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Chapter No. 1 INTRODUCTION

- **Introduction of Project**

The purpose of this project is to develop a desktop application for managing a cafe. The application will allow customers to place orders, generate bills, and view their order history. The café manager will be able to add, edit, and delete products, manage categories, and view order details. The application will also provide login and security features to ensure that only authorised users can access the system. The project was developed as a part of a mini-project requirement for a college course. The target audience for this project includes café owners, managers, and employees who are looking for an easy-to-use and efficient system for managing their business.

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- **Existing System and Need for System**

  - **Existing System :-**

    In the current scenario, most cafes and restaurants use traditional manual methods for managing their daily operations, which are time-consuming and error-prone. They use manual methods for taking orders, managing customer information, and generating bills. There is a lack of automation and integration in the existing system, which results in inefficiencies and lower productivity.

  - **Need for System :-**

    There is a need for a digital solution that can automate and streamline the daily operations of cafes and restaurants. A digital solution can help in the efficient management of customer information, taking orders, generating bills, and maintaining inventory. With the help of a digital solution, cafes and restaurants can improve their operational efficiency, enhance the customer experience, and boost their profitability. The proposed cafe management system will address these needs and provide an integrated solution to manage daily operations.

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- **Scope of Work**

The scope of this mini-project is to develop a desktop application for a cafe management system that can be used by both the admin and the customers. The system will be able to handle the ordering process, generate bills, manage inventory, and keep track of customer data. The system will also include a login module with authentication and authorization features for the admin and users.

The system will be developed using the Java programming language and will be designed to run on desktop computers. The scope of work includes the development of a user-friendly interface for the customers to place orders and for the admin to manage the system. The system will also include modules for managing categories, products, and user information.

The system will be developed with the aim of reducing manual work and increasing efficiency in managing the cafe. It will enable the admin to manage the system more effectively, keep track of inventory, and generate bills for the customers quickly. The system will also provide the customers with a simple and efficient way to place their orders and view their bills.

Overall, the scope of work includes the design, development, testing, and deployment of a cafe management system that meets the requirements of the stakeholders and improves the efficiency of managing the cafe.

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- **Operating Environment - Hardware and Software**
  - **Minimum Hardware Requirements :-**
    - Processor: Intel Pentium 4 or later
    - RAM : 2 GB or higher
    - Hard Disk : 500 MB or more of free space
    - Display : 1920 x 1080 screen resolution
    - Keyboard and Mouse
  - **Minimum Software Requirements :-**
    - Operating System : Windows.
    - Java SE Development Kit 8 or higher
    - NetBeans IDE 8.2 or later
    - MySQL Database Server 8.0 or later
    - PDF Reader software

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- **Detail Description of Technology Used**

1) Java:

Java is a programming language that is widely used for developing desktop applications, mobile applications, and web applications. For this mini project, Java has been used as the main programming language.

2) NetBeans IDE:

NetBeans is an integrated development environment (IDE) that provides a variety of tools and features for developing Java applications. It includes an editor, debugger, profiler, and a visual GUI builder. NetBeans has been used as the primary IDE for this mini project.

3) Swing Framework:

Swing is a user interface (UI) toolkit that is used for creating desktop applications in Java. It provides a set of components that can be used to create interactive and responsive graphical user interfaces. Swing has been used to create the user interface for this mini project.

4) MySQL Database:

MySQL is a widely used open-source relational database management system. It is known for its speed, reliability, and ease of use. MySQL has been used as the database management system for this mini project.

5) JDBC:

JDBC is a Java API that is used for connecting to relational databases. It provides a standard interface for connecting to databases and executing SQL queries. JDBC has been used to connect to the MySQL database and perform database operations such as inserting, updating, and deleting data.

6) PDFBox Library:

PDFBox is an open-source Java library for working with PDF documents. It provides a set of classes and methods for creating, manipulating, and extracting data from PDF documents. PDFBox has been used to generate PDF bills for the cafe management system.

Overall, the technology used for this college mini project includes Java, NetBeans IDE, Swing Framework, MySQL Database, JDBC, PDFBox Library, and Git. These technologies have been used in a sequential manner to develop a desktop application for managing a cafe.

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Chapter 2 PROPOSED SYSTEMS

- **Proposed System**

  The proposed Cafe Management System is a software solution designed to automate and simplify the operations of a cafe. The system provides a user-friendly interface that allows both users and administrators to interact with the software. The system has several modules, each designed to address a specific aspect of cafe management.

  - **Login and Sign Up:**

    This module allows users to create new accounts and administrators to manage existing accounts. Users can sign up by providing their name, email, phone number, address, and setting a password. Administrators can manage accounts by verifying or deactivating them.

  - **Place Order:**

    This module allows users to place an order by providing their name, email, phone number, and address. The user can then add products to their order and specify the quantity of each product. The system generates a bill in the form of a PDF file.

  - **Bill and Order Details:**

    This module allows both users and administrators to view all previous bills and order details. The user can also view a PDF of the bill.

  - **Category Management:**

    This module allows only administrators to add new categories, delete existing categories, and manage products within a category.

  - **Product Management:**

    This module allows only administrators to add new products, edit existing products, and delete products from the menu.

  - **Verify User:**

    This module allows only administrators to authorize users to log in to the system.

The Cafe Management System provides a centralized and organized solution for managing the various tasks involved in running a cafe, reducing manual work and improving efficiency. The software is user-friendly and can be customized to meet the specific needs of the cafe.

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- **Objectives of System :-**

1) To provide a user-friendly interface for placing and managing orders in a cafe setting.
2) To ensure accuracy and efficiency in order processing and billing.
3) To maintain a record of all transactions for future reference and analysis.
4) To provide secure access to the system through a login and authentication mechanism.
5) To enable the admin to manage the products, categories, and users.
6) To generate printable bills in pdf format.
7) To provide the functionality to view, edit, update, and delete products and categories by the administrator.
8) The administrator must verify and authorise users.
9) To provide the functionality of changing the password and security question for users.
10) To ensure that the system is scalable and can handle multiple concurrent users.

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- **User Requirements :-**

1) **Login and Sign Up:**

   The system should allow users to sign up by providing their name, email, phone number, address, and setting a password. Administrators should be able to manage user accounts by verifying or deactivating them.

2) **Place Order:**

   The system should allow users to place an order by providing their name, email, phone number, and address. Users should be able to add products to their order and specify the quantity of each product. The system should generate a bill in the form of a PDF file.

3) **Bill and Order Details:**

   The system should allow both users and administrators to view all previous bills and order details. The user should be able to view a PDF of the bill.

4) **Category Management:**

   The system should only allow administrators to add new categories, delete existing categories, and manage products within a category.

5) **Product Management:**

   The system should allow only administrators to add new products, edit existing products, and delete products from the menu.

6) **Verify User:**

   The system should only allow administrators to authorise users to log in.

These user requirements will guide the development of the café management system, ensuring that it meets the needs of the users and the admin.

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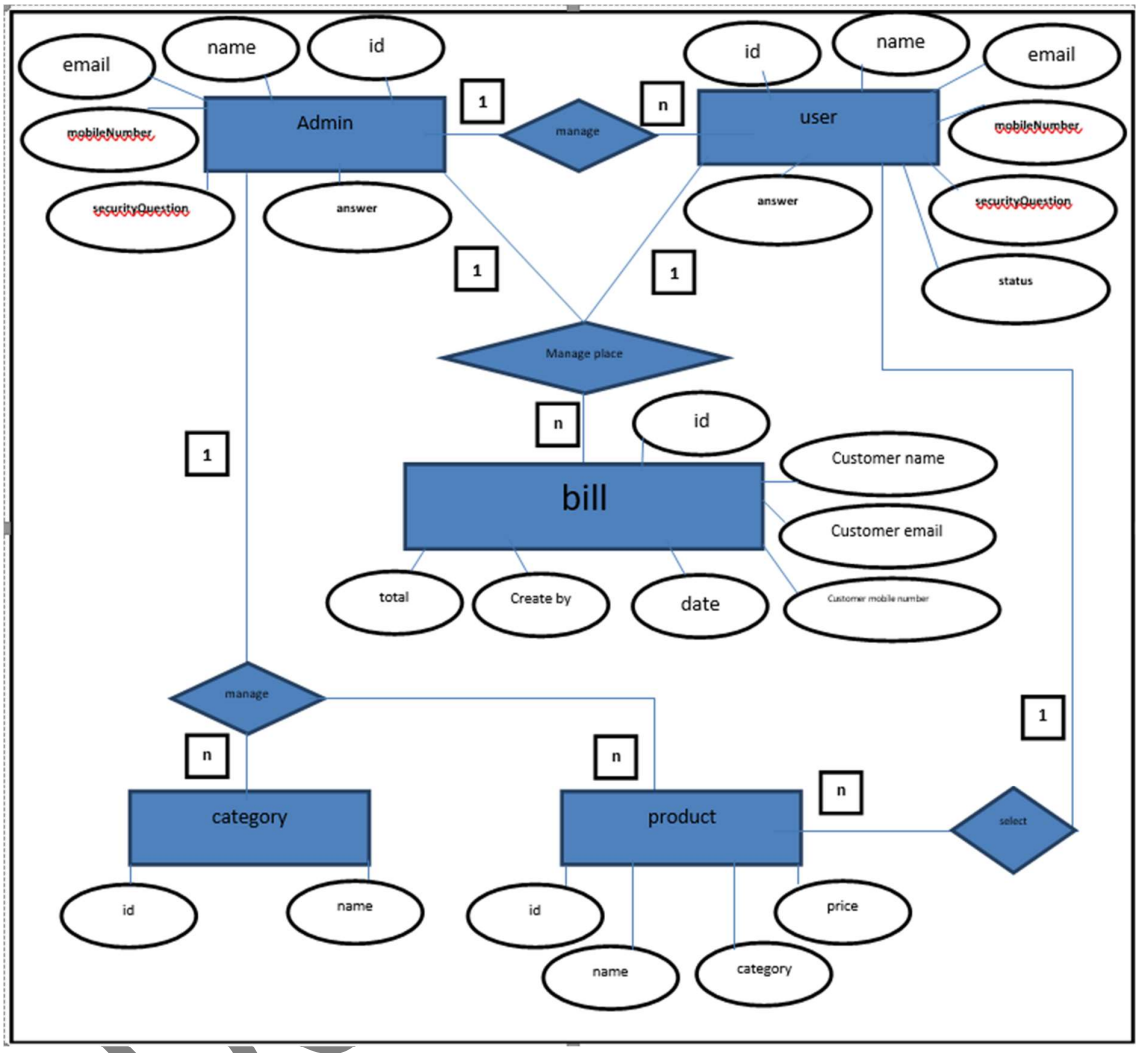
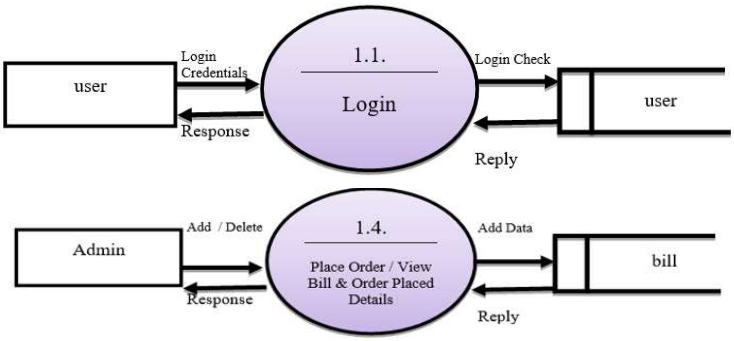
Chapter 3 ANALYSIS AND DESIGN

- **Entity Relationship Diagram (ERD)**

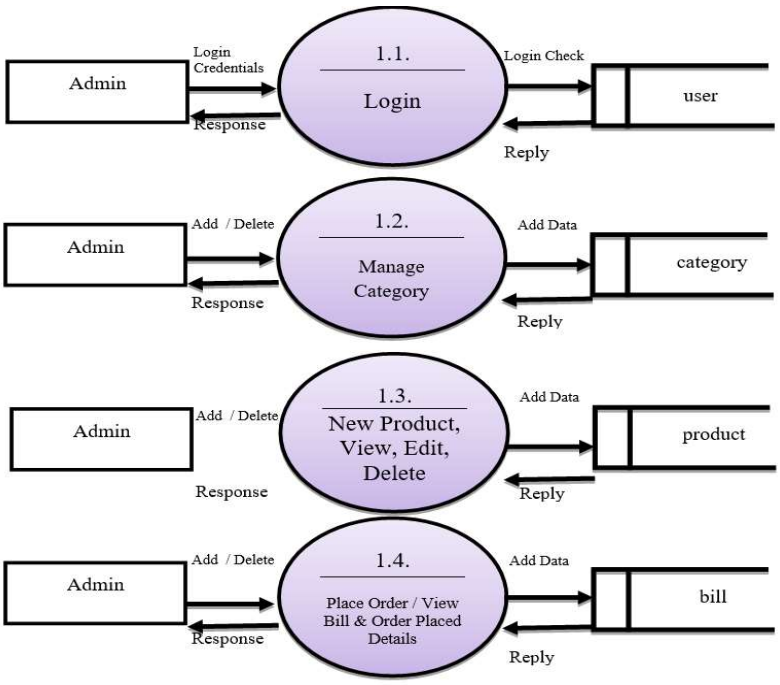


- **Data Flow Diagram (DFD)**

Dig. O^{th} Level

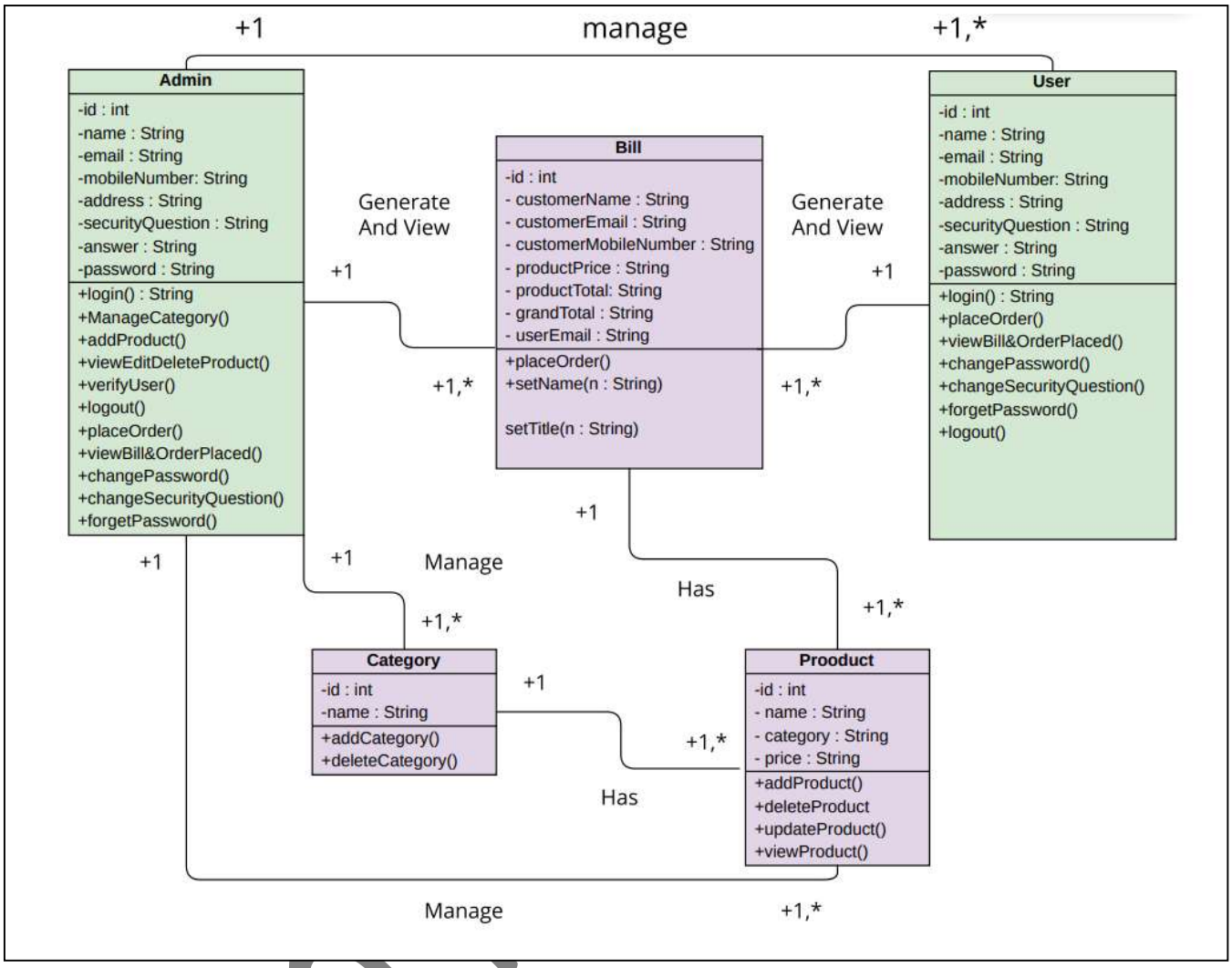


Dig. 1^{st} Level For user

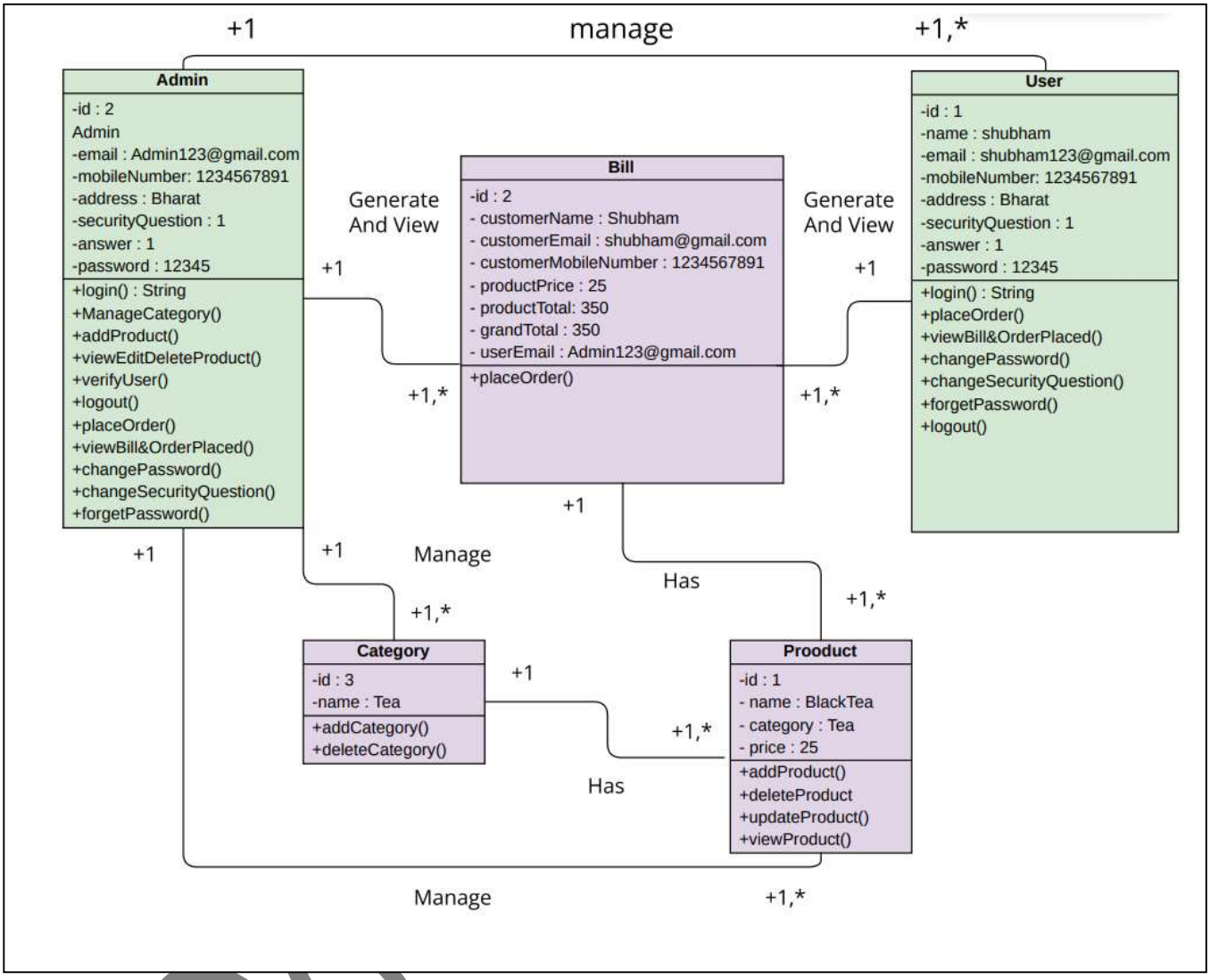


Dig. 1^{st} Level For Admin

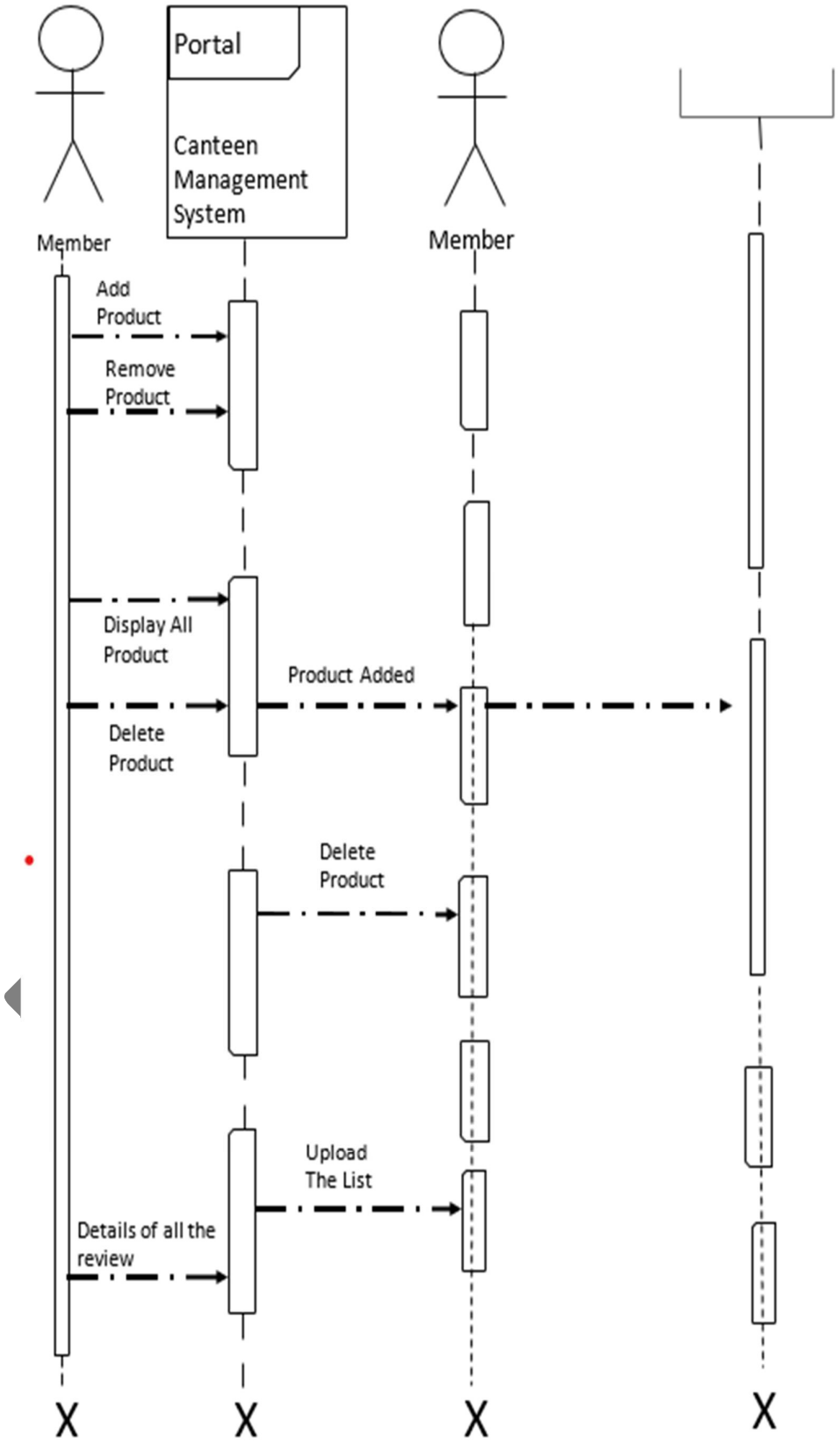
- **Class Diagram**



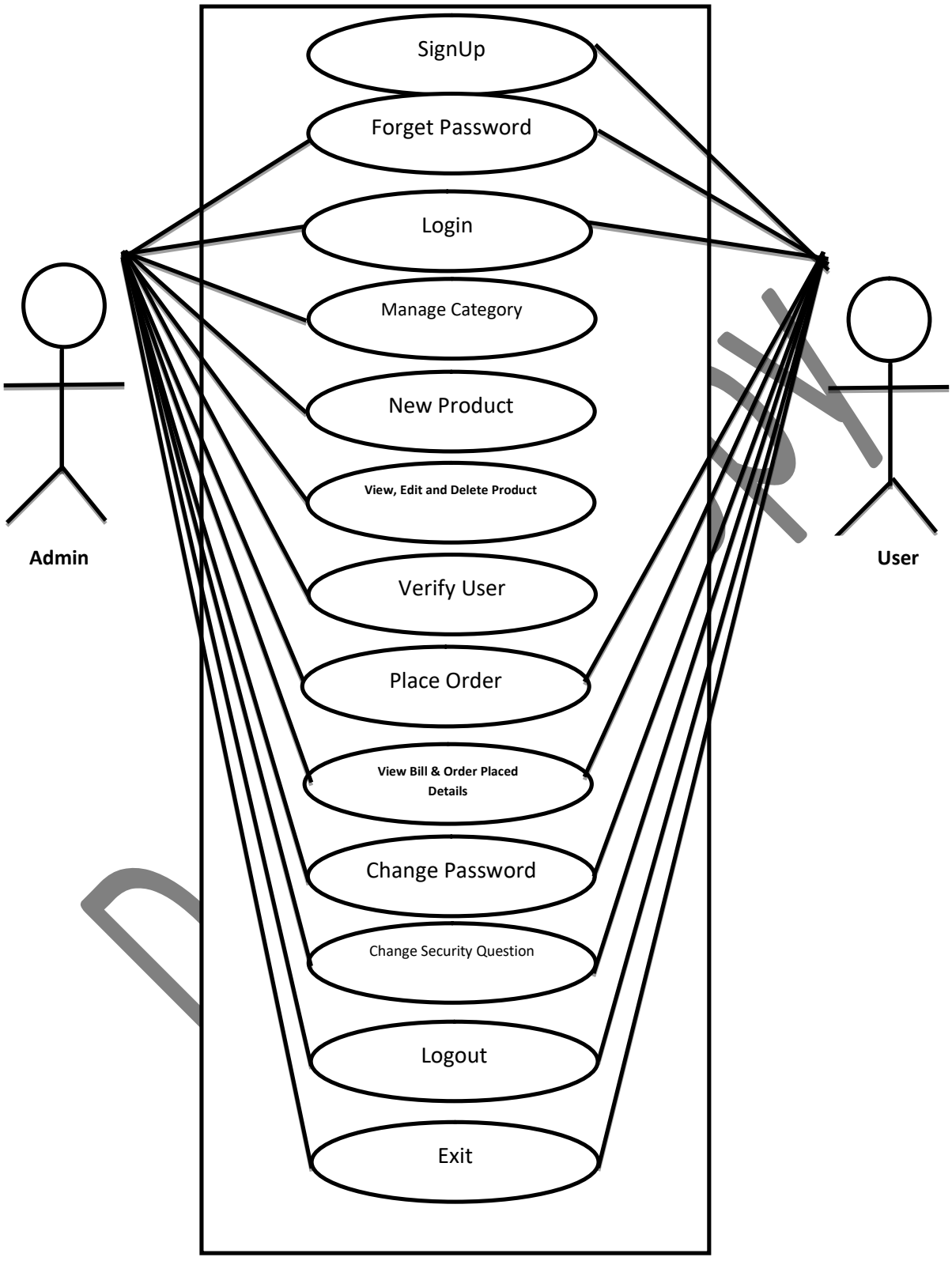
- **Object Diagram**



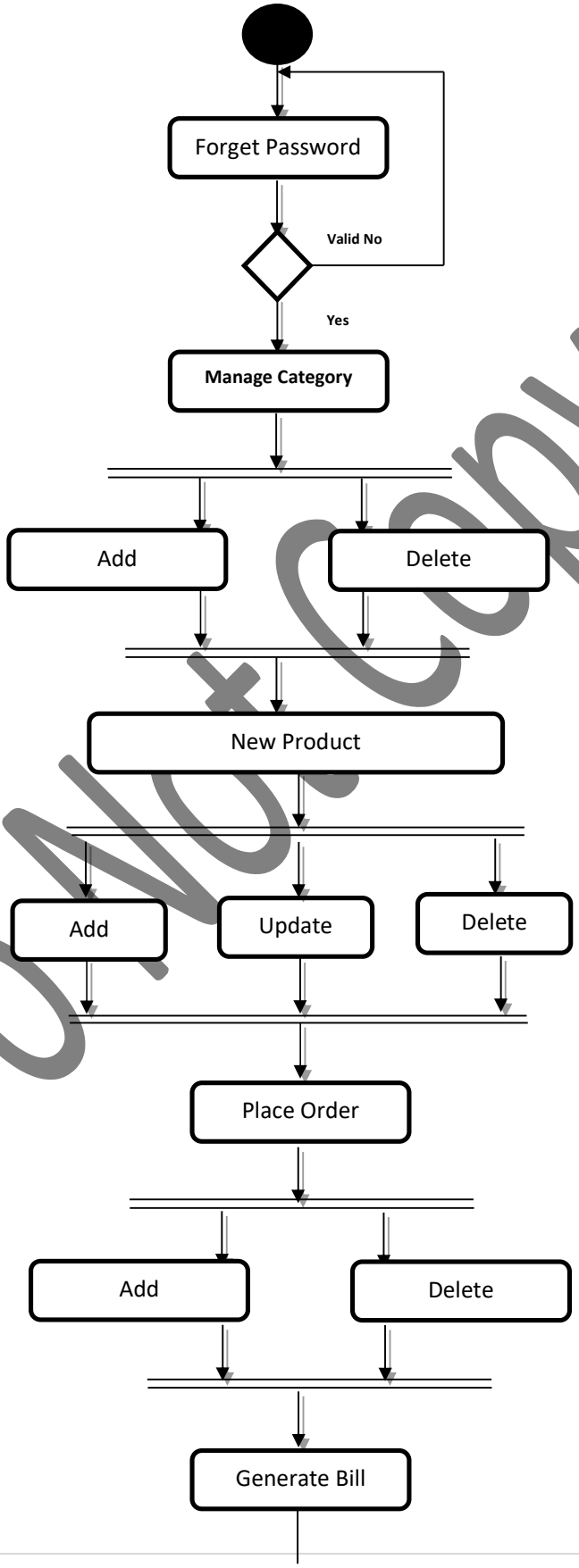
- **Sequence Diagram**



- **Use Case Diagrams**



- **Activity Diagram**



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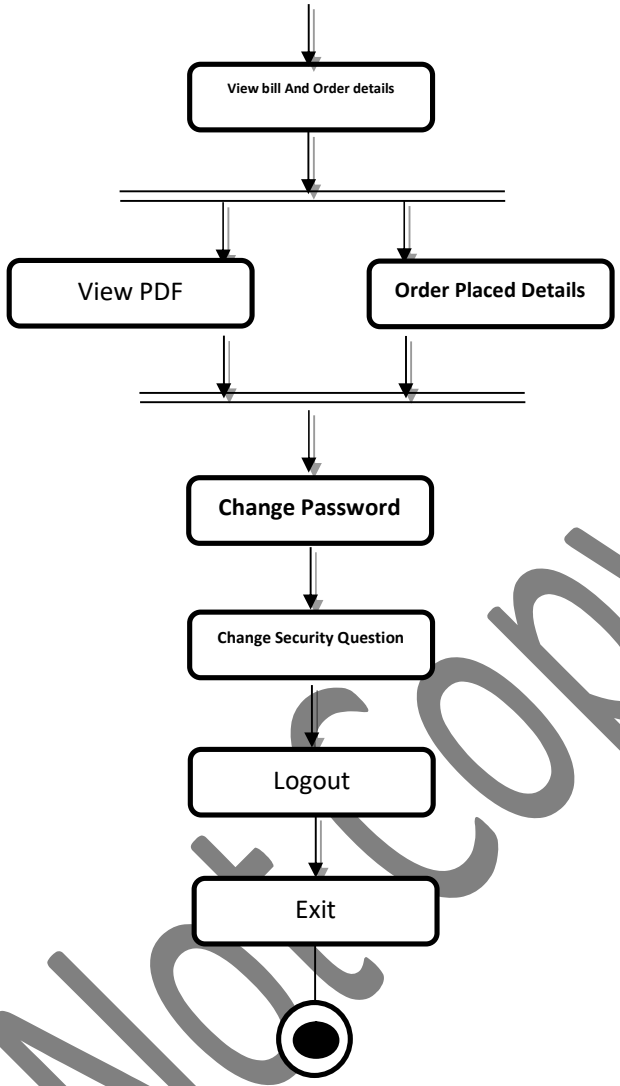

Activity Diagram For Admin

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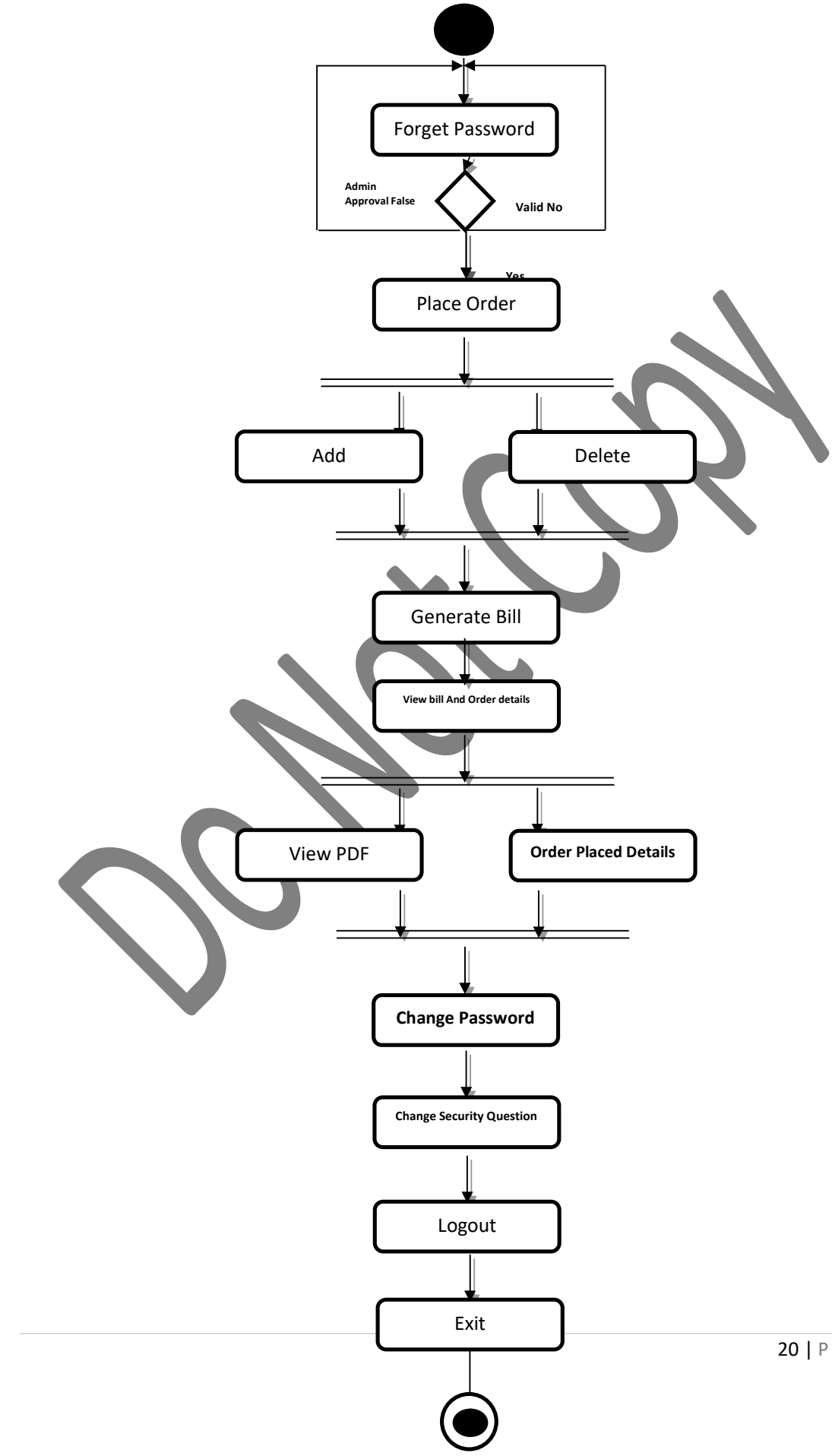
Activity Diagram For User



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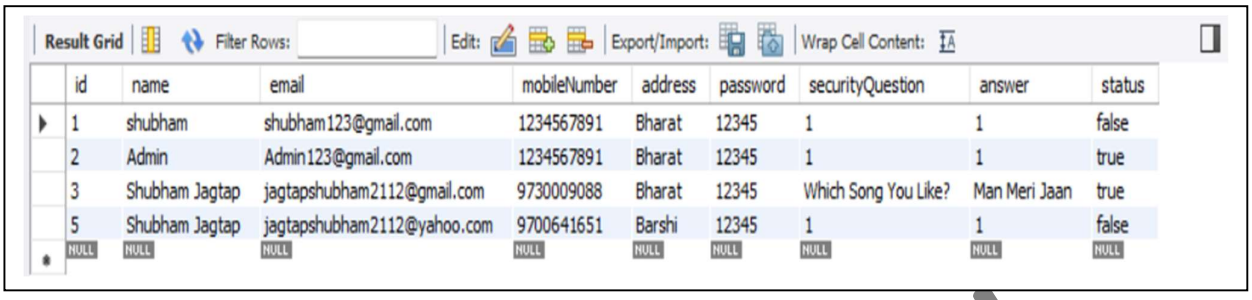
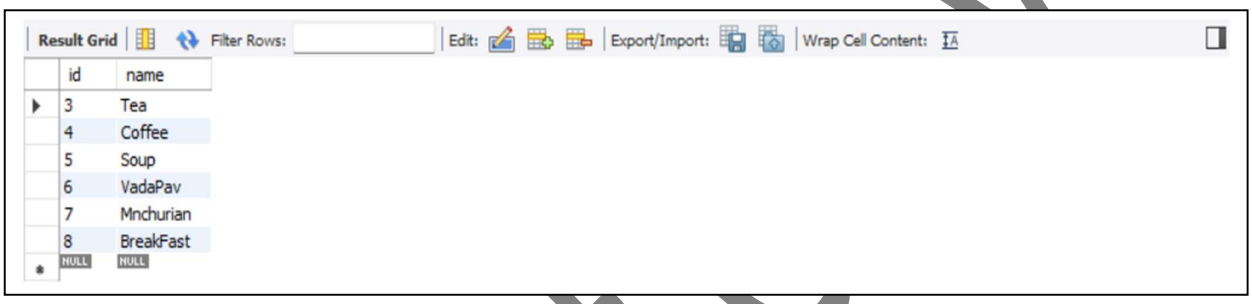
- **Table Design**
  - **User Table**



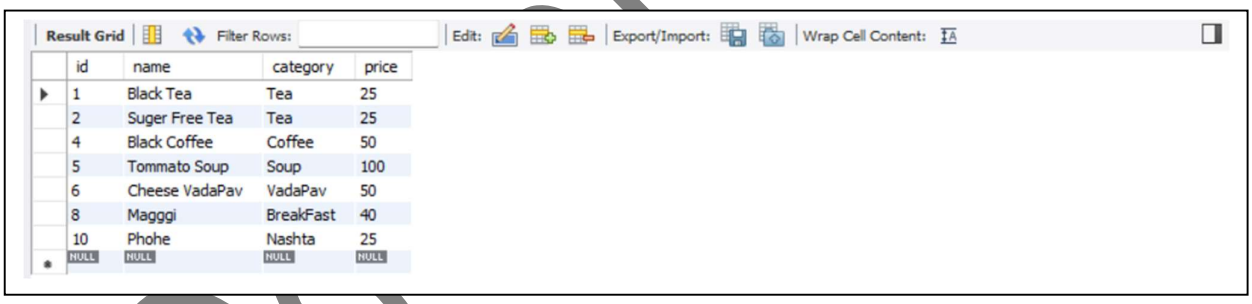
id	name	email	mobileNumber	address	password	securityQuestion	answer	status
1	shubham	shubham123@gmail.com	1234567891	Bharat	12345	1	1	false
2	Admin	Admin123@gmail.com	1234567891	Bharat	12345	1	1	true
3	Shubham Jagtap	jagtapshubham2112@gmail.com	9730009088	Bharat	12345	Which Song You Like?	Man Meri Jaan	true
5	Shubham Jagtap	jagtapshubham2112@yahoo.com	9700641651	Barshi	12345	1	1	false

  - **Category Table**



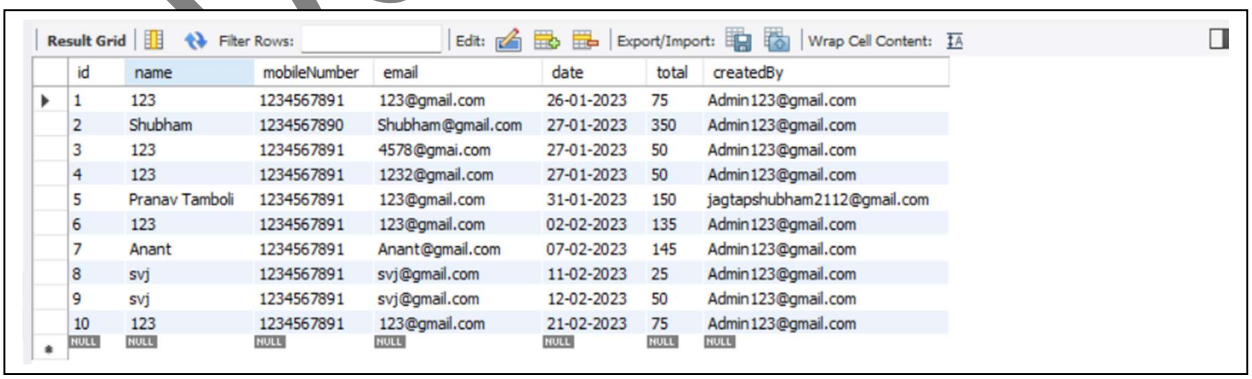
id	name
3	Tea
4	Coffee
5	Soup
6	VadaPav
7	Mnchurian
8	BreakFast

  - **Product Table**



id	name	category	price
1	Black Tea	Tea	25
2	Suger Free Tea	Tea	25
4	Black Coffee	Coffee	50
5	Tommato Soup	Soup	100
6	Cheese VadaPav	VadaPav	50
8	Magggi	BreakFast	40
10	Phohe	Nashta	25

  - **Bill Table**



id	name	mobileNumber	email	date	total	createdBy
1	123	1234567891	123@gmail.com	26-01-2023	75	Admin123@gmail.com
2	Shubham	1234567890	Shubham@gmail.com	27-01-2023	350	Admin123@gmail.com
3	123	1234567891	4578@gmai.com	27-01-2023	50	Admin123@gmail.com
4	123	1234567891	1232@gmail.com	27-01-2023	50	Admin123@gmail.com
5	Pranav Tamboli	1234567891	123@gmail.com	31-01-2023	150	jagtapshubham2112@gmail.com
6	123	1234567891	123@gmail.com	02-02-2023	135	Admin123@gmail.com
7	Anant	1234567891	Anant@gmail.com	07-02-2023	145	Admin123@gmail.com
8	svj	1234567891	svj@gmail.com	11-02-2023	25	Admin123@gmail.com
9	svj	1234567891	svj@gmail.com	12-02-2023	50	Admin123@gmail.com
10	123	1234567891	123@gmail.com	21-02-2023	75	Admin123@gmail.com

Chapter 4 Testing

- **Test cases :-**

1) Test case for login:
   Test Case ID: TC-001
   Test Case Description: Test the functionality of the login module.
   Test Steps:
   i) Enter a valid email and password and click the login button.
   ii) Verify that the user is successfully logged in and redirected to the home screen. Expected Result: The user should be successfully logged in and redirected to the home screen.
2) Test case for sign-up:
   Test Case ID: TC-002
   Test Case Description: Test the functionality of the sign-up module. Test Steps:
   i) Enter valid user information and click the sign-up button.
   ii) Verify that the user account is created successfully and can be used to log in to the system. Expected Result: The user account should be created successfully and can be used to log in to the system.
3) Test case for "Place Order":
   Test Case ID: TC-003
   Test Case Description: Test the functionality of the place order module. Test Steps:
   i) Select a product and add it to the order.
   ii) Enter the customer information and click the "generate bill" button.
   iii) Verify that the bill is generated successfully in the form of a PDF file. Expected Result: The bill should be generated successfully in the form of a PDF file.
4) Test case for "View Bill and Order Details":
   Test Case ID: TC-004
   Test Case Description: Test the functionality of the "view bill and order details" module.
   Test Steps:
   i) Click on the "view bill and order details" button.

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ii) Verify that all the previous bills and order details are displayed. Expected Result: All the previous bills and order details should be displayed.

5) Test case for category management:
   Test Case ID: TC-005
   Test Case Description: Test the functionality of the category management module.
   Test Steps:
   i) Add a new category and verify that it is added successfully.
   ii) Delete an existing category and verify that it is deleted successfully. Expected Result: The new category should be successfully added, and the existing category should be successfully deleted.
6) Test case for product management:
   Test Case ID: TC-006
   Test Case Description: Test the functionality of the product management module.
   Test Steps:
   i) Add a new product and verify that it is added successfully.
   ii) Edit an existing product and verify that it is edited successfully.
   iii) Delete an existing product and verify that it is deleted successfully. Expected Result: The new product should be successfully added, the existing product should be successfully edited, and the existing product should be successfully deleted.
7) Test case for verifying the user:
   Test Case ID: TC-007
   Test Case Description: Test the functionality of the verify user module. Test Steps:
   i) Verify a user account by authorising the user to log in to the system. Expected Result: The user account should be authorised to log in to the system.

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Chapter 5 Drawbacks and Limitations

- Lack of support for multiple languages
- Limited payment options
- Limited customization options for users
- No mobile application support
- Limited reporting capabilities
- No integration with social media platforms.

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Chapter 6 Proposed Enhancements

- Integration with online payment gateways for seamless transactions.
- Addition of a feedback system for customers to provide their suggestions and ratings.
- Integration with social media platforms for wider reach and marketing.
- Implementation of a loyalty program to incentivize repeat customers.
- Integration with inventory management systems for better tracking and management of stock.

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Chapter 7 Conclusion

Based on my knowledge and understanding, this project has been successfully implemented using the Java language, NetBeans IDE, and MySQL database. The system provides a user-friendly interface and has several features such as login, sign up, place order, view order details, manage categories and products, and verify users. However, there are some limitations and drawbacks such as lack of integration with other systems and limited scalability. To overcome these limitations, several proposed enhancements such as integration with online payment systems and cloud hosting can be implemented. Overall, this project has been a great learning experience and has enhanced my skills in software development.

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Chapter 8 Bibliography

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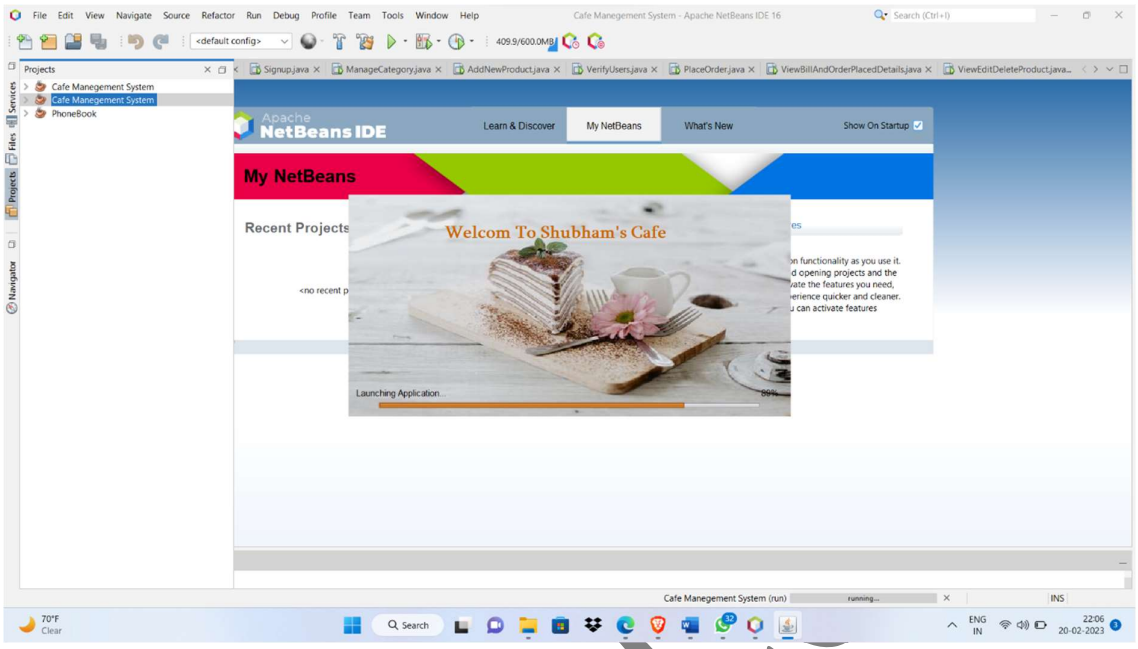
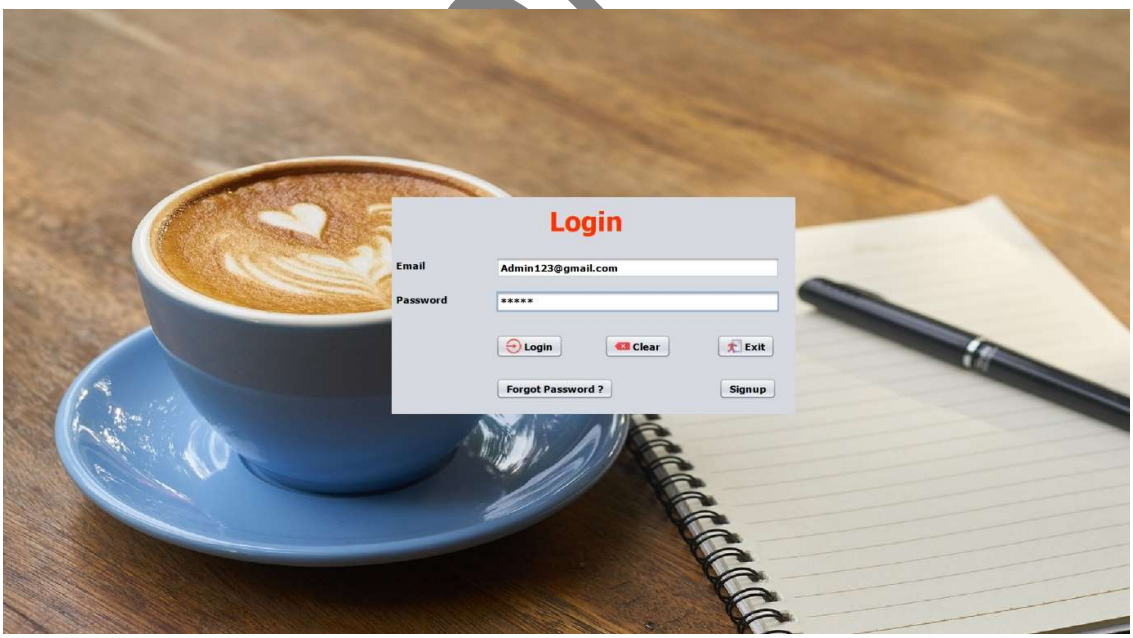
ANNEXURE 1 : USER INTERFACE SCREENS

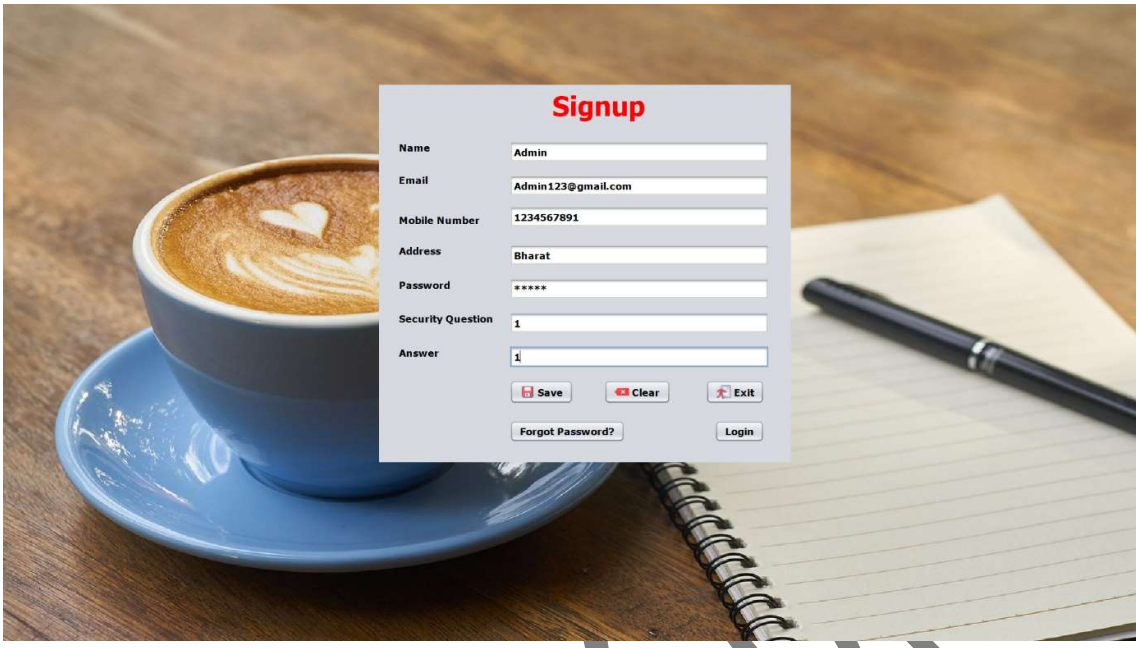
1. SplashScreen



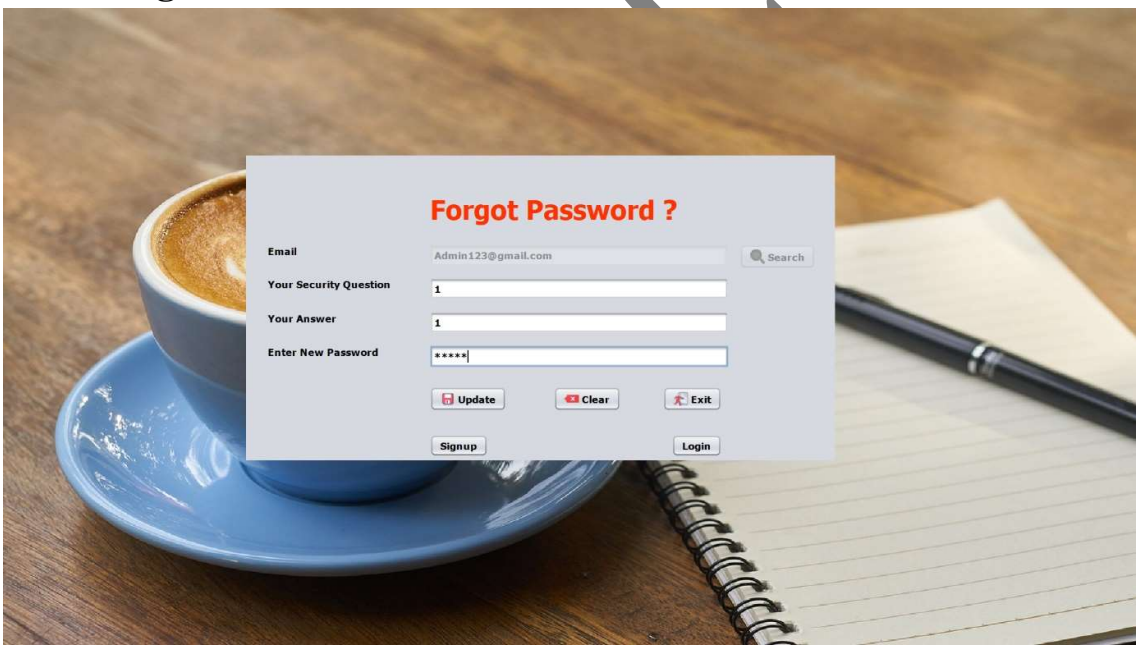
2. LoginScreen



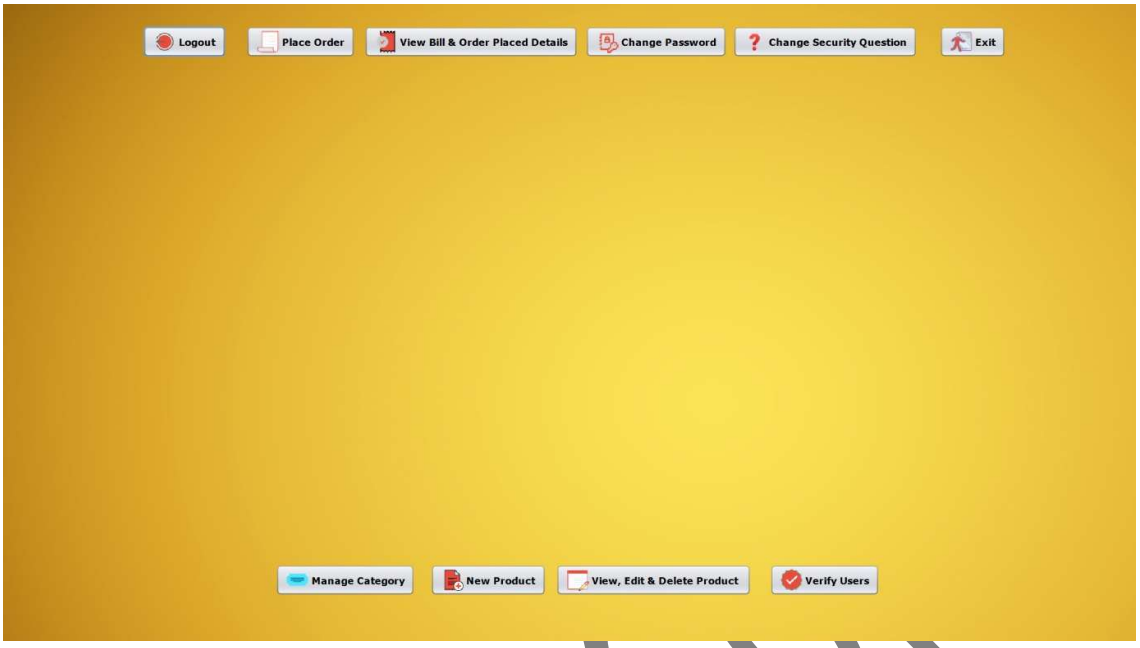
3. SignupScreen



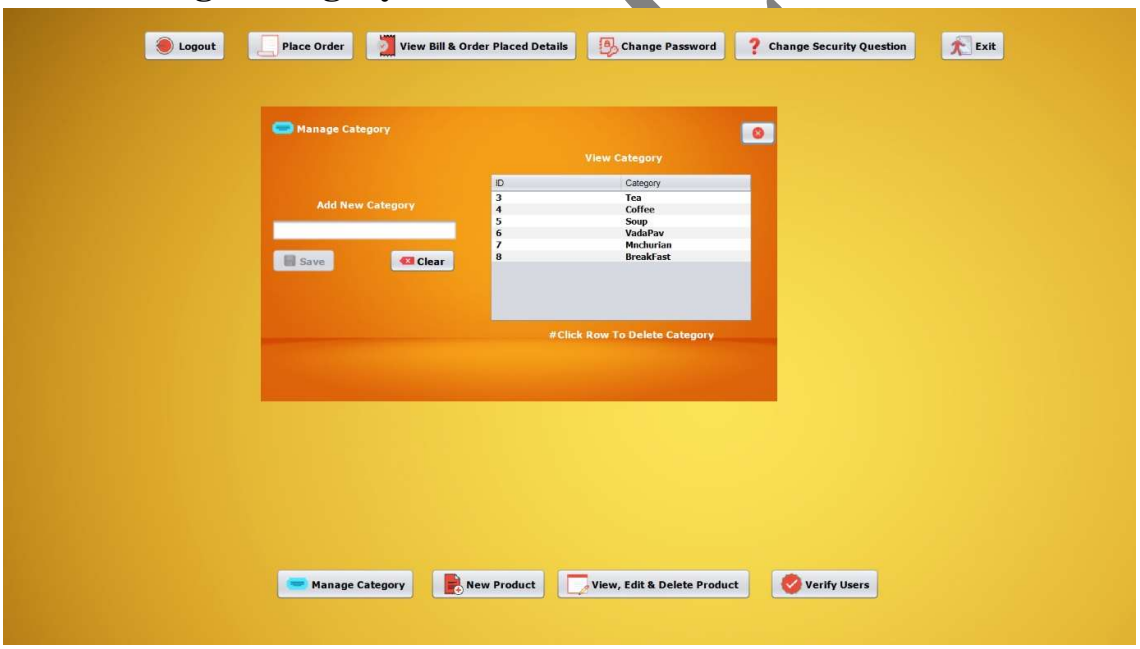
4. ForgetScreen



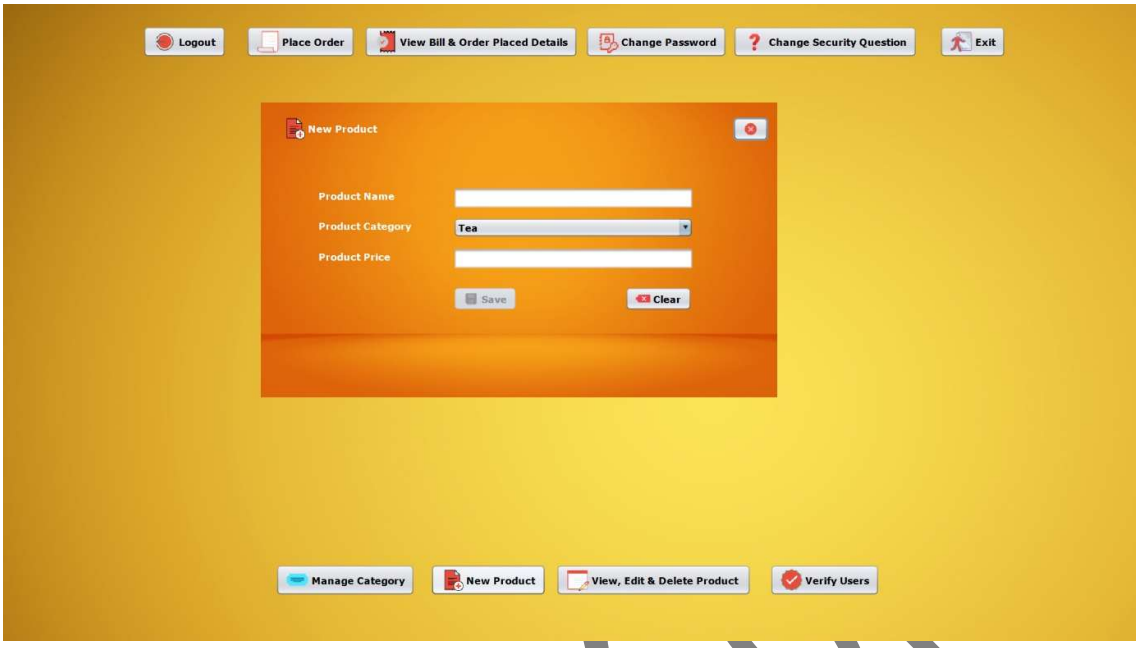
5. HomeScreen



6. Manage Category

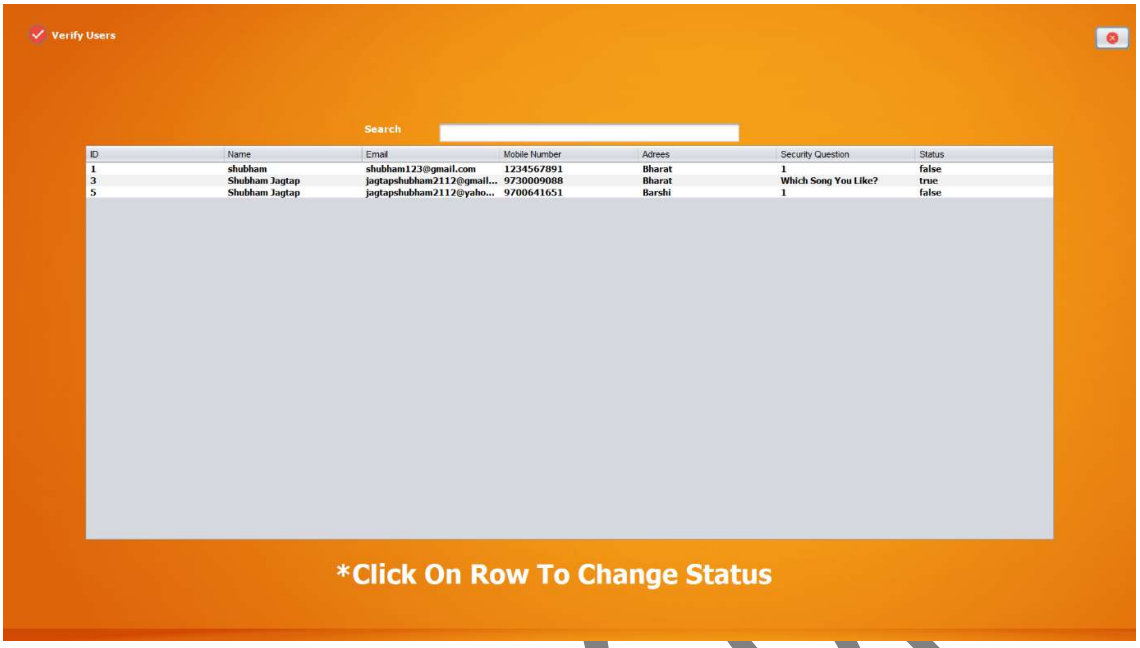


7. NewProductScreen

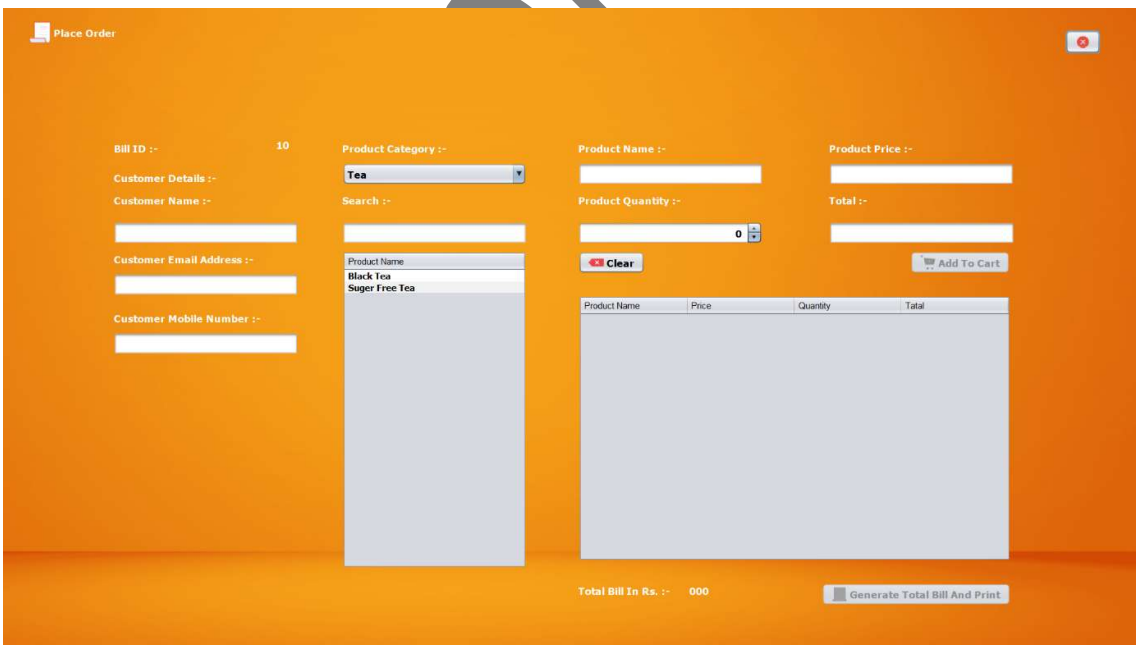


8. ViewEditDeleteProductScreen

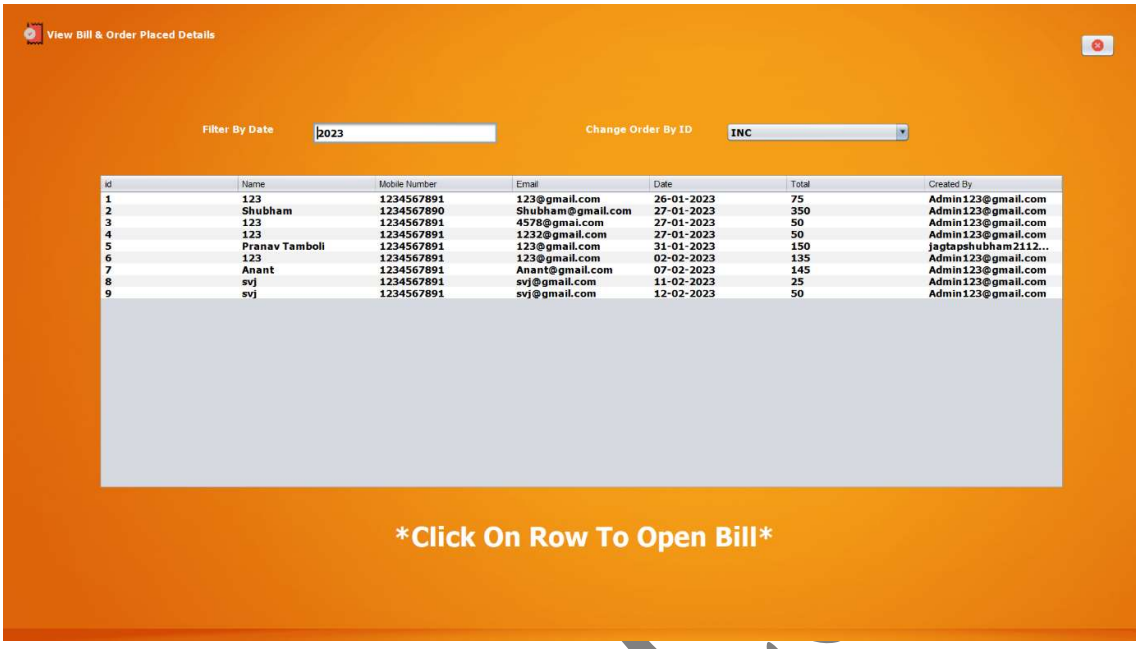
9. VerifyUserScreen



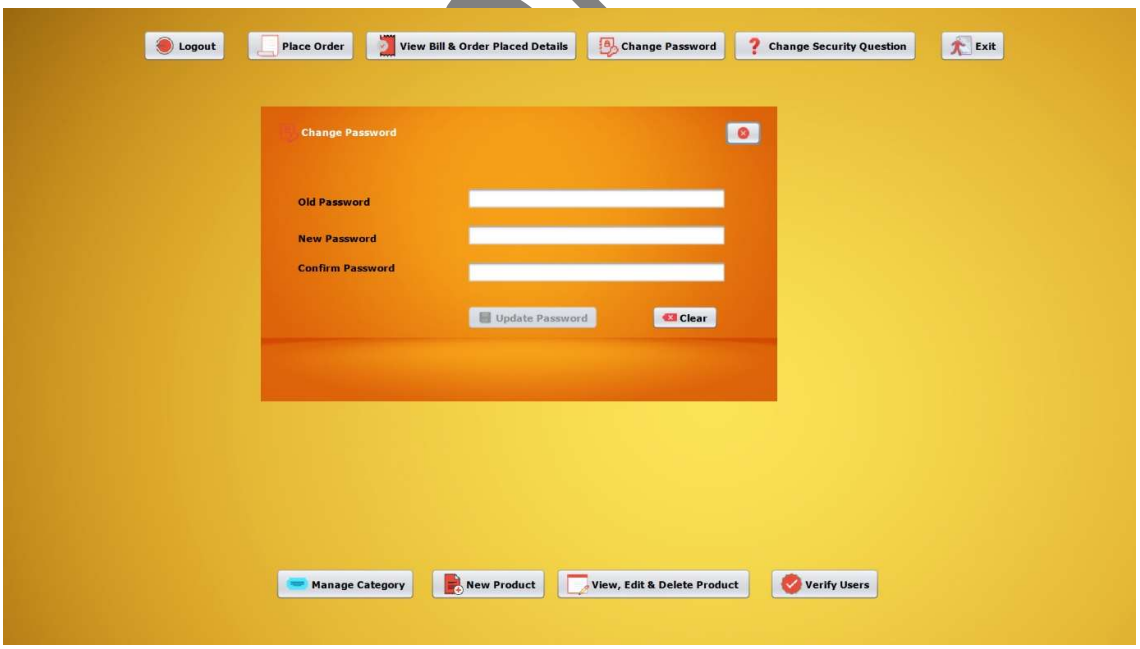
10. PlaceOrderScreen



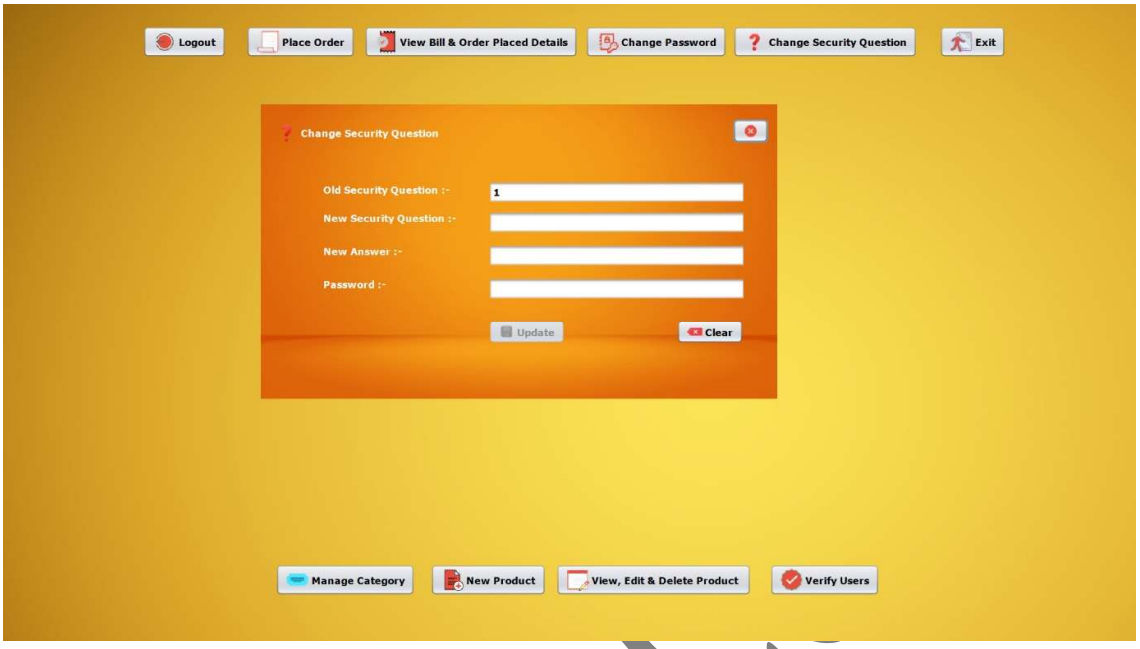
11. ViewBillAndOrderPlacedDetailsScreen



12. ChangePasswordScreen



13. ChangeSecurityQuestionScreen



Do Not C

ANNEXURE 2 : OUTPUT REPORTS WITH DATA

- **Bill_Pdf**

Shubham's Cafe

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