Billing Software

A mini Project Report submitted in partial fulfilment of the requirements for the award of the degree of

Bachelor of Technology
in
Computer Science and Engineering
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DECLARATION

We hereby declare that the work which is being presented in the Mini Project "Billing Software", impartial fulfillment of the requirements for Mini Project viva voce, is an authentic record of our own work carried under the supervision of "Mr. Piyush Vashistha".

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ABSTRACT

Billing Software System is an integrated electronic billing system for managing all aspects of a store's operations such as calculating the cost for each billing record, collecting payments received from the customer in any mode (i.e., cash, card etc) and updating the customer's details. It stores the details of employees, customers and items sold in shop and also update every detail. It includes electronic business records. The admin can maintain and edit the employee's details (i.e., name, password and contact no.) and regularly update them in admin panel. It enables the admin to add items and its details in the database. The system can be used to store stock data efficiently and this convenient system of working will take away all the major concerns and helps in smooth functioning of business. It is easy to run business fast with such type of system. This system is implemented using a 3-tier approach, with a backend database (MySQL), JDBC to give connectivity to various tables and Swing to design required Graphic User Interfaces in the software.

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CHAPTER 1: INTRODUCTION

1.1 MOTIVATION

To optimize billing operation and to find out about the needs of a private retail sector or store, we defined product codes for customer billing and utilized important digital tools for handy method of payment that will allow the users to pay anytime in easy manner. Efficient billing software can greatly improve the efficiency of your business, which can in turn create substantial savings in administrative costs, as well as improving cash flow.

1.2 OVERVIEW

The project Billing Software is an application in java which performs the process of billing of the store. Billing Software is the delivery of electronic bill and providing payment options for them and the billing process involves calculating the cost for each billing record, collecting payments received from the customer in any mode (i.e., cash, card etc) and updating the customers details. It provides a convenient solution of traditional billing system pattern and makes an easy way to use environment for admin and employee with high economic feature built in it. It stores the details of employee, customer and items sold in shop and also updates every detail.

1.3 OBJECTIVE

This project will serve the following objectives:-

- Add and maintain records of available products.
- Add and maintain customer details.
- Add and maintain description of new products.
- Add and maintain new entered category of products.

- Provides a convenient solution of billing pattern.
- Make an easy to use environment for users and customers.

1.4 TOOLS REQUIRED

Hardware Tools

- Processor : i3 Processor Based Computer or Higher
- Memory : 2 GB RAM(Minimum)
- Hard Drive: 5 GB(Minimum)

Software Tools

- Technology: Java
- Development Tool: Intellij IDE
- Operating System: Windows 7 or Higher / MacOS 10.14.6 or Higher

Frontend Tools

- Java Swing

Backend Tools

- Java JDBC
- Xampp Server

CHAPTER 2: SOFTWARE REQUIREMENT ANALYSIS

2.1 PROBLEM STATEMENT

Existing system requires lot of paper work and even a small transaction require many papers fill. Moreover any unnatural cause (such as fire in the organization) can destroy all data of the organization. Loss of even a single paper led to difficult situation because all the papers are interrelated. Also data cannot be shared in the existing system. This means that no two persons can use the same data in existing system. Also the two departments in an organization cannot interact with each other without the actual movement of data. Existing system does not support managerial decision-making.

2.2 DEFINE MODULES AND THE FUNCTIONALITIES

There are two modules in this project:

(a) Admin Module

(b) Employee Module

Admin Module:- There are many functionalities of admin module:

(i) Login page:

The admin has to first login himself/herself with the registered email ID and password to access functionalities of administrator. This registered email ID and password will save in database already.

(ii) Admin panel page:

When admin successfully login then he can show all functionalities on admin panel like ‘Add Employee’ , ‘Edit Employee’, ‘Add Item’, ‘Edit Items’, ’Change Password’ and ‘logout’ . And use these functionalities on his need.

(iii) Add employee page:

When admin want to register any employee then this page opens so that admin can update the employees.

(iv) Edit employee page:

This page is shown when admin wants to update or delete employee credentials.

(v) Add item page:

This page gets opened when admin want to add any item in their stock.

(vi) Edit item page:

This page gets opened when admin want to edit the details of item in their stock.

(vii) Change password page:

This page gets opened when admin want to change his/her own password.

Employee Module:- There are many functionalities of admin module:

(i) Login page:

The customer has to login himself/herself with the registered email ID and password to access functionalities of employee. This registered email ID and password will save in database already.

(ii) Employee Panel Page:

When employee successfully login then he can show all functionalities on employee panel like ‘Start Billing’, ‘Change Password’ and ‘Logout ’.

(iii) Product Selection Page:

The employee can select the items and perform the final billing in this page. It will show the total cost of all the items chosen.

(iv) Final Bill Page:

This page shows the bill details and the description about the items and the net cost.

(v) Logout:

The employee can log out after he/she has finished the billing operation.

CHAPTER 3: SOFTWARE DESIGN

3.1 DFD (DATA FLOW DIAGRAM)

A data flow diagram (DFD) is a graphical representation of the flow of data through an information system. It shows how information is input to and output from the system, the source and destination of that information, and where that information is stored. The visual representation makes it a good communication tool between User and System designer. There are four basic symbols that are used to represent a data-flow diagram.

Process: A process receives input data and produces output with a different content or form. Every process has a name that identifies the function it performs.

Data Flow: A data-flow is a path for data to move from one part of the information system to another.

Data Store: A data store or data repository is used in a data-flow diagram to represent a situation when the system must retain data because one or more processes need to use the stored data in a later time.

External Entity: An external entity is a person, department, outside organization, or other information system that provides data to the system or receives outputs from the system.

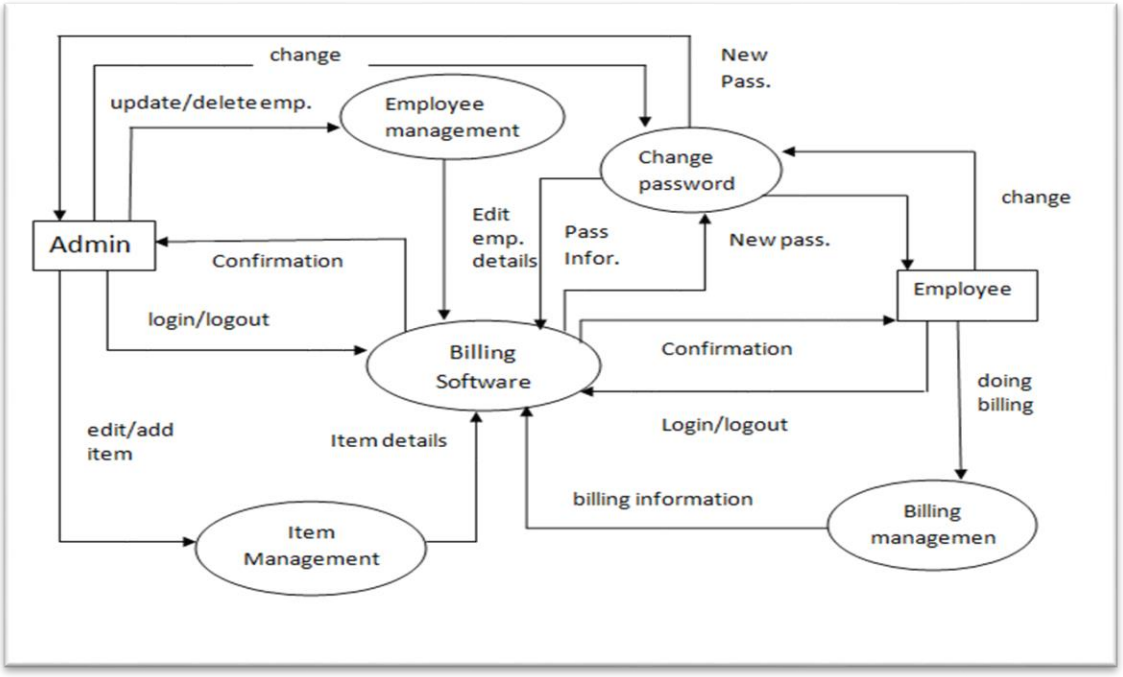

Fig 3.1 DFD

3.2 USE CASE DIAGRAM

A use case diagram at its simplest is a representation of a user's interaction with the system that shows the relationship between the user and the different use cases in which the user is involved. A use case diagram can identify the different types of users of a system and the different use cases and will often be accompanied by other types of diagrams as well. The use cases are represented by either circles or ellipses.

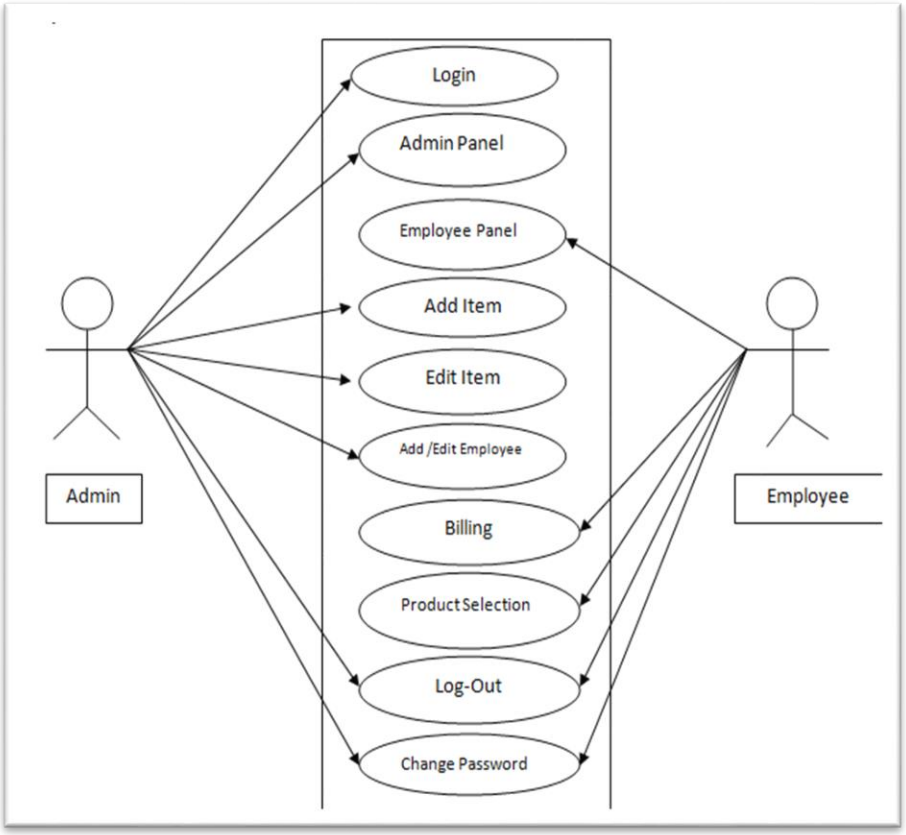

Fig 3.2: Use Case Diagram

3.3 E-R Diagram:

An entity relationship model, also called entity-relationship (ER) diagram, is a graphical representation of entities and their relationships to each other, typically used in computing in regards to the organization of data within database or information systems. An entity is a piece of data about which data is stored.

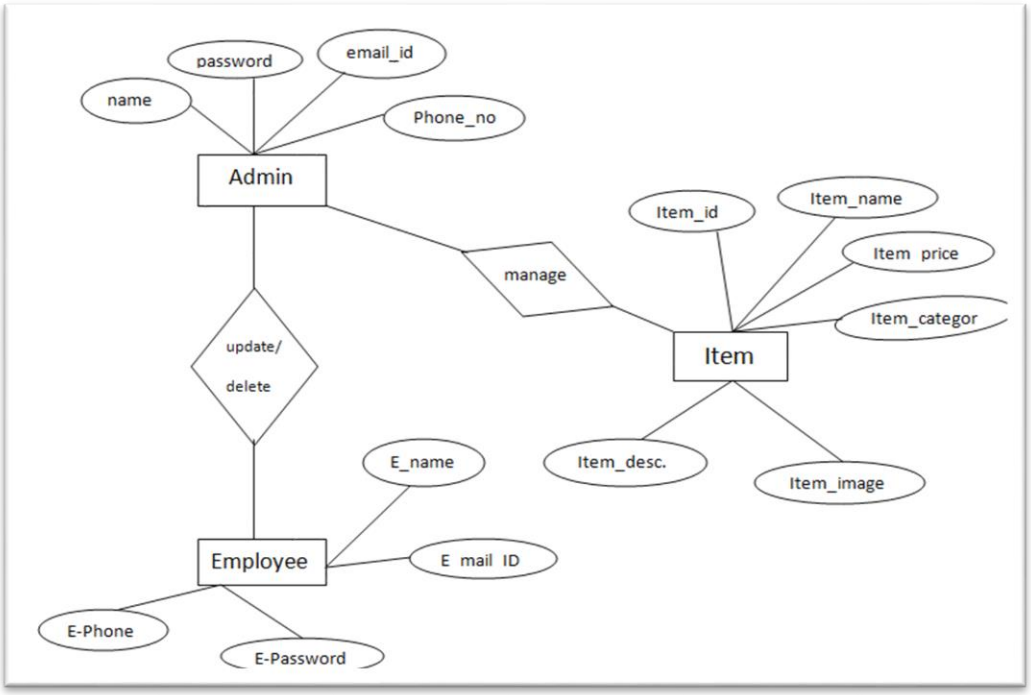

Fig 3.3 E-R Diagram

CHAPTER 4: IMPLEMENTATION

4.1 Screenshots

1. Start Panel: This page is showing at first when we run software.

Fig 4.1: Start Panel

2. Login Page: Here admin and employee both can login for their task by entering E-mail and Password.

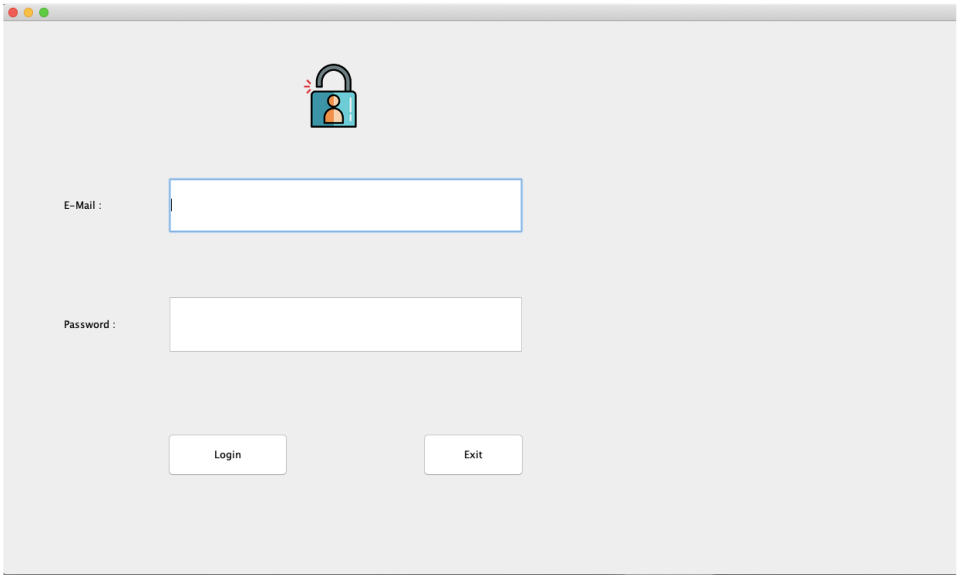

Fig 4.2: Login Page

3.**Admin Panel:** When admin successfully login then admin page will open. There are various functionality for admin like Add Employee, Edit Employee, Add Item, Edit Item, Logout and Change Password.

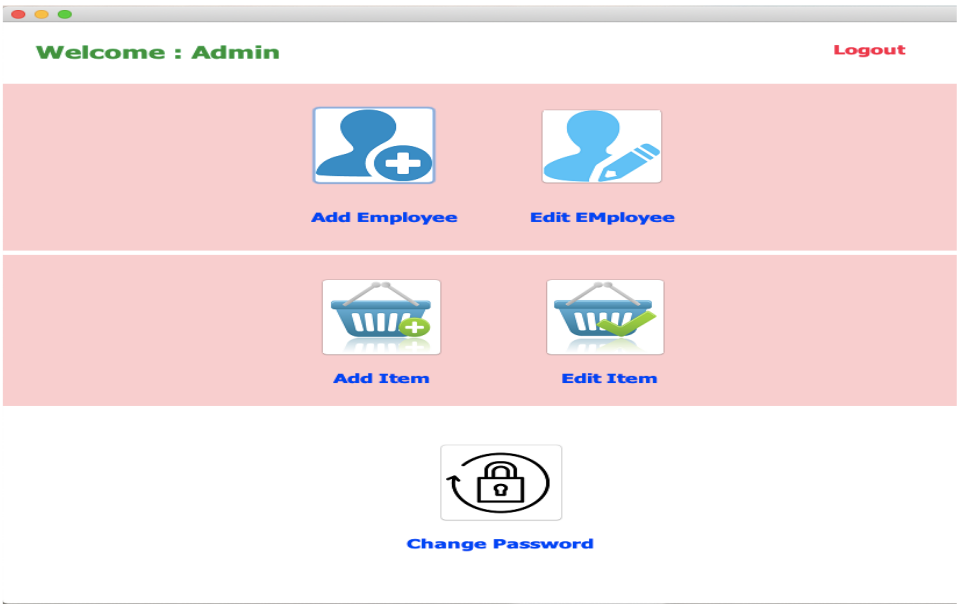

Fig 4.3: Admin Panel

4. **Add Employee:** When admin want to register any employee then he can easily add by giving all required information like Name, Email, Password and Phone No.

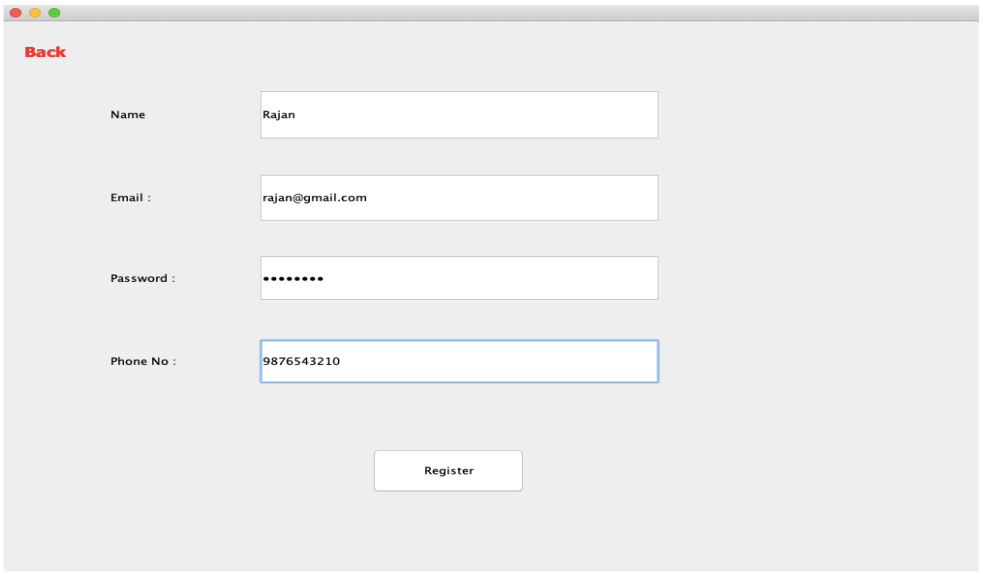

Fig 4.4: Add Employee

5. **Add Employee Successfully:** When employee get registered successfully then prompt box will show that 'Employee registered successfully'.

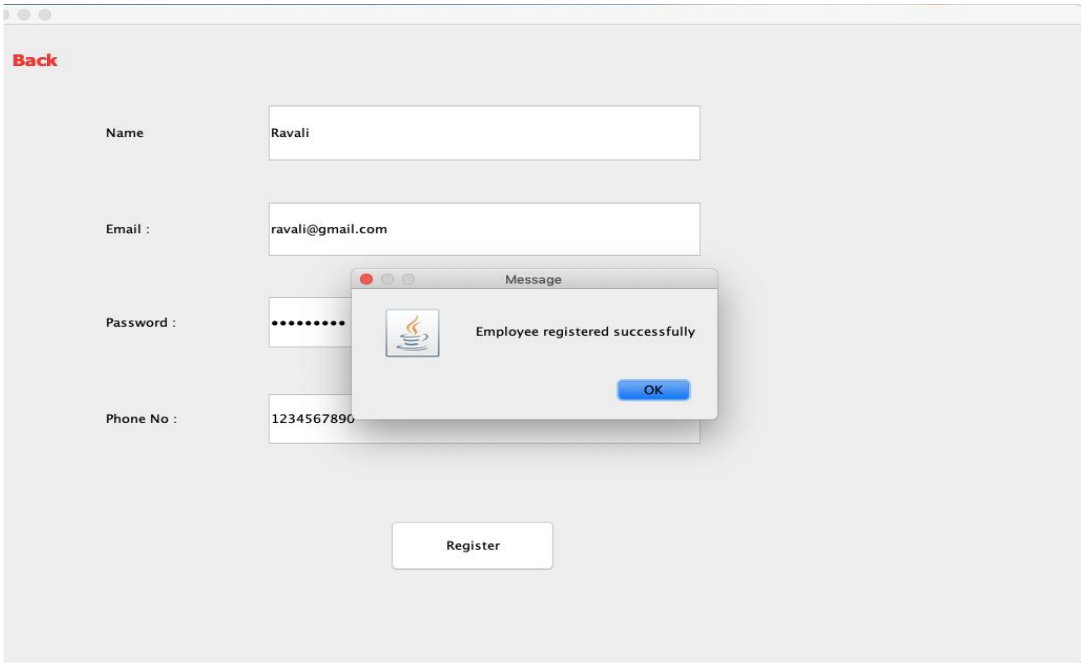

Fig 4.5: Add Employee Successfully

6. Edit Employee: This page shown when admin want to update or delete employee credentials.

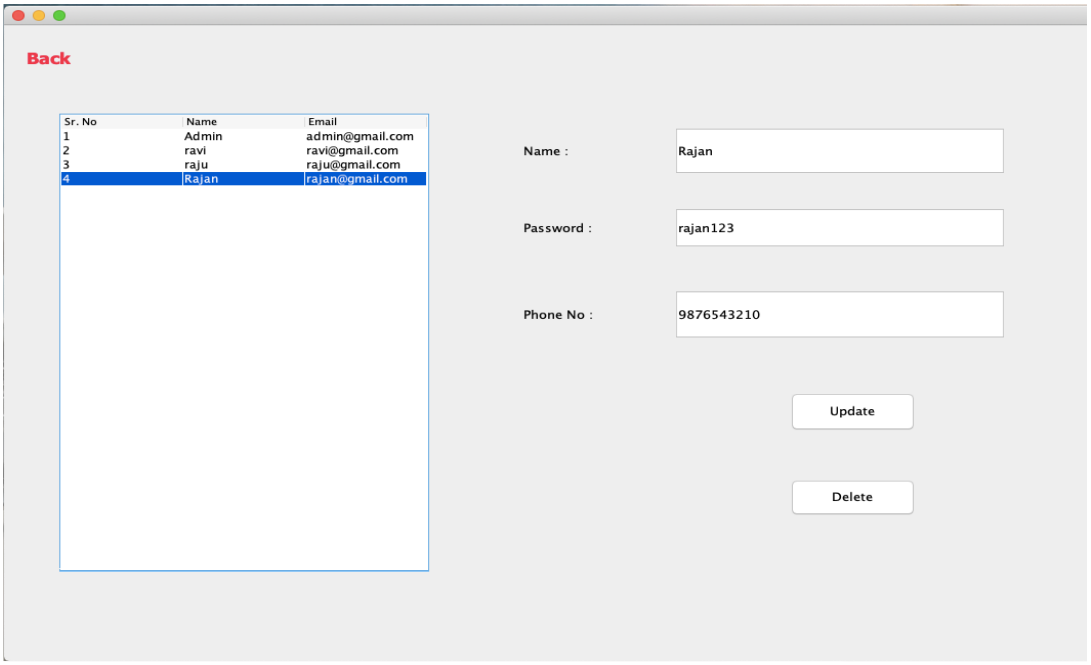

Fig: 4.6 Edit Employee

7. Update Employee Successfully: When employee details updated successfully then this prompt will show ‘Updation completed successfully’.

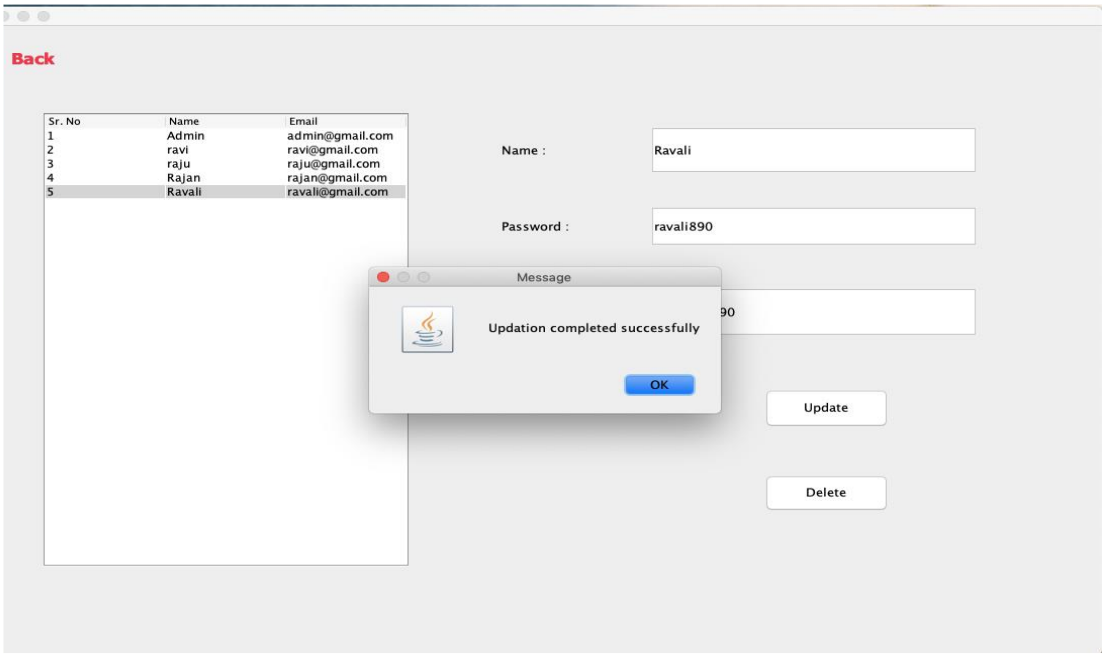

Fig 4.7: Update Employee Successfully

8. Add Item: If admin want to add any item in their stock he can easily add any item by giving all details of item.

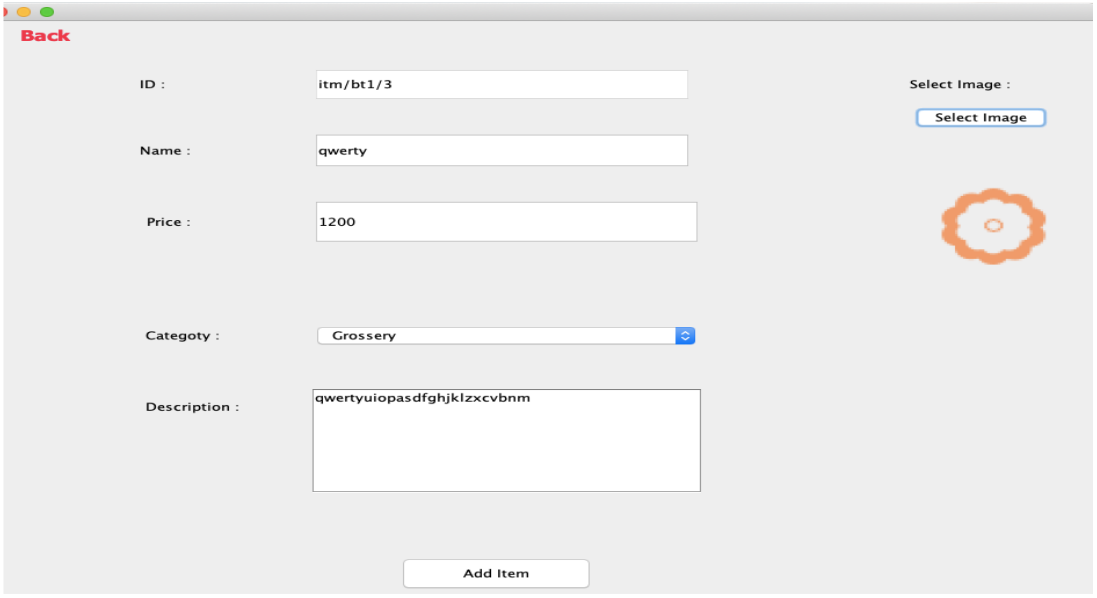

Fig: 4.8: Add Item

9. Add Item Successfully: If item added successfully in the stock then prompt box show ‘item added successfully’ message.

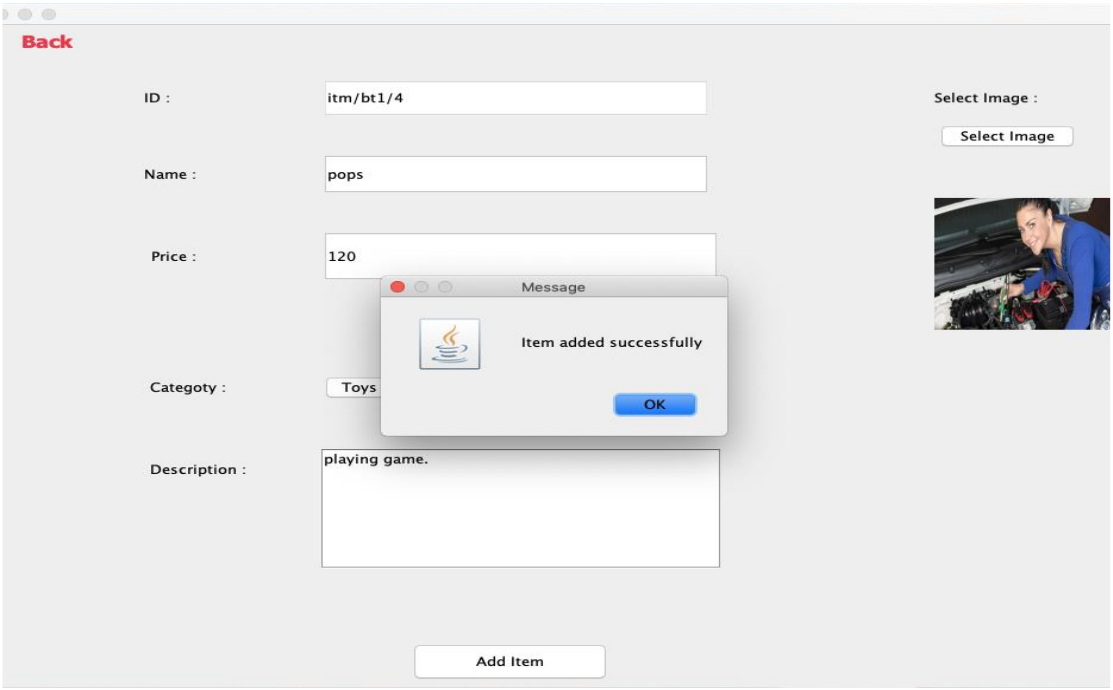

Fig 4.9: Add Item Successfully

10. Edit Item: This page open when admin want to edit the details of item in their stock.

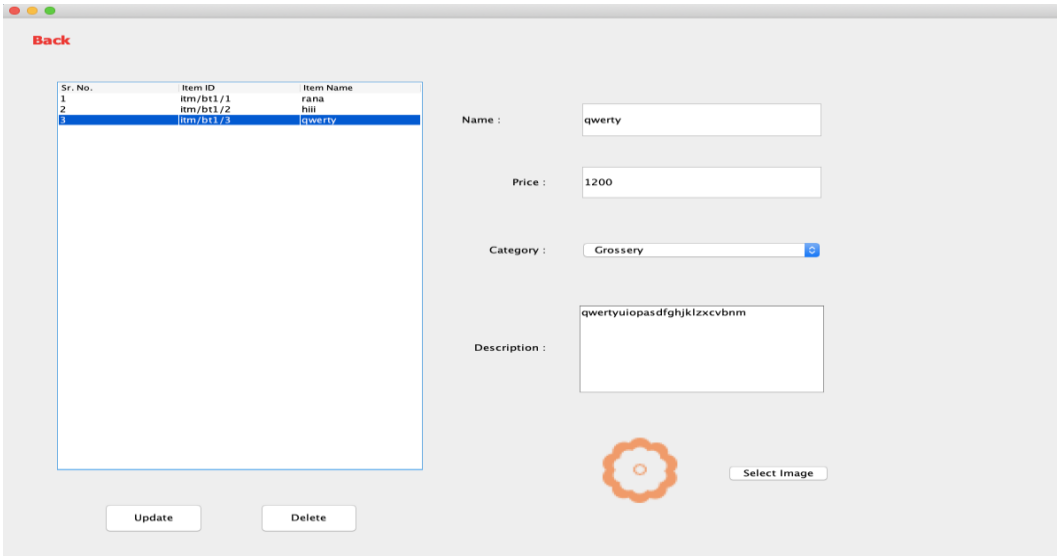

Fig 4.10: Edit Item

11. Edit Item Successfully: This prompt show when item details get updated successfully.

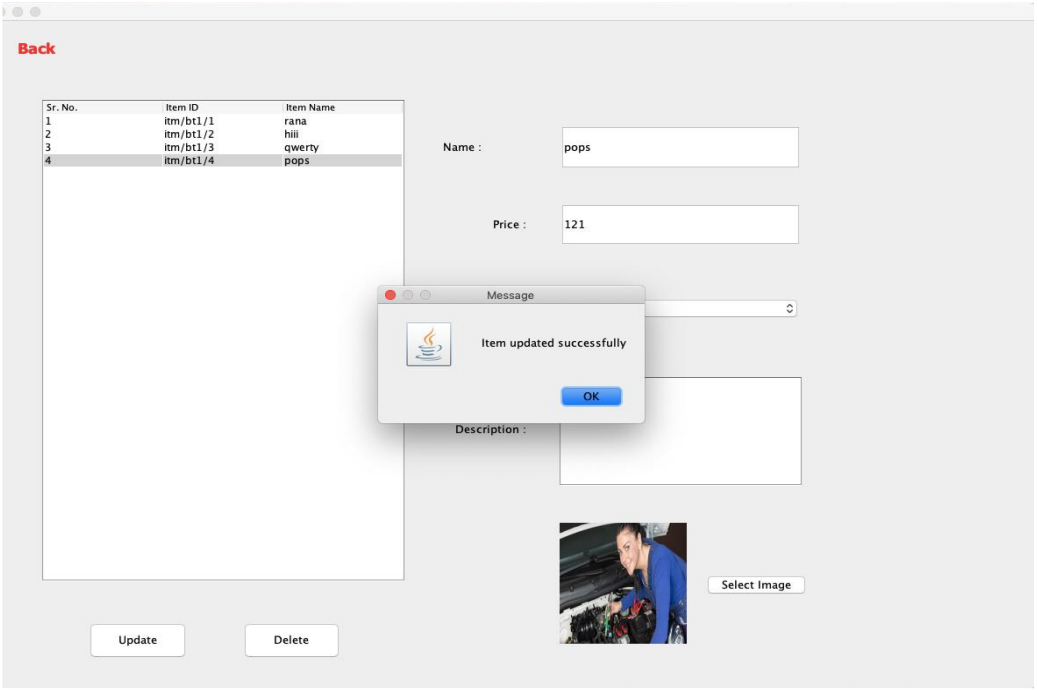

Fig 4.11: Edit Item Successfully

12. Change Password for admin : This page open when admin want to change own password**.**

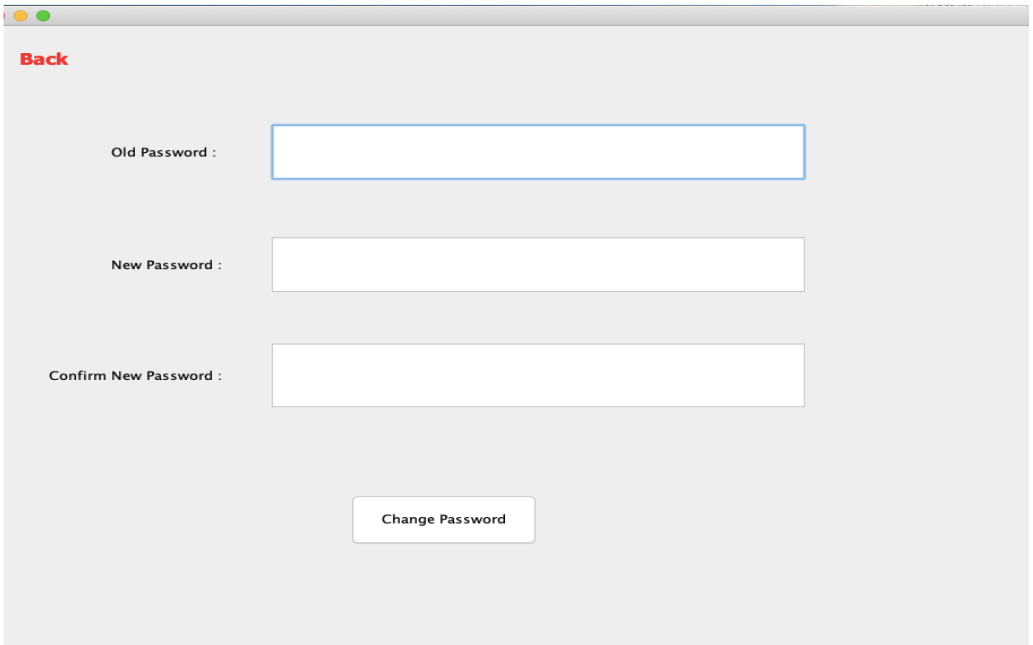

Fig 4.12: Change Password for Admin

13. Change Password Successfully: This prompt show when password get updated successfully.

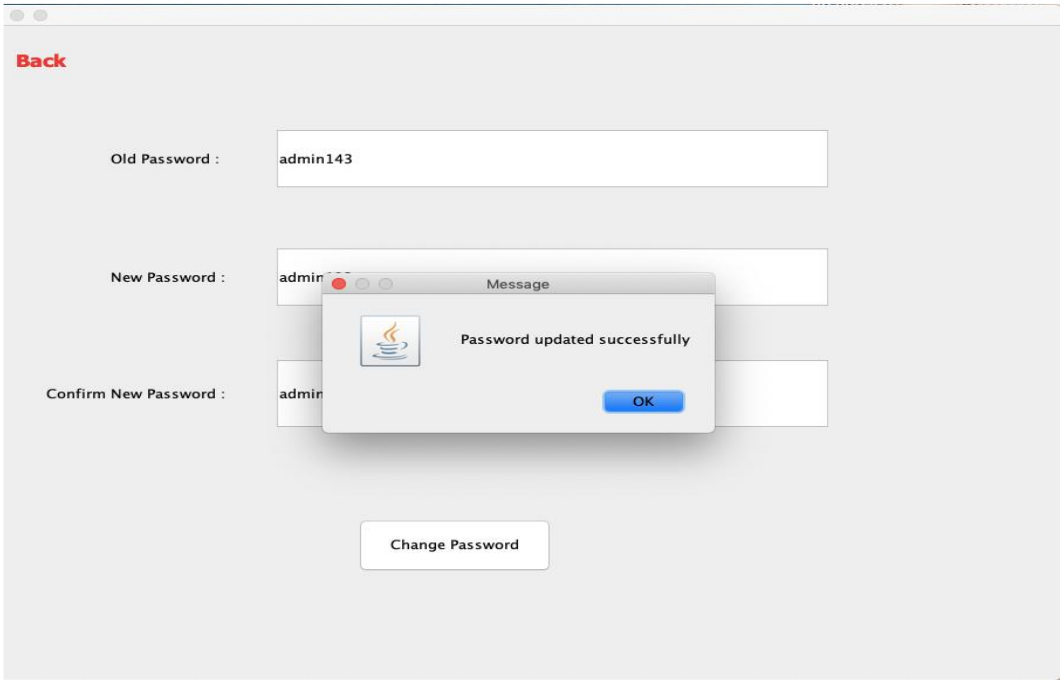

Fig 4.13 Change Password Successfully

14. Employee Panel: If Employee successfully login then he can see all functionalities like ‘Start Billing ’, ’Change Password’ and ‘Logout’;

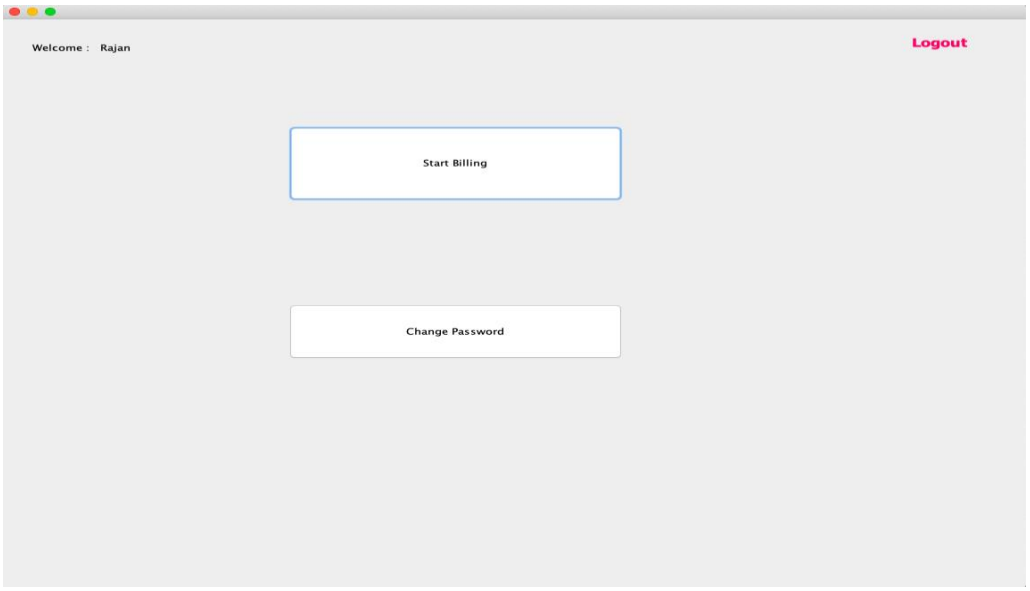

Fig 4.14 Employee Panel

15. Product Selection: The employee can select the items and perform the final billing in this page. It will show the total cost of all the items chosen.

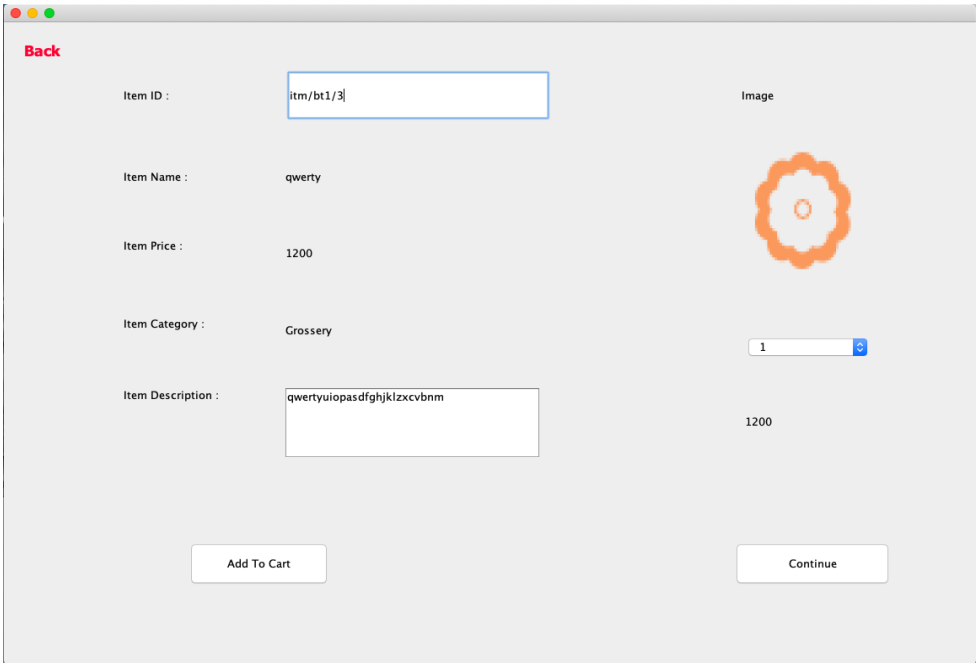

Fig 4.15 Product Selection

16. Final Bill of items: This page shows the bill details and the description about the items like item ID, item price, item name, item name etc. and the net cost and also update and delete item on clicking update and delete button.

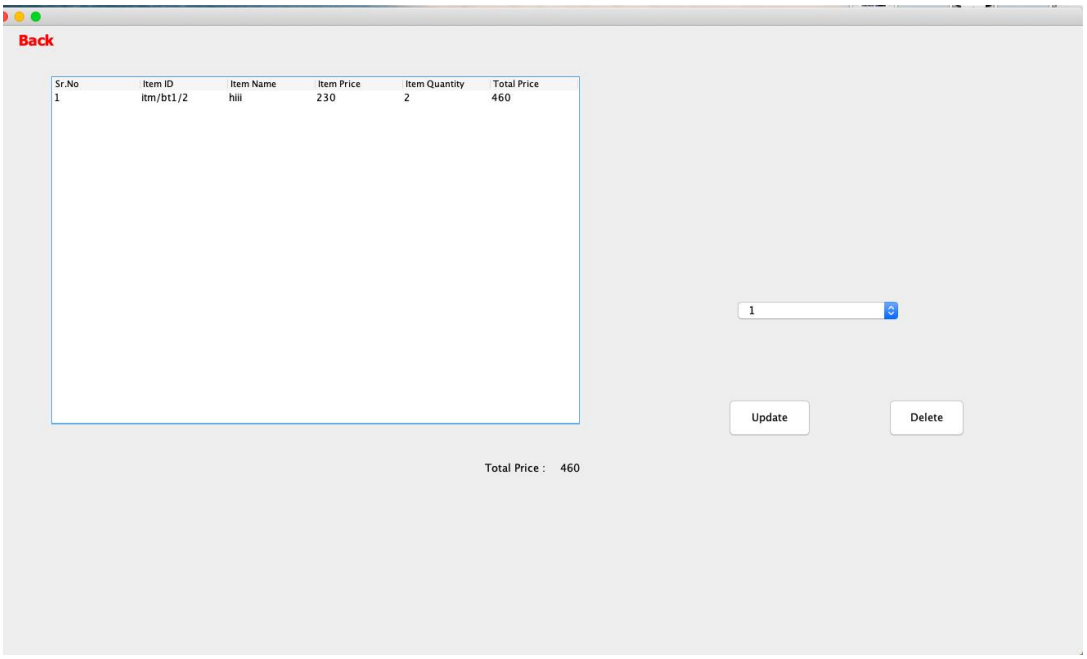

Fig 4.16 Final Bill of items

17. Change Password for Employee: When employee want to change his/her own password by giving first old password, new password, confirmation then click on change password button. After changing password employee get a confirmation masseage.

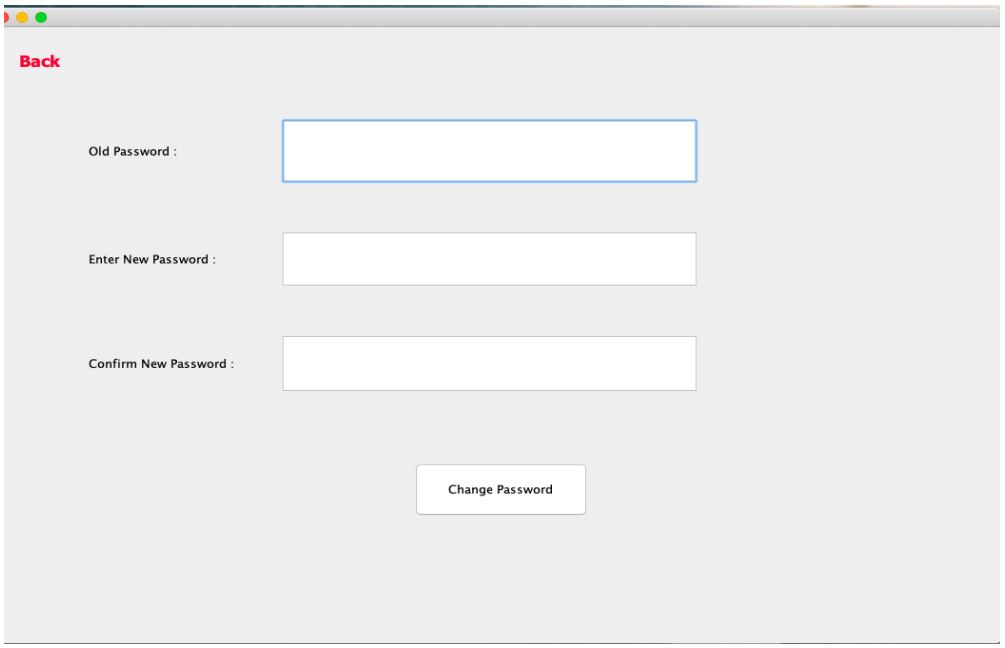

Fig 4.17: Change Password for Employee

CHAPTER – 5 : SOFTWARE TESTING

5.1 INTRODUCTION

The success of the testing process is determining the errors which mostly depend upon the test case criteria, for testing any software we need to have a description of the expected behavior of the system and method of determining whether the observed behavior confirmed to the expected behavior.

Level of Testing:

Since the errors in the software can be injured at any stage. So, we have to carry out the testing process at different level during the development. The basic levels of testing are Unit Testing, Integration Testing, System Testing and Acceptance Testing. The Unit Testing is carried out on coding. Here different modules are tested against the specifications produces during design for the modules. In case of Integration Testing different tested modules are combined into sub systems and tested. In case of the system testing the full software is tested and in the next level of testing the system is tested with user requirement document prepared during SRS. There are two basic approaches for testing. They are

Functional Testing:

In functional testing test cases are decided solely on the basis of requirements of the program or the module and the internals of the program or modules are not considered for selection of test cases. This is also called Black Box Testing.

Structural Testing:

In Structural Testing test cases are generated on actual code of the program or module to be tested. This is called White Testing.

5.2 TESTING PROCESS

A number of activities must be performed for testing software. Testing starts with test plan. Test plan identifies all testing related activities that need to be performed along with the schedule and guide lines for testing. The plan also specifies the levels of testing that need to be done, by identifying the different testing units. For each unit specified in the plan first the test cases and reports are produced. These reports are analyzed.

Test plan:

Test plan is a general document for entire project, which defines the scope, approach to be taken and the personal responsible for different activities of testing. The inputs for forming test plans are:

Project plan

Requirements documents

System design

Test Case Specification:

Although there is one test plan for entire project test cases have to be specified separately for each test case. Test case specification gives for each item to be tested. All test cases and outputs expected for those test cases.

Test Case Execution and Analysis:

The steps to be performed for executing the test cases are specified in separate document called test procedure specification. This document specify any specify requirements that exist for setting the test environment and describes the methods and formats for reporting the results of testing.

Unit Testing:

Unit testing mainly focused first in the smallest and low level modules, proceeding one at a time. Bottom-up testing was performed on each module. As developing a driver program, that tests modules by developed or used. But for the purpose of testing, modules themselves were used as stubs, to print verification of the actions performed. After the lower level modules were tested, the modules that in the next higher level those make use of the lower modules were tested.

Each module was tested against required functionally and test cases were developed to test the boundary values.

Integration Testing:

Integration testing is a systematic technique for constructing the program structure, while at the same time conducting tests to uncover errors associated with interfacing. As the system consists of the number of modules the interfaces to be tested were between the edges of the two modules. The software tested under this was incremental bottom-up approach.

Bottom-up approach integration strategy was implemented with the following steps. Low level modules were combined into clusters that perform specific software sub fractions.

System Testing:

System testing is a series of different tests whose primary purpose is to fully exercise the computer based system. It also tests to find discrepancies between the system and its original objective, current specifications

System Test Cases and System Test Report:

The System Test Cases mentioned below are expected to work and give the expected behavior if the explorer is configured to run jar files.

Test Cases:

Test Case #1 : Login Form

S.No.	Test Case Description	Expected Result	Status
1	Login page	Admin or Employee login successfully	Pass
2	Invalid e-mail or password	Login failed	Pass
3	Starting the software	Start Panel occurs	Pass

Test Case #2 : Admin Panel

S.No.	Test Case Description	Expected Result	Status
1	Add Employee	Employee is registered successfully.	Pass
2	Edit Employee	Employee is added or removed .	Pass
3	Update Employee	Employee is updated .	Pass
4	Add Item	Prompt showing 'Item added successfully' gets displayed.	Pass

5	Edit item	Prompt showing ‘Item deleted successfully’ gets displayed.	Pass
6	Change password	Password gets updated.	Pass

Test Case #3 : Employee Panel

S.No.	Test Case Description	Expected Result	Status
1	Product selection	Final bill gets generated.	Pass
2	Change password form	Password gets updated.	Pass

CHAPTER 6: CONCLUSION

This system can be used to store stock data efficiently and this convenient system of working will take away all the major concerns and helps in smooth functioning of business. It stores the details of employees, customers and items sold in shop and also update every detail. The admin can maintain and edit the employee's details (i.e., name, password and contact no.) and regularly update them in admin panel. It enables the admin to add items and its details in the database. It is easy to run business fast with such type of system.

Development of this System takes a lot of efforts from us. We think this system gave a lot of satisfaction to all of us. Though every task is never said to be perfect in this development more improvement may be possible in this system. We learned so many things and gained a lot of knowledge about development field. We hope this will prove fruitful to us.

4.1 Future Prospects

- The billing system could effectively automate manual billing and transaction system in private retail sector or supermarket.
- The system would store various details of customers and employees accurately.
- With billing software, it's still made easier to work through inventory idea on a daily basis.
- It is used to store stock data safely and this convenient system of working will take away all the major concerns and helps in smooth functioning of business.
- It is easy to run business fast with such type of system.
- Software will be able to scan barcode of product.
- Project will be enabled to see report regarding product and category.

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