature is used to view all type records like sales purchase etc. The priority of this feature is medium

2.4.9.2. Stimulus/Response Sequences

User Action: User will click on view reports for report analyses

Response: System will show reports as per user requirements

2.4.9.3. Functional Requirements

REQ-SF9-1: User must be run the application

REQ-SF9-2: User must be logged into the system

REQ-SF9-3: User will click on view reports button

2.4.10. Logout

2.4.10.1. Description and Priority

This feature is used to exit from the application. The priority of this feature is medium. When user closes the application, he logged out from the system automatically.

2.4.10.2. Stimulus/Response Sequences

Use Action: User will click on logout or close the application

Response: System will close the application and will show login window again

2.4.10.3. Functional Requirements

REQ-SF2-1: User will have to run the application on his computer

REQ-SF2-2: User must be logged into the application

REQ-SF2-3: Application will close after logged out or closing the Application

2.5. Other Nonfunctional Requirements

2.5.1. Performance Requirements

Performance of the software must be efficient. Software reports must be authentic. Software data retrieving and searching performance must be robust. Software accounts calculations must be accurate.

2.5.2. Safety Requirements

Data base of the application must be secure from Errors and crashes issues. In case of any problem occurred, there must be back up of data base.

Every user will be responsible for his own data that he will upload on application.

2.5.3. Security Requirements

- System should be password protected.
- Every user has a different user name password.
- A user cannot access the feature of other user.
- If a user tries to login by invalid data more than three times, account of that user should be blocked.
- Only admin can activate Blocked account.
- Password should be hidden in URL.

2.5.4. Software Quality Attributes

Stability

Application will be stable, the changes may should not be occur

Availability

Application must be available any time to users

Usability

The interface of our application should be user friendly and easy to under stand

Reliability

Application must be reliable and efficient and also fulfill the requirement of data integrity

Maintainability

In case any problem or maintenance issue, we can maintain our application.

2.5.5. Business Rules

Once application will be deployed on client's computer after that developer will not responsible for any major problem or crash.

2.6. Other Requirements

Application development must be completed in given time frame.

Chapter 3

Use Case Analysis

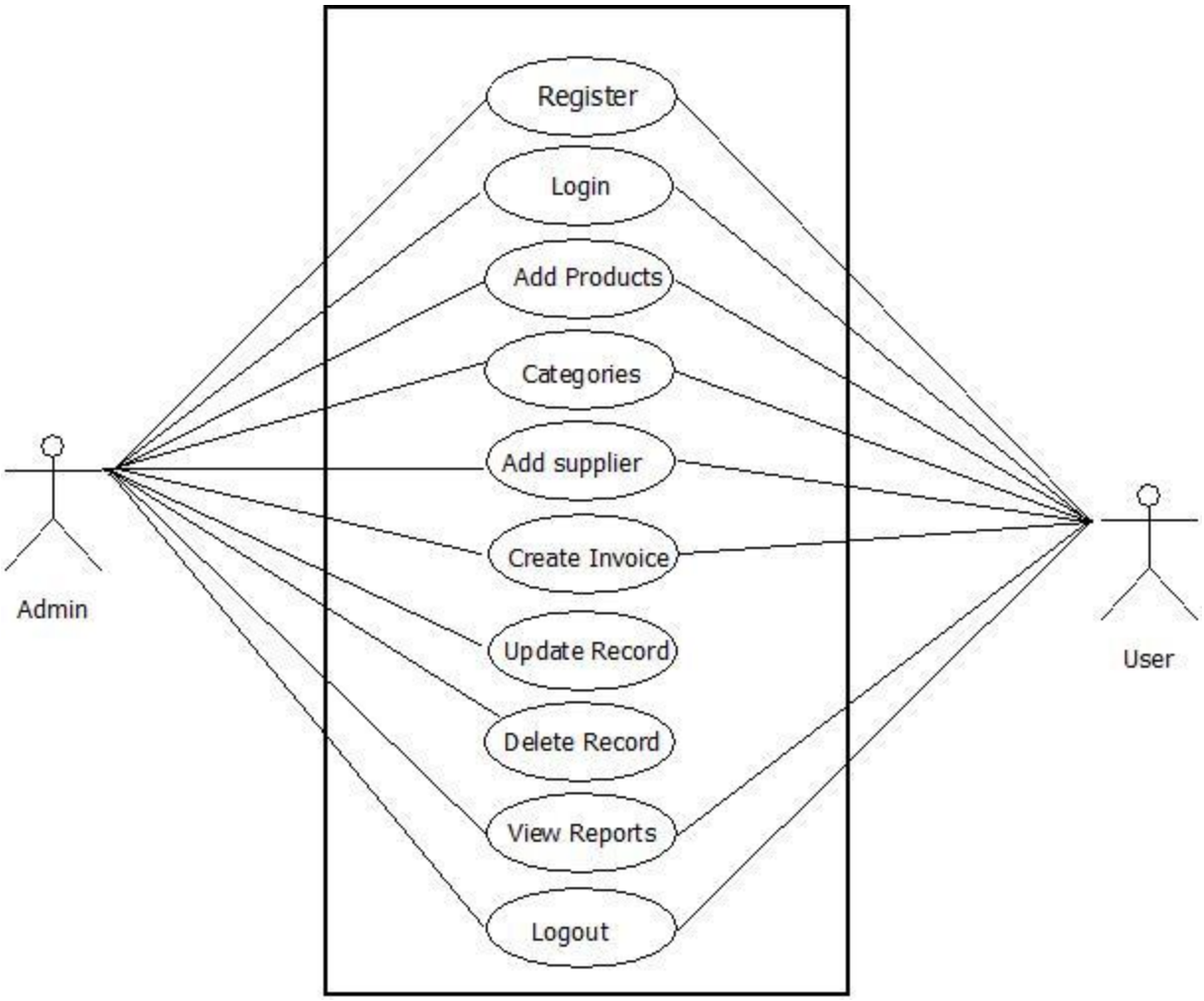
Chapter 3: System Analysis

Old system requires more work and time. Most of the businessmen are using manual file system to store the record of business components. Manual file system is a very complex and time consuming process. Cost incurred on manual system is very high. We will make a desktop application that is very helpful for storing business components. It is an expert application that reduces work complexity.

3.1. Use Case Model

A use case is a methodology used in system analysis to identify, clarify, and organize system requirements. It is a list of actions or event steps typically defining the interactions between a role and a system to achieve a goal. The actor can be a human or other external system.

3.2. Use Case Descriptions

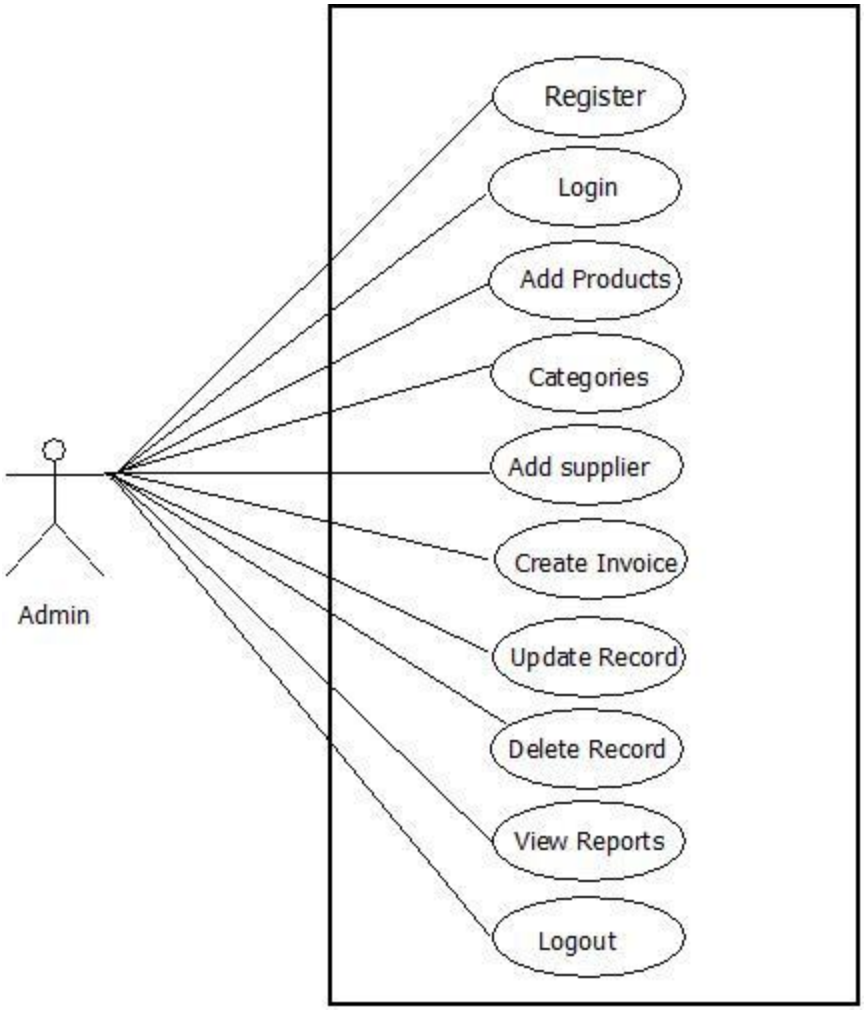


Fully dressed Use case Diagram

Fig 3.1

3.3. Use Case for admin

In this use case admin performs the entire functionalities register user, add product, categories etc. This diagram shows the functionalities of the admin.

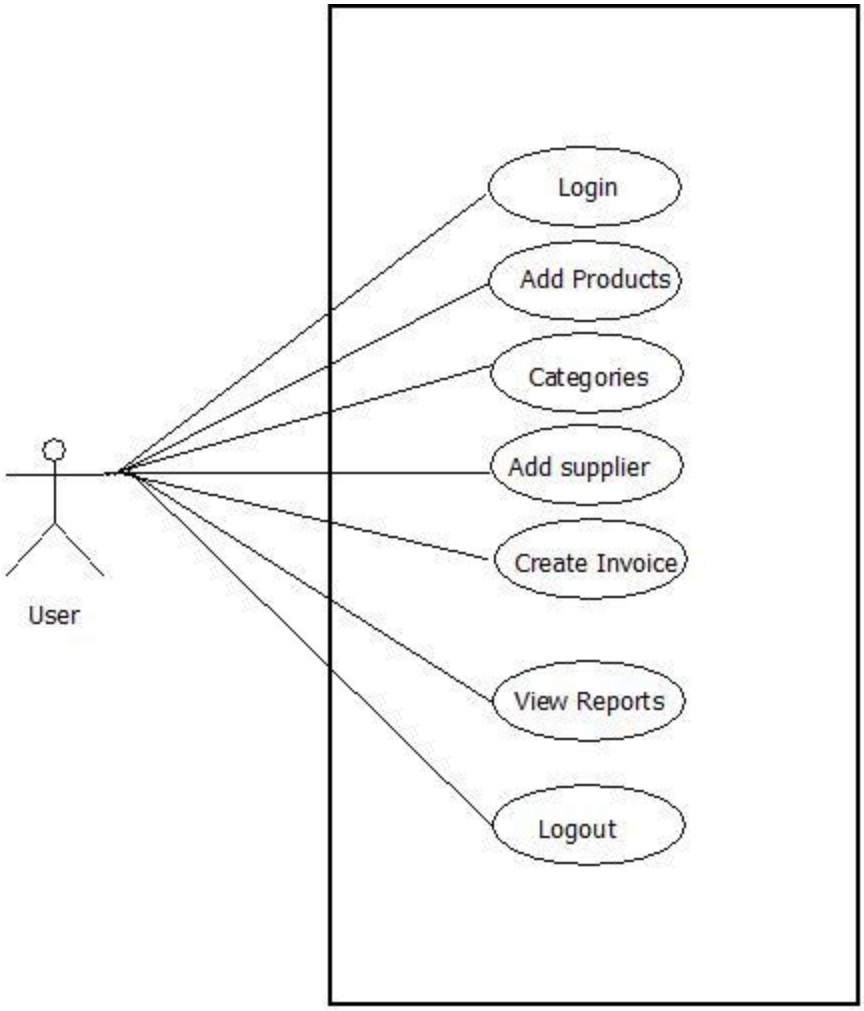


Use case for Admin

Fig 3.2

3.4. Use Case for User

This is the use case diagram for user. In this diagram user performs different functionalities according to its login rights.



Use case for user

Fig 3.3

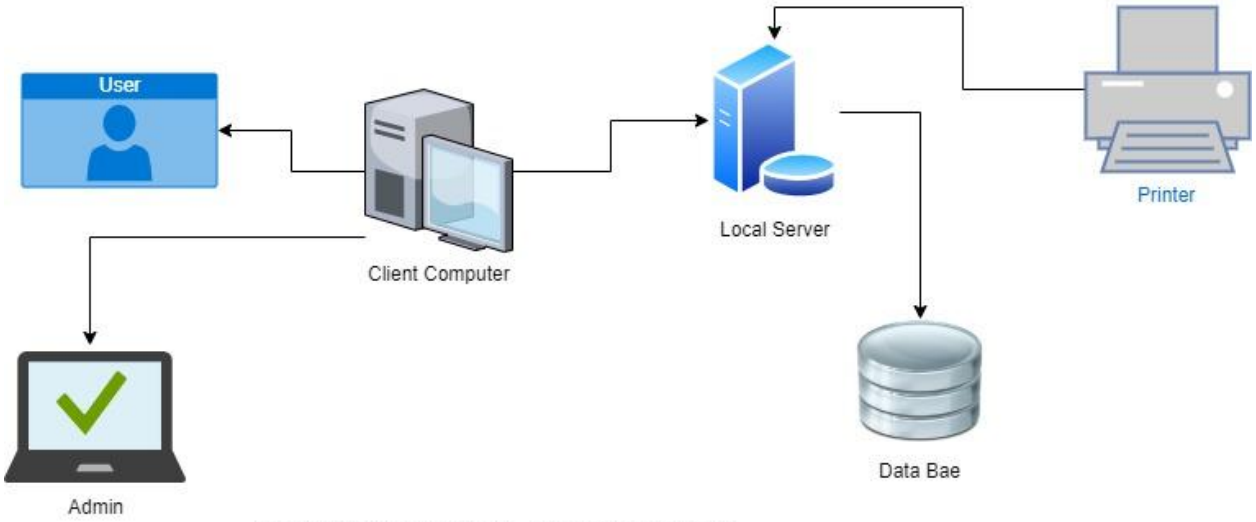
Chapter 4

System Design

Chapter 4: System Design

Business management system is an desktop application. A business management system design is a collection of design documents and supporting materials which define the system functionality that supports one or more business processes and in the process, creates, retrieves, updates and deletes data. BMS is an important step in business evolution. It will act as GUI for user.

4.1. Architecture Diagram



System Architecture Diagram of BMS

Figure: 4.1

4.2. Domain Model

Domain model is a collection of related concepts, real word entities, relationships and workflows. It is the conceptual model of domain that incorporates both behavior and data.

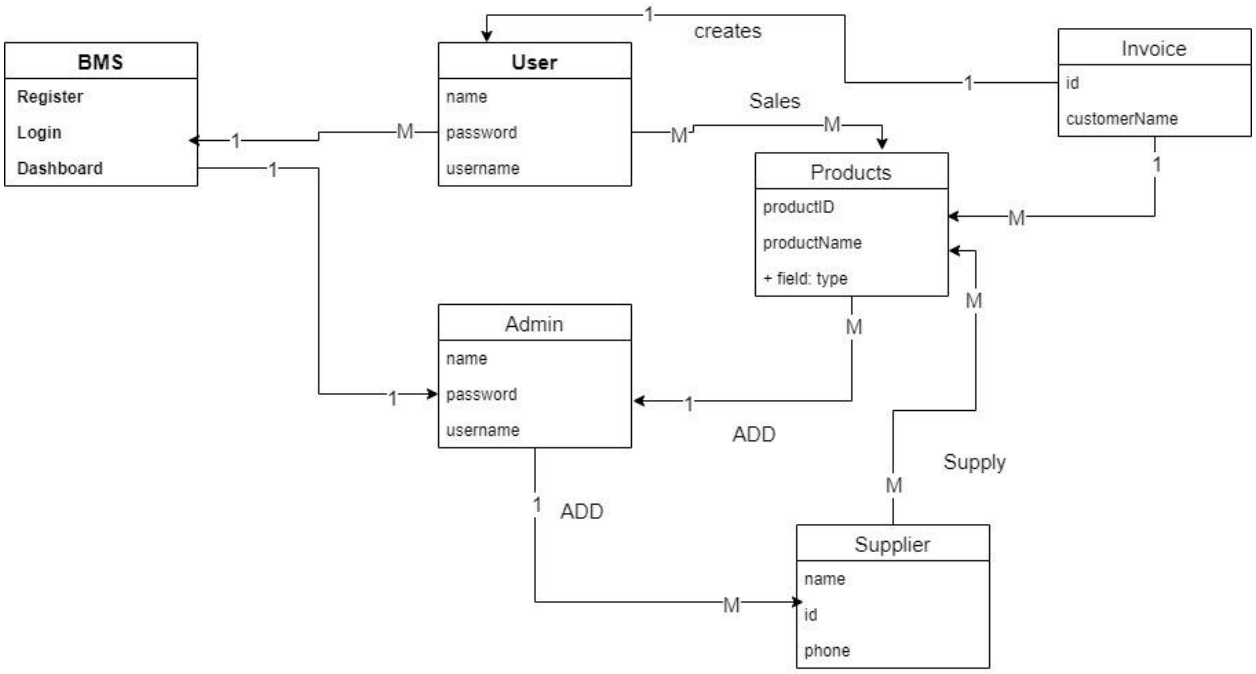


Figure: 4.2

4.3. Class Diagram

This diagram is showing the structure of system by showing system classes, their attributes, operations (or methods) and relationship among objects.

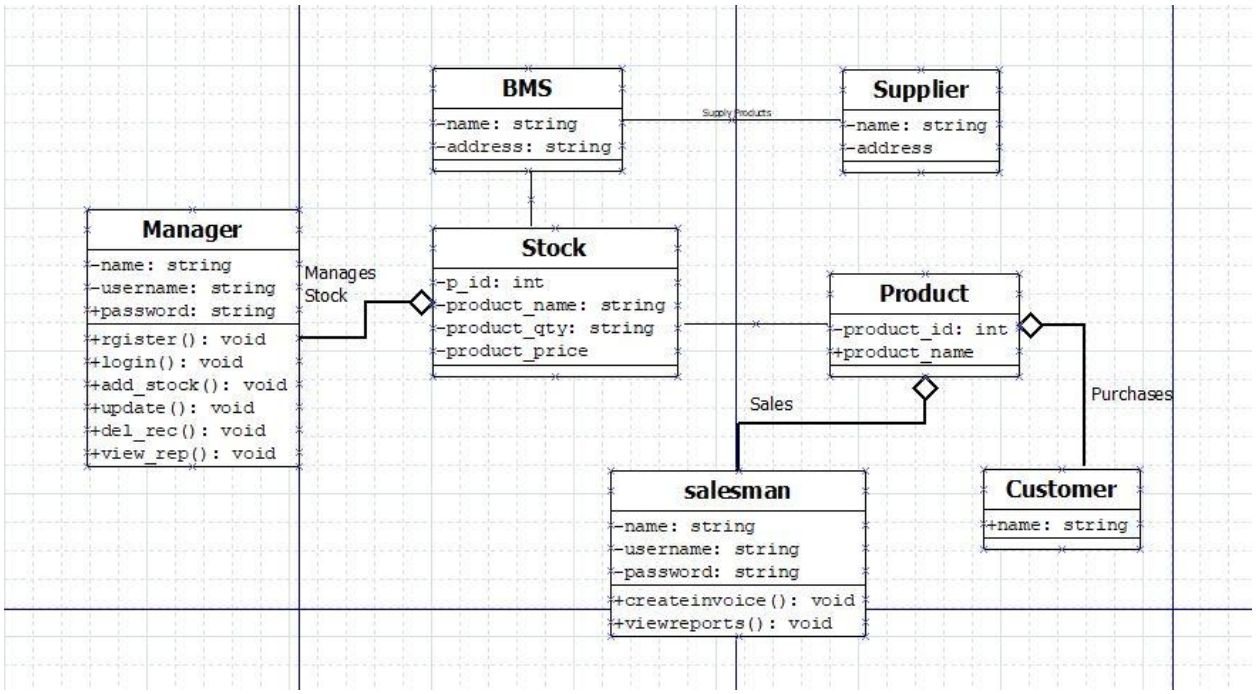


Figure: 4.3

4.4. Sequence / Collaboration Diagram

This diagram show as parallel vertical lines, different processes or objects that live simultaneously and as horizontal rows, the messages exchanged between them, in the order which they occur.

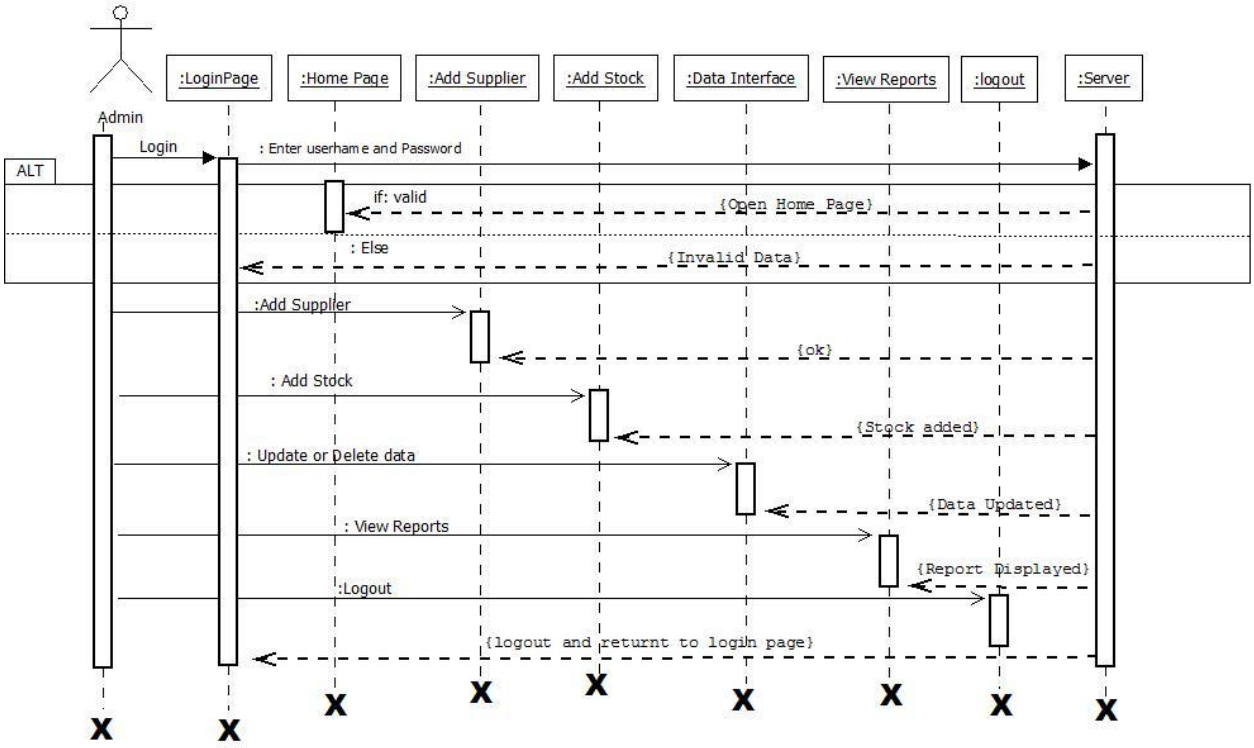


Figure: 4.4

4.5. Operation contracts

4.6.1 Operation Contract # 1

Name: Login for all users

Responsibilities: User Logged in

Cross reference: Use case: Login

Exception: Invalid username and password

Pre Condition: User must be already registered

Post Condition: Dashboard will open

4.6.2 Operation Contract # 2

Name: Add new User

Responsibilities: User

Cross reference: use case Register

Exception: This user is already existed

Pre Condition: User enter unique user name

Post Condition: User's data saved successfully

4.6.3 Operation Contract # 3

Name: Add new Product

Responsibilities: User

Cross reference: use case Add Product

Exception: Product not saved successfully

Pre Condition: Enter Valid Date

Post Condition: Product's data saved successfully

4.6.4 Operation Contract # 4

Name: Add new Supplier

Responsibilities: User

Cross reference: use case: Add supplier

Exception: The field with* are recommended

Pre Condition: Fill all required fields

Post Condition: Supplier's data saved successfully

4.6.5 Operation Contract # 5

Name: Create Invoice

Responsibilities: User

Cross reference: Use case: Create Invoice

Exception: Select valid Product

Pre Condition: Select product for sales invoice

Post Condition: User's data saved successfully

4.6.6 Operation Contract # 6

Name: View Report

Responsibilities: User

Cross reference: use case: View Reports

Exception: Select start and End Date

Pre Condition: User Selects Date to View Reports

Post Condition: Required report will display

4.6. Activity Diagram

This diagram shows graphical representation of workflows of stepwise activities and actions.

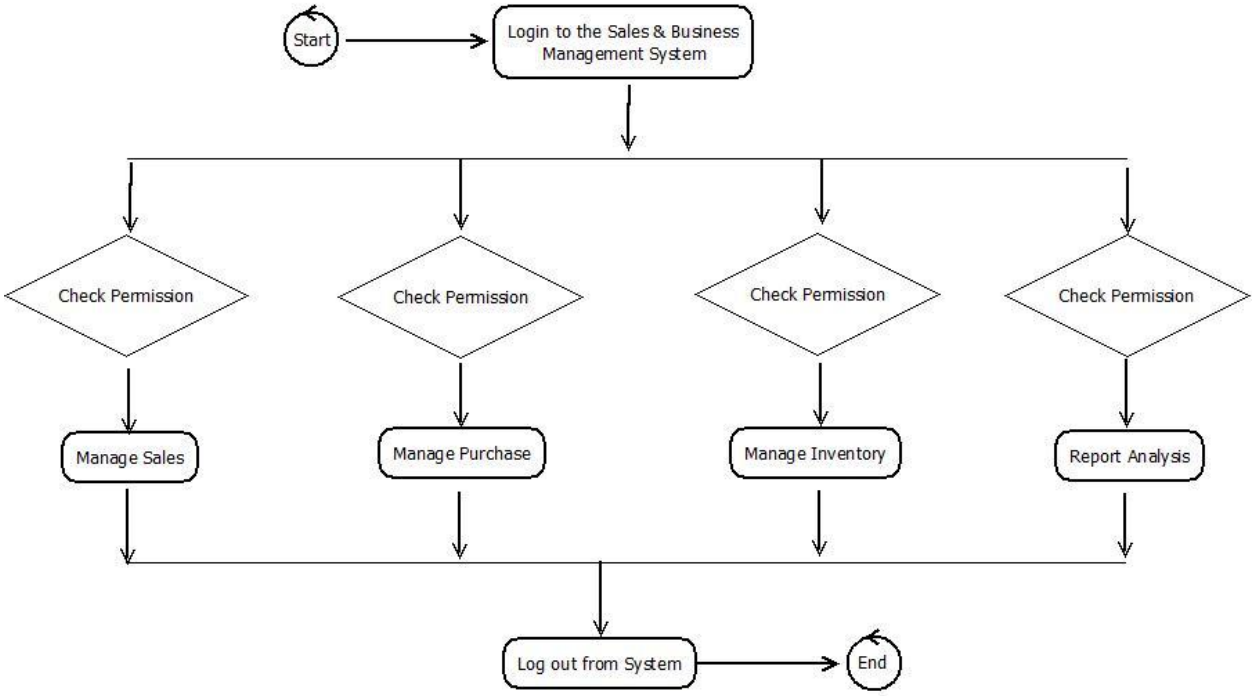


Figure: 4.5

4.7. State Transition Diagram

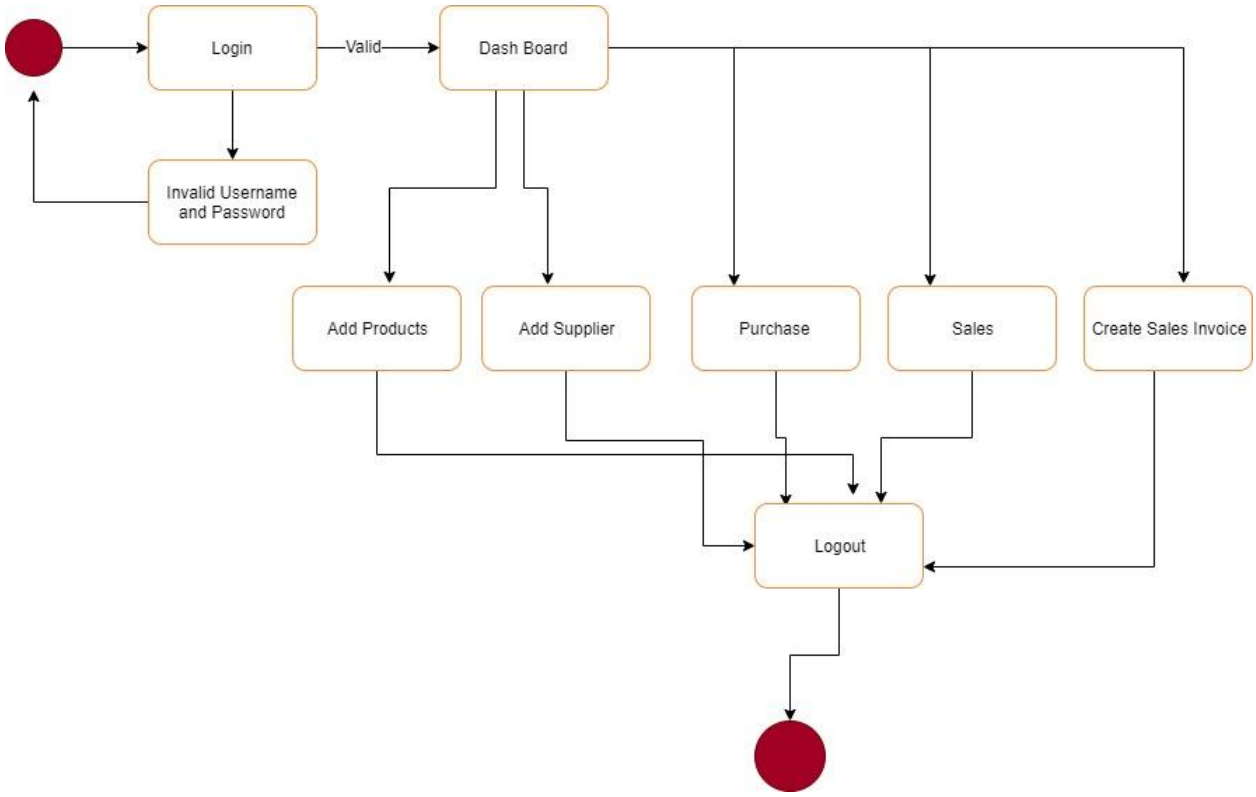


Figure: 4.6

4.8. Component Diagram

The Component Diagram shows the relationship between difference components of the System

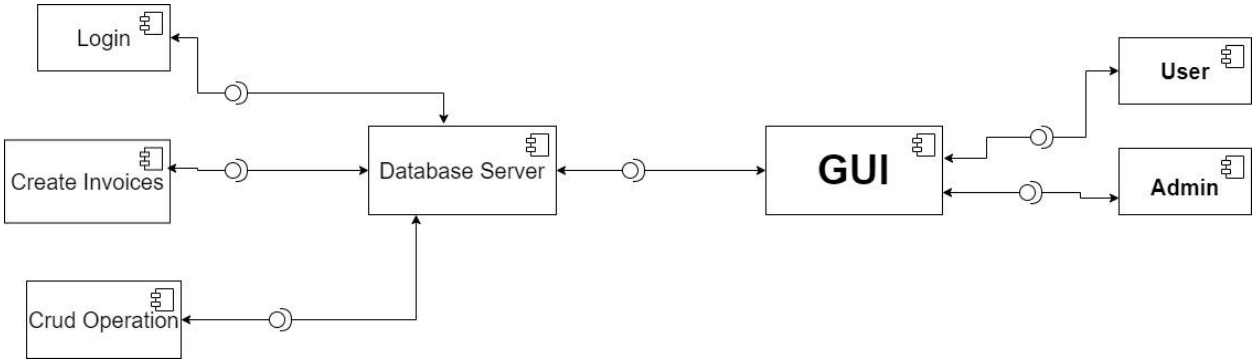


Figure: 4.7

4.9. Deployment Diagram

This diagram shows that how the application will install in hard ware.

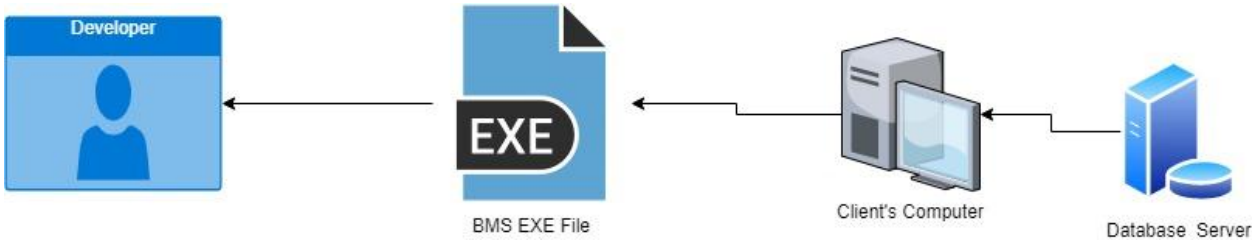


Figure: 4.8

Chapter 5

Implementation

Chapter 5: Implementation

This chapter carries out activities proposed in the application form with the aim to achieve project objectives and deliver results and outputs. This chapter describes all the implementation techniques, standards, and libraries related to the project. These implementation guidelines that can be helpful during development control flow of all business logics and data.

5.1. Important Flow Control/Pseudo codes

5.2. Components, Libraries, Web Services and stubs

This is a desktop application. We will use C# .NET frame work for development. In this application we will use windows from class, MDI form class and will different classes as per requirement.

Libraries

The libraries that we will use in our application are listed below.

- Win Form .NET library

MDI form

5.3. Deployment Environment

We will deploy our Desktop Application on C# and .NET framework. We will use different testing methodologies and tools to improve software quality.

5.4. Tools and Techniques

- **Development Tools**
  - C#, .NET framework and Microsoft visual studio

- **Database Tools**
  - SQL Server
- **UML Tools**
  - MS Visio 2016
- **Designing Tools**
  - XML

Techniques

Minimize user Workload

We will minimize user's workload so that it becomes easier to understand the idea behind our application.

Usability

Application's success is depending upon usability that good users interface. It means graphical user interface and all the features should be clear and easy to understand. In this way a user can easily use the application.

Make your Application Accessible

Application must be accessible to everyone who needs it. We must sure that all users can access a specific portion of our Application LIKE Admin can be able to access all the functionalities and all the features of our Application for which he has authority. As well as, cashier must access his/her specific portion.

Responsive app design

Responsive design is an approach to web page creation that makes use of flexible layouts. The goal of responsive design in desktop application is to build an app that detect the visitor's screen size and change the layout accordingly.

Maintaining Consistency

User interfaces that aren't consistent often yield confused and frustrated users. So, Our Application should have a smooth flow and layout structure should be the same to maintain consistency. Consistency in UI design is concerned with making sure elements in a user interface are uniform.

5.5. Best Practices / Coding Standards

Superior coding techniques and programming practices are hallmarks of the professional Programmer. The bulk of programming consists of making a large number of small choices while attempting to solve a large set of problems. How wisely those choices are made depends largely set of problems.

5.6. Version Control

Version Number	Modified By	Rationale
V 0.1	Azeem	First Design
V 0.2	Azeem, Sajida	Reviewed by Project Team
V0.3	Azeem, Aqsa	Reviewed by stake holders
V 1.0	Azeem, Naveed	Issued
V 1.1	Azeem, Kashif	Updated Deliverables

Chapter 6

Testing and Evaluation

Chapter 6: Testing and Evaluation

6.1. Use Case Testing

Register use case test TC001

Use Case number	1
Use Case Name	Register
Priority	5
Trigger	Click on register Button
Precondition	It should display the warning message if Enter invalid user name and password.
Post condition	First name, last name and password entered for register a new user.
Primary Actor	Admin
Secondary actor	Database/ server
Other	

Login use case test TC002

Use Case number	2
Use Case Name	Login
Priority	5
Trigger	Click on Login Button
Precondition	admin and other users can login by entering their user name and password
Post condition	Redirect to Home Page
Primary Actor	Admin, Owner, Order taker, Cashier
Secondary actor	Database (SQL SERVER)

Other	

Add product use case test TC003

Use Case number	3
Use Case Name	Add product
Priority	5
Trigger	Click on add product Button
Precondition	admin login by user name and password
Post condition	Product name, supplier name, supplier address, supplier phone, supplier data will be save in data base
Primary Actor	Admin, User
Secondary actor	Database (SQL SERVER)
Other	

Categories use case test TC004

Use Case number	4
Use Case Name	Categories
Priority	5
Trigger	Click on Add stock Button
Precondition	admin login by user name and password
Post condition	Admin can add product name, quantity, rate, supplier name etc. this data will save for add new stock
Primary Actor	Admin, User
Secondary actor	Database (SQL SERVER)

Other	

Add supplier use case test TC005

Use Case number	5
Use Case Name	Add supplier
Priority	5
Trigger	Click on add supplier Button
Precondition	admin login by user name and password
Post condition	Supplier's business name, supplier name, supplier address, supplier phone, supplier data will be save in data base
Primary Actor	Admin,
Secondary actor	Database (SQL SERVER)
Other	

Create invoice use case test TC006

Use Case number	6
Use Case Name	Create invoice
Priority	5
Trigger	Click on create invoice Button
Precondition	Order taker can login by entering user name and password
Post condition	Order taker can create invoices of sales order by using mobile application.
Primary Actor	Admin, User
Secondary actor	Database (SQL SERVER)

Other	

Update record use case test TC007

Use Case number	7
Use Case Name	Update record
Priority	4
Trigger	Click on update Button
Precondition	admin login by user name and password
Post condition	Admin can update any record
Primary Actor	Admin
Secondary actor	Database (SQL SERVER)
Other	

Delete record use case test TC008

Use Case number	8
Use Case Name	Delete record
Priority	4
Trigger	Click on delete Button
Precondition	admin login by user name and password
Post condition	Admin can delete any unnecessary record
Primary Actor	Admin
Secondary actor	Database (SQL SERVER)
Other	

View reports use case test TC009

Use Case number	9
Use Case Name	View reports
Priority	4
Trigger	Click on view reports Button
Precondition	admin and other users can login by entering their user name and password
Post condition	All users can view sales, purchase, cash, and credit, loss and profit reports.
Primary Actor	Admin, User
Secondary actor	Database (SQL SERVER)
Other	

Logout use case test TC0010

Use Case number	10
Use Case Name	Log out
Priority	5
Trigger	Click on Log out Button
Precondition	admin and other users can login by entering their user name and password
Post condition	Redirect to log in page
Primary Actor	Admin, User
Secondary actor	Database (SQL SERVER)
Other	

6.2. Equivalence partitioning

Test suit ID	TS001
Test case ID	TC001
Test case Description	Verify Registration buttons
Related Requirements	User fill the registration form
Test procedure	1. First name 2. First name 3. User name 4. Password 5. Email 6. Contact
Test data	Full name: Azeem ur Rehman User name: Azeem786 Email: azeemrehman786@yahoo.com Password: 1234 Full name: Sajida parveen User name: sajidaabrar Email: sajidaabrar42@gmail.com Password: 1234 Full name: Aqsa matloob User name: aqsamatloob Email:aqxa.matloob@gmail.com Password:1234 Full name: Naveed ahmad User name: Naveedahmad Email: naveedahmad@superior.edu.pk Password: 1234 Full name: kashif islam

	User name: kashifislam Email:kashif.islam5620@gmail.com Password: 1234
Expected Result	1:It should display the confirmation message That and our page redirects to the dashboard. 2:It should display the warning message if enter invalid user name and password 3:It should display the warning message if any
Actual Result	1:if the user enter the valid data the form submit successful and user become member 2:If user enter invalid data it show the message “fill the data correctly”
Status	Pass
Author	Azeem ur Rehman
Date of creation	30-7-2019

Test suit ID	TS002
Test case ID	TC002
Test case Description	Verify login buttons
Related Requirements	User fill the login form
Test procedure	1. User name 2. Password
Test data	User name: Azeem786 Password: 1234 User name: sajidaabrar Password: 1234

	User name: aqsamatloob Password:1234 User name: Naveedahmad Password: 1234 User name: kashifislam Password: 1234
Expected Result	1:It shows the message “incorrect username password ” if enter in valid user name or password 2:It should display the warning message if username block is blank 3:It should display the warning message if password is incorrect
Actual Result	1: if the user enter the valid username password system re directs to the user dashboard 2: If you don’t enter the username the it show the message” please fill the username box” 3:If password is incorrect it show the message” incorrect password”
Status	Pass
Author	Azeem ur Rehman
Date of creation	30-7-2019

Test suit ID	TS003
Test case ID	TC003

Test case Description	Verify add product buttons
Related Requirements	User fill the add product form
Test procedure	Full Name: Aqsa Matloob User name: aqsamatloob Password:1234
Test data	• Product name • Product catagory
Expected Result	Enter Valid Date
Actual Result	Product's data saved successfully
Status	Pass
Author	Azeem ur Rehman
Date of creation	30-7-2019

Test suit ID	TS004
Test case ID	TC004
Test case Description	Verify categories buttons
Related Requirements	User fill the catogeries form
Test procedure	• Add catagory
Test data	Full name: Azeem ur Rehman
Expected Result	
Actual Result	Add the data correctly"
Status	Pass
Author	Azeem ur Rehman
Date of creation	30-7-2019

Test suit ID	TS005
Test case ID	TC005
Test case Description	Verify add supplier buttons
Related Requirements	User fill the add supplier form
Test procedure	• Supplier name • Company name • Contact • Address
Test data	Full name: Azeem ur Rehman User name: Azeem786 Email: azeemrehman786@yahoo.com Password: 1234
Expected Result	Fill all required fields
Actual Result	Supplier's data saved successfully
Status	Pass
Author	Azeem ur Rehman
Date of creation	30-7-2019

Test suit ID	TS006
Test case ID	TC006
Test case Description	Verify create invoice buttons
Related Requirements	User fill the create invoice form
Test procedure	• Customer name • Type • Bill date • Product name

Test data	Full name: Aqsa Matloob User name: aqsamatloob Password:1234
Expected Result	Select product for sales invoice
Actual Result	User's data saved successfully
Status	Pass
Author	Azeem ur Rehman
Date of creation	30-7-2019

Test suit ID	TS007
Test case ID	TC007
Test case Description	Verify update record buttons
Related Requirements	User fill the delete record form
Test procedure	
Test data	
Expected Result	Record must be exist in database
Actual Result	Record updated sucessfully
Status	Pass
Author	Azeem ur Rehman
Date of creation	30-7-2019

Test suit ID	TS008
Test case ID	TC008
Test case Description	Verify delete record buttons
Related Requirements	User fill the delete record form
Test procedure	

Test data	Full name: Azeem ur Rehman Username: Azeem786 Password: 1234
Expected Result	Record exist in database
Actual Result	Record deleted successfully
Status	Pass
Author	Azeem ur Rehman
Date of creation	30-7-2019

Test suit ID	TS009
Test case ID	TC009
Test case Description	Verify view reports buttons
Related Requirements	User fill the view reports form
Test procedure	
Test data	Full name:Naveed Ahmad Username: naveedahmad Password:1234
Expected Result	User select date to view report
Actual Result	Required report will display
Status	Pass
Author	Azeem ur Rehman
Date of creation	30-7-2019

Test suit ID	TS0010
Test case ID	TC0010
Test case Description	Verify Logout buttons
Related Requirements	User fill the logout form

Test procedure	
Test data	Full name: Azeem ur Rehman User name: Azeem786 Email: azeemrehman786@yahoo.com Password: 1234 Full name: Sajida parveen User name: sajidaabrar Email: sajidaabrar42@gmail.com Password: 1234 Full name: Aqsa matloob User name: aqsamatloob Email:aqxa.matloob@gmail.com Password:1234 Full name: Naveed ahmad User name: Naveedahmad Email: naveedahmad@superior.edu.pk Password: 1234 Full name: kashif islam User name: kashifislam Email:kashif.islam5620@gmail.com Password: 1234
Expected Result	1:It should display the confirmation message that and our page redirects to the dashboard. 2:It should display the warning message if enter invalid user name and password 3:It should display the warning message if any
Actual Result	1:if the user enter the valid data the form submit successful and user become member 2:If user enter invalid data it show the

	message “fill the data correctly”
Status	Pass
Author	Azeem ur Rehman
Date of creation	30-7-2019

6.3. Boundary value analysis

6.4. Data flow testing

Dataflow Testing focuses on the points at which variables receive values and the points at which these values are used. It is one of the testing strategies, which focuses on the data variables and their values, used in the programming logic of the software products, by making use of the control flow graph. Variables have been seen as the main areas where a program can be tested structurally.

- Check all the variable data type and size it is defined properly.
- Remove that code of line that is not used in this project.
- Check all the condition properly works.
- Check all the condition will be terminated in define condition.

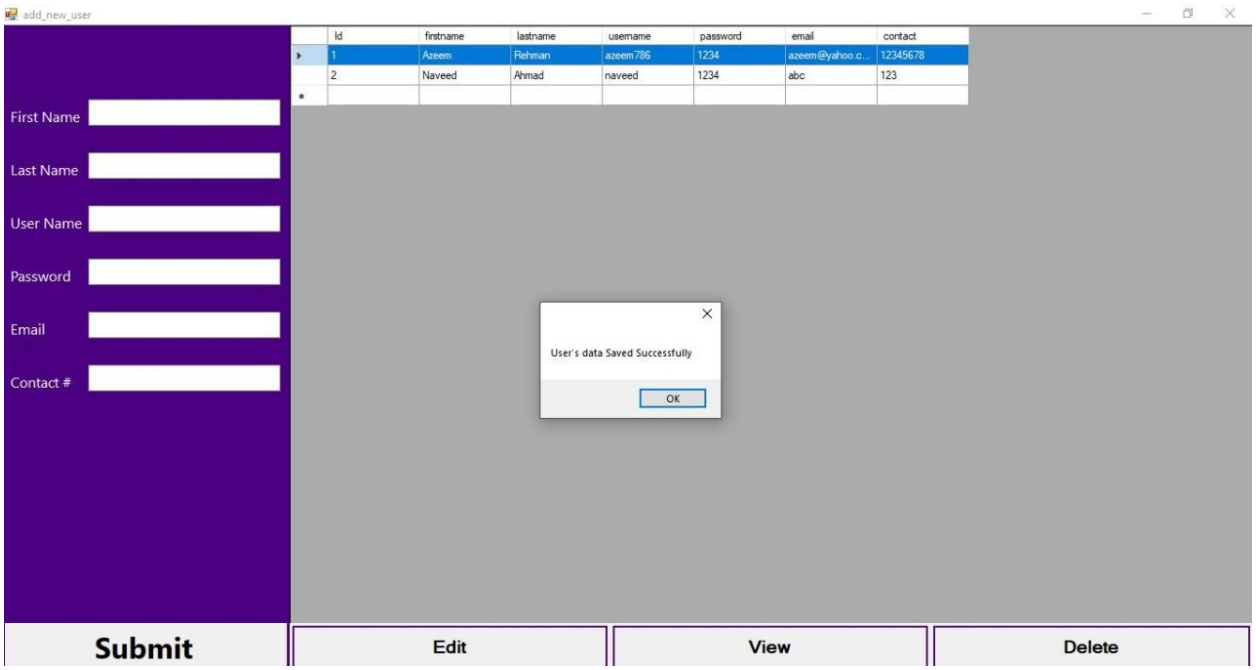
6.5. Unit testing

When I develop my project, each **unit** is developed and tested for its functionality.

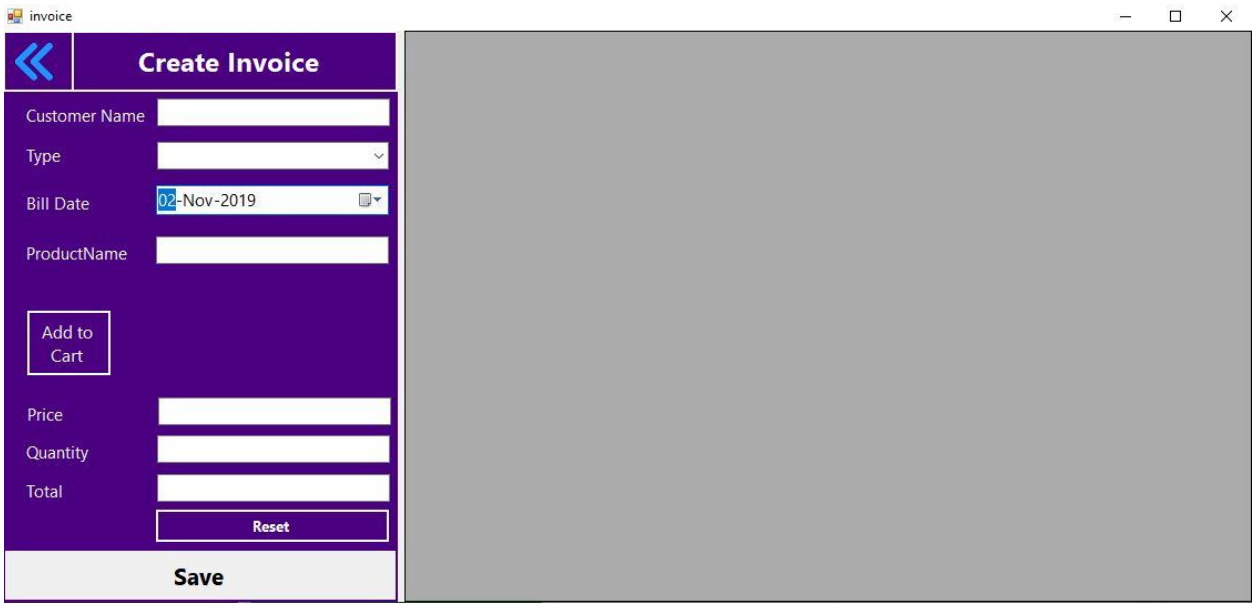
6.6. Integration testing

All units developed in implementation phase are integrated into a system after testing of each unit. Integration can be performed after the unit testing. In this testing technique, we test the combine working of different modules. Integration testing applies when creating modules like when I coded module then apply to test. I want to combine to add a product and then see that will be added correctly if give incorrect result check and find errors.

6.7. Performance testing



6.8. Stress Testing



Chapter 7

Summary, Conclusion and Future Enhancements

Chapter 7: Summary, Conclusion & Future Enhancements

7.1. Project Summary

The design and implementation of BMS is to help the user to perform their business task in a good and efficient way. We are developing a windows application for the purpose of business management. The name of our application is Business Management System. Our application will help businessmen to maintain their business efficiently. This application will provide facility to store the record of stock, cash, sales, purchase and profit & loss. This application is useful for small scale business and shopkeeper.

7.2. Achievements and Improvements

- User registration
- User Login system
- Add products or stock items
- Add customer and their contacts and sales record
- Add supplier and their contacts and purchase record
- Add expenses related to business
- Add sales credit or account receivable
- Add purchase credit or accounts payable
- Expert management system for Business

7.3. Critical Review

7.4. Lessons Learnt

I have learned how to collect requirements by interviewing and visiting different people in computer centers and shops. I also understand that the user is everything in the project. We only implemented the feature whish are related to user. I have also learned that meeting with clients help us to clearly understand the requirements.

7.5. Future Enhancements/Recommendations

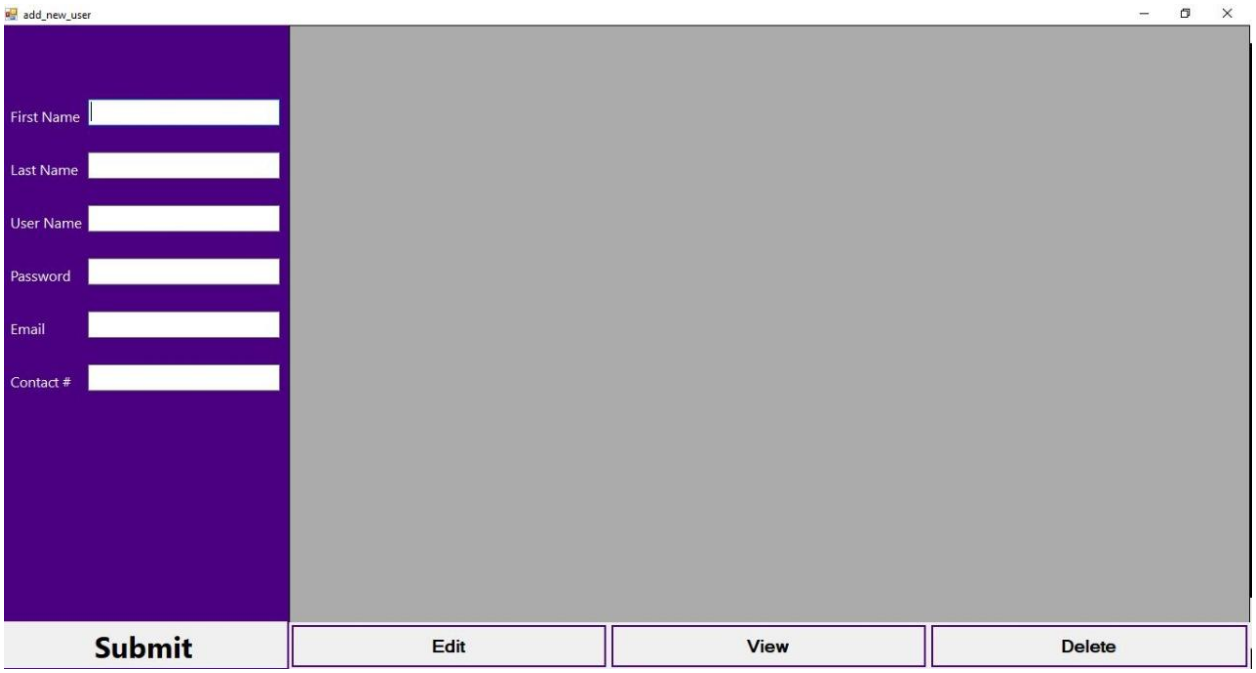
Future enhancements for BMS are following:

- Mobile application for customer's orders
- Bar code reader support for retail sales

Appendices

Appendix A: User Manual:

The main page of our Application

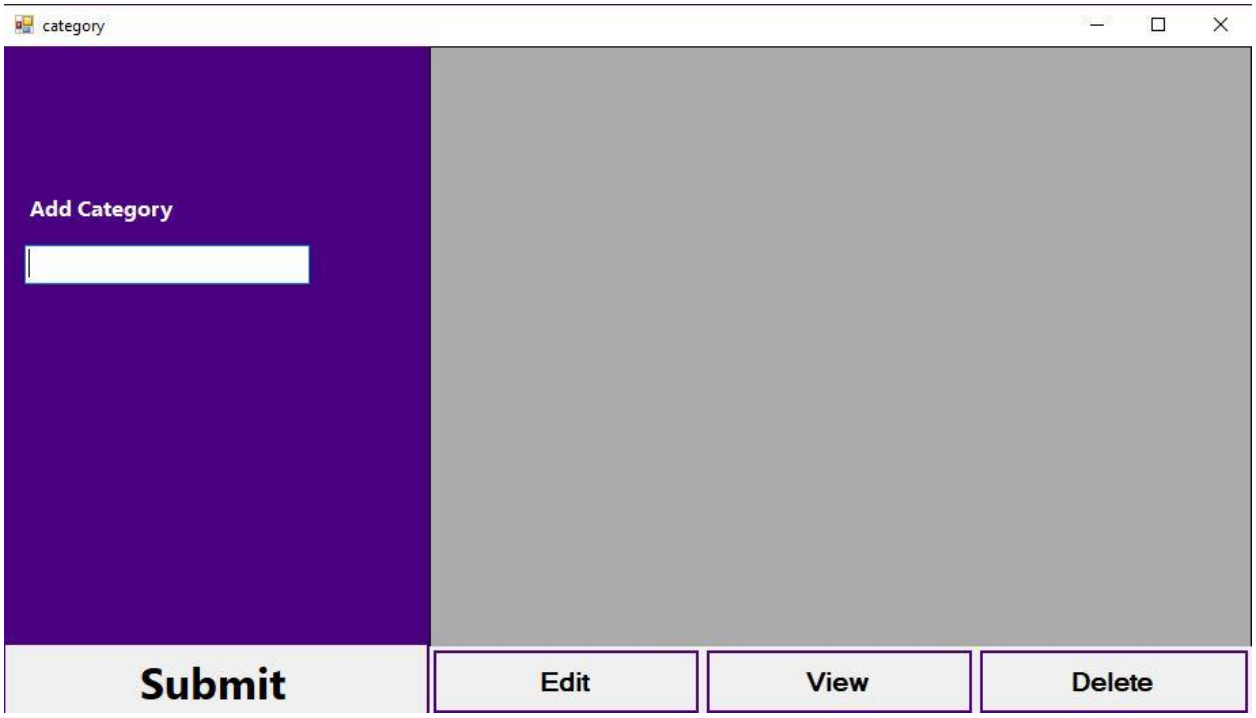


Appendix A: Dashboard:

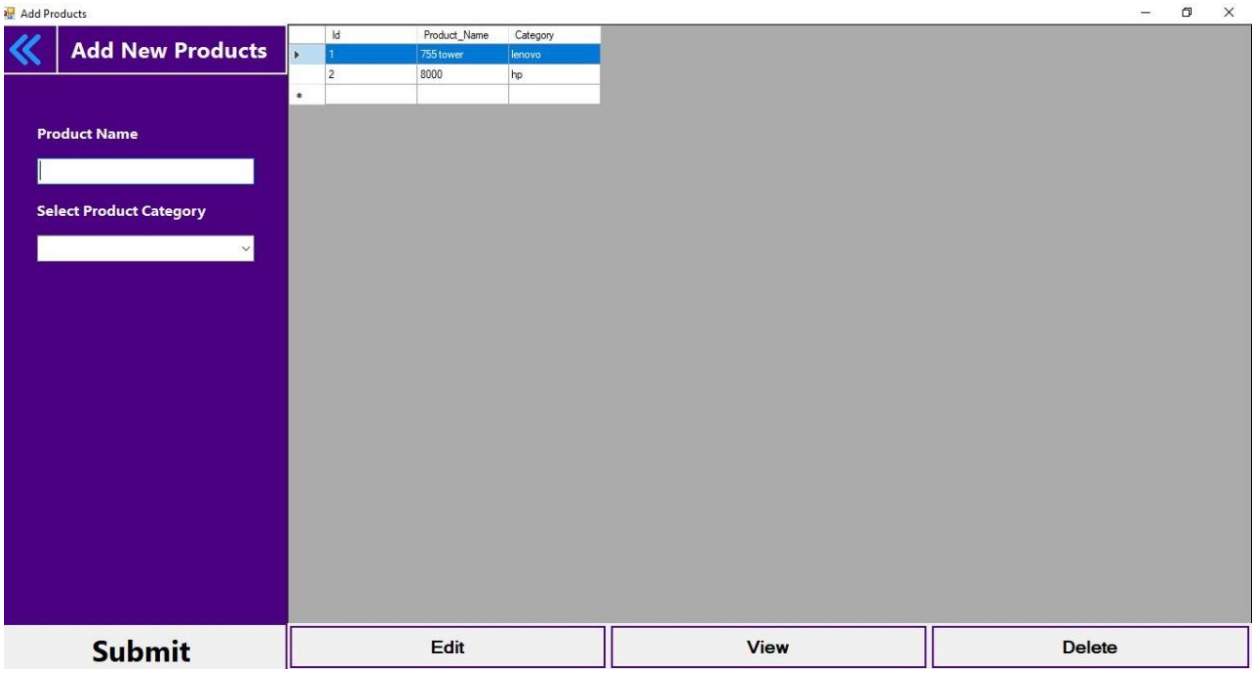
Review Section of the Application where user can select the components


Business Management System
File
Welcome to Business Management System
Add New User
Add Product Categories
Add Products
Add Supplier
Purchase
Create Invoice
Stock
button9
button10
button11

A.1. Category


category
Add Category
Submit
Edit
View
Delete

A.1.1. Add product



A.1.1.1. Create Invoice