A

Mini Project Report

on

AUTHENTICATED BILLING SYSTEM

Submitted in Partial Fulfillment of
the Requirements for the Degree
of

Bachelor of Engineering

in

Computer Engineering

to

North Maharashtra University, Jalgaon

Submitted by

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DEPARTMENT OF COMPUTER ENGINEERING

CERTIFICATE

This is to certify that the mini project entitled *Authenticated Billing System*, submitted by

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in partial fulfillment of the degree of *Bachelor of Engineering* in *Computer Engineering* has been satisfactorily carried out under my guidance as per the requirement of North Maharashtra University, Jalgaon.

Date: April 1, 2016
Place: Jalgaon

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Abstract

The accounts running in canteen and mess store transactions in pen and paper and there is almost no authentication in making such payments, as the customer making the purchase just uses his ID number as identity which can very easily faked by someone else. Also this involves a lot of paperwork on the side of the mess/canteen worker, and may also lead to some calculation errors on their part due to the human involvement in making bills. So to solve these two problems at once. Bills can provided to the customers as per need.The use of uername and password as authentication can solve this problem.Authenticated Billing System, can be applicable.

Chapter 1

Introduction

Billing system is an application to automate the process of ordering and billing of a Cafeteria .This desktop application is designed considering the chain of Cafeteria which is located in various colleges. This application also administrates its users and customers.Cafeteria is the place where customers come and pay for their item.There is a need to calculate how many item are taken and to generate the bill for the customer. In the project and implementation we have administrator. First administrator enter the customer name and information and check the previous record in database. Secondly administrator will fill the item and can see the record of that customer. Thirdly administrator will calculate the bill and save the record.

In section 1.1 discussed about the work flow of the authenticated billing system. 1.2.In section 1.3 given the discription of project.In section1.4 we explained the characterstics of proposed system.

1.1 Work Flow

Work in the Cafeteria will be done in the following way:.

- Data entry administrator will enter the information of the item in database.
- The Administrator will enter the detail item information and for each item.
- The customer will come and take the item with him/her and choose the item and took it to the counter.
- The bill calculating administrator will check the item with the their price then it will with item-number then it will show its information and price and the bill will be calculated and total payment will shown.

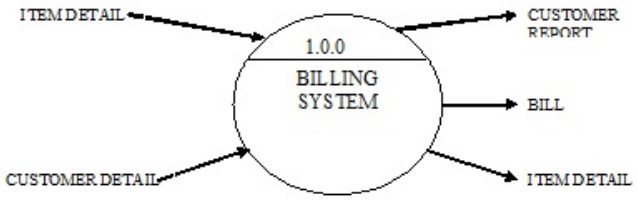

Figure 1.1: Data Flow Daigram

- Customer will pay for the item.
- All the item information detail will be saved to the customer account and this work done by administrator.

1.2 Objective

- Many canteens of Cafeteria use this type of billing system for a decade. It is also improved many times according to requirements of customers. It does the same work that is calculating the bill, gives it to the customer and maintain proper database. They are accurate in calculation and printing, they also generate records.
- A new concept is also added in the billing system is that they also maintain relationships with the customers who purchase more products from the store regularly. System also concerns their requirements.

A data flow daigram is a graphical representation that depicts the information flow and the transforms that are applied as date moves from input to output.It can be used to represent a software at any level of abstraction.Infact DATA FLOW DIAGRAM may be partitioned into levels. That represents increasing information flow and functional detail.

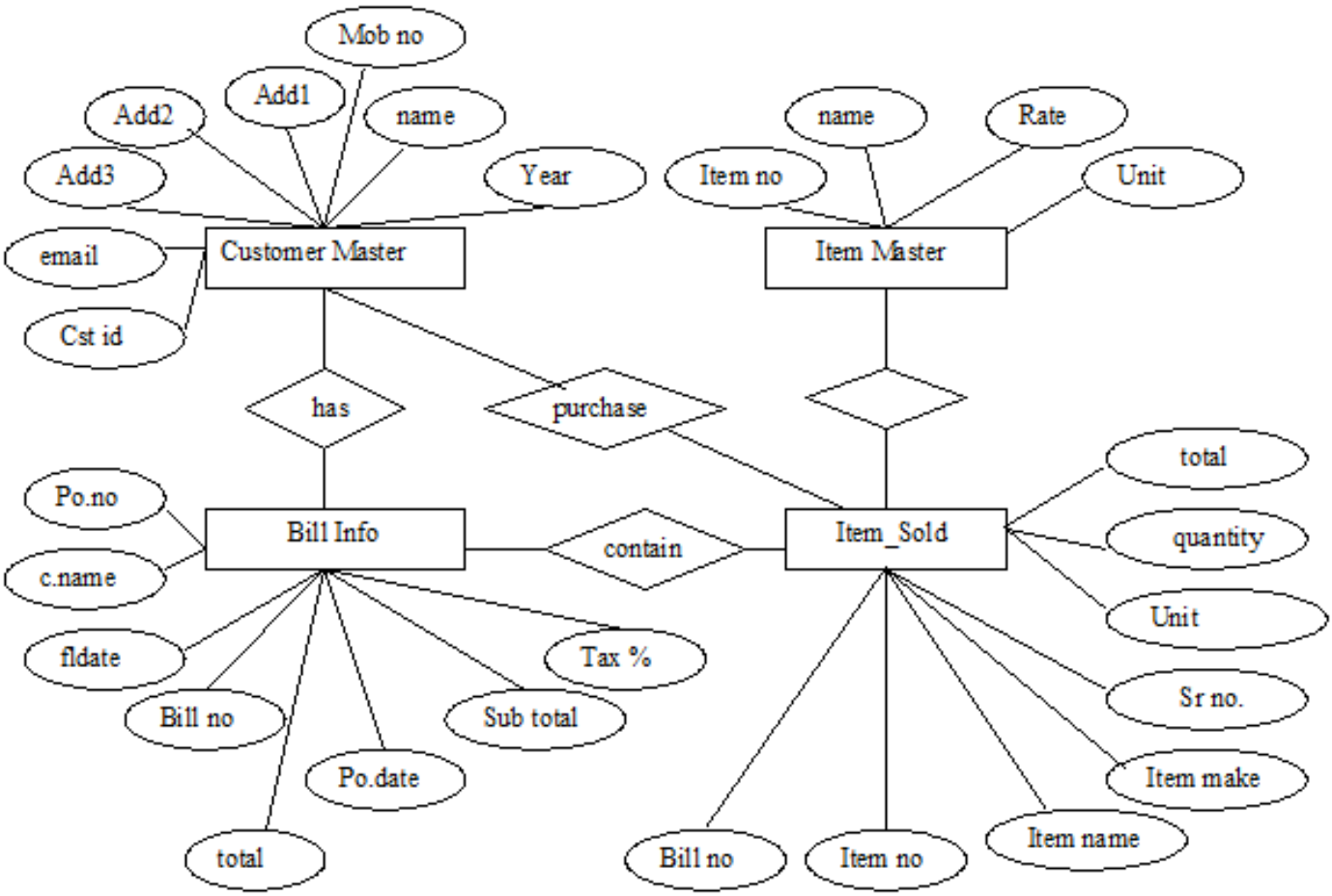

Figure 1.2: ER Daigram

Chapter 2

Literature Survey

In early days, the accounts running in canteen and mess store transactions in pen and paper and there is almost no authentication in making such payments, as the customer making the purchase just uses his ID number as identity which can very easily faked by someone else.

This chapter elaborates Literature survey. Section 2.1 describes Existing system. In Section2.2 the praposed system is described. Various types of feasibility discussed in section2.3.

2.1 Existing System

In early days, the accounts running in canteen and mess store transactions in pen and paper and there is almost no authentication in making such payments, as the customer making the purchase just uses his ID number as identity which can very easily faked by someone else. Also this involves a lot of paperwork on the side of the mess/canteen worker, and may also lead to some calculation errors on their part due to the human involvement in making bills. It is very difficult to handle all these records and maintain it. Sometimes the record may be lost by administrator so that information can not retrive again.

2.2 Proposed System

The system provides managing of huge data effectively and efficiently for efficient results, storing the details of the customers, items and bills etc. in such a way that the database can be modified.The system is user friendly because the retrieval and storing of data is fast and data is maintained efficiently.Moreover the graphical user interface is provided in the proposed system, which provides user to deal with the system very easily. The system either does not require paper work or very few paper works is required. All the data is feted into the computer immediately and various bills and reports can be generated through computers. Since all the data is kept in a database no data of the organization can be

destroyed. Moreover work becomes very easy because there is no need to keep data on papers. The system avoid mistakes in manual calculations. Computer operator control will be there no errors. Moreover storing and retrieving of information is easy. So work can be done speedily and in time. To overcome all these problem we are developing a solution that is, instead of saving records manually and calculate bill manually in crowd, we can save information for the items using authenticated billing system. This remove burden on the administrator.

2.3 Feasibility

The feasibility study is carried out to test whether the proposed system is worth being implemented. Feasibility study is a test of system proposed regarding its work ability, its impact on the organization ability to meet user needs and effective use of resources. The key consideration involve in the feasibility study are:

- Technical
- Behavioural
- Economical

2.3.1 Technical Feasibility

Technical feasibility centers on the existing computer system (hardware, software etc) and to what extent it can support the proposed system addition.The front end used in the system java; supports event driven programming features.The MS ACCESS is the back end. It is easier to use as it stores the data in the form of simple table. The platform used for developing the applications is windows 8.1 which is easily available.There is no more hardware required other than the personal device for its execution. So using this technology make the system technically feasible and sound.

2.3.2 Behavioral Feasibility

The administrator can add, delete and edit the information if required. The code can be developed in the languages like java,.net ,c# ,etc.The code is flexible and can be easily modified .One can also use different platforms Linux or any other operating system because the java is platform independent. The use of swing makes the behaviour event driven.Operating system is also easily available.

2.3.3 Economical Feasibility

The system calculates bills faster than manual calculations. The system it self calculates bills so ultimately manpower cost is almost negligible.There is no more hardware required other than the personal device for its execution. The code is flexible and can be easily modified so the software cost reduces and everyone can afford it. The overall cost of the system is not that of the other expensive ones.

2.4 Summary

This chapter describes the overall phases of project development and also covers the analysis of the project such as it's Feasibility study, Literature Survey and also an overview of proposed system. The next chapter describes the Software Requirement Specification.

Chapter 3

System Requirement Specification

Software Requirement Specification is the official statement of what is required to the system developers. It should include both user requirements and a detailed specification of the system requirements. Requirement analysis is done in order to understand the problem the software system is to solve.

This chapter is elaborated in following sections: Section 3.1 describes the Hardware Requirements. Software Requirements are explained in Section 3.2.

3.1 Hardware Requirements

The hardware requirements includes:

- 10 gb of disk memory or disk partition
- 1GB of RAM or main memory
- AMD/Intel 32-bit or 64-bit Processor

3.2 Software Requirements

The software requirements includes:

CPU configuration

- Intel processors i5.
- RAM 513 MB DDR2

Operating System

- Windows 8.1

Language

- Java

Tools

- NetBeans
- JCreator

Database

- Microsoft Access

3.3 Summary

In this chapter,system requirement specification is explained. In next chapter, the System Design is described through various UML diagram.

Chapter 4

System Design

System design provides the understanding and procedural details necessary for implementing the system. This chapter is elaborated in following sections: Section 4.1 describes the Module to module interaction diagram. UML Diagrams are described in Section 4.2.

4.1 System Architecture

The system architecture provide details of how the components or modules are integrated and is described with the help of Unified Modelling Diagrams.

4.1.1 Module To Module Interaction(using collaboration diagram)

The Figure 4.1 shows the Collaboration Diagram for adding new customer.
In this collaboration diagram the administrator first login into the system. If the customer is new administrator add that customer and fill his detail information and save the record. If administrator wants to edit the any details of customer then modification will be done.

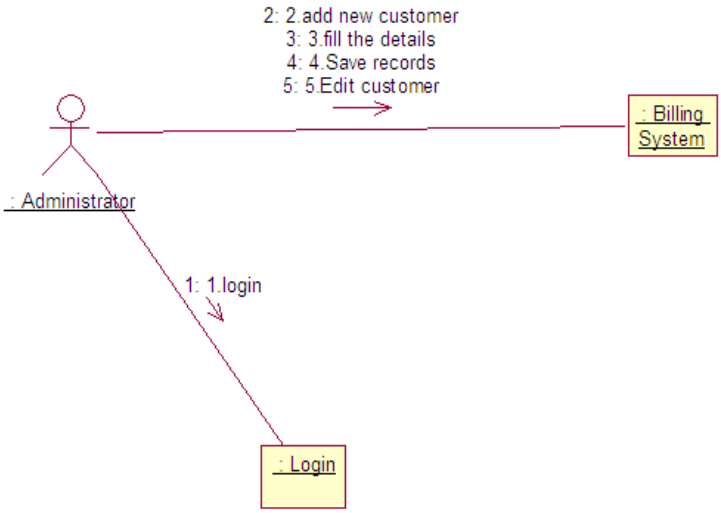

Figure 4.1: Collaboration diagram for add customer

The Figure 4.2 shows the Collaboration Diagram for adding new item.
In this collaboration diagram the administrator first login into the system. If administrator want to add new items then fill his detail of item and save the record. If administrator wants to edit the any details of item then modification will be done.

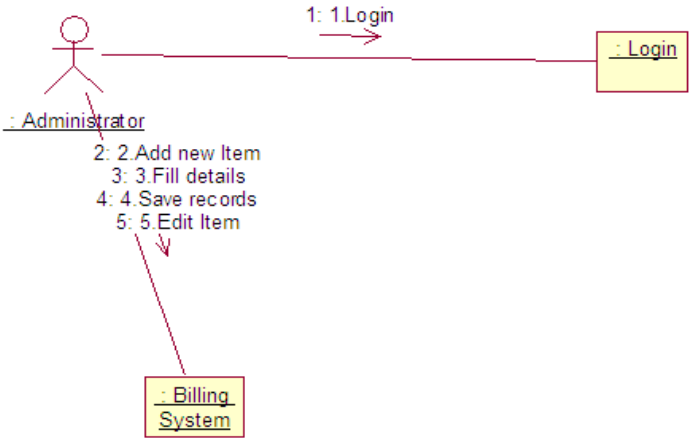

Figure 4.2: Collaboration diagram for add item

The Figure 4.3 shows the Collaboration Diagram for purchasing the item.
If customer wants to buy any item first he will search that item. If item is available he will check the price of that particular item.If he wants to buy then he will select the item and

purchase it.

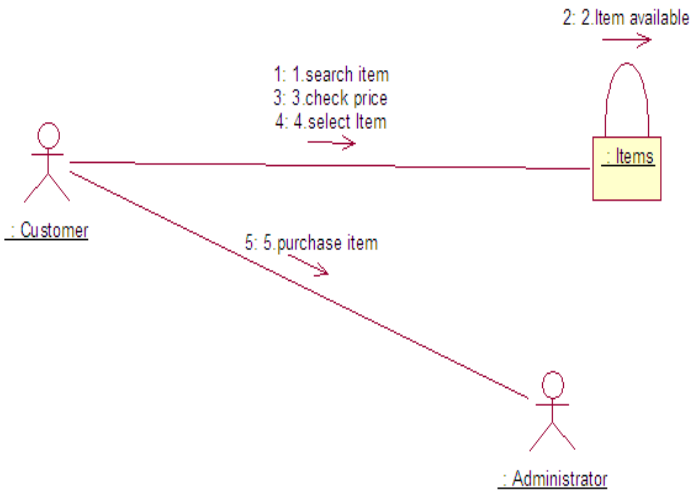

Figure 4.3: Collaboration diagram for purchase item

The Figure 4.4 shows the Collaboration Diagram for making bill.
First administrator select the customer from record and fill their items details. Administrator check the price of that purchased item. The system will calculate the bill and save the records.

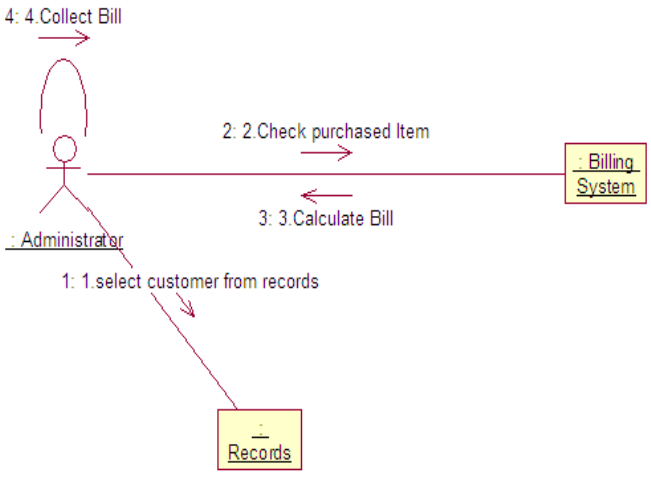

Figure 4.4: Collaboration diagram for making bill

4.2 UML Diagrams

4.2.1 Use-Case Diagram

The Figure4.5 shows the Use Case Diagram for proposed system. It consists of actors like administrator,customer. The use cases in Figure are make account,purchase item,place order,save records,add bill,add item,search customer,maintain catlogs etc . Actors are connected to use cases according to their role in system.

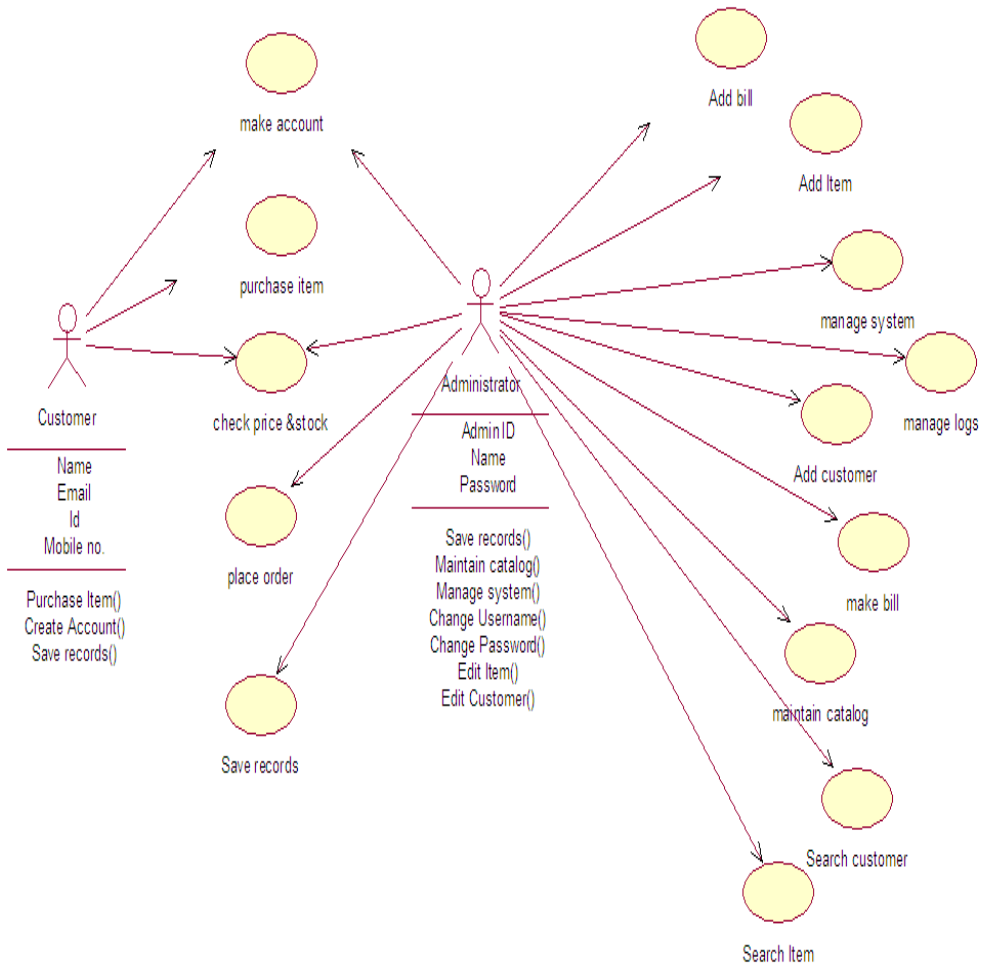

Figure 4.5: Use case diagram for billing system

4.2.2 Class Diagram

A Class diagram is used to represent the static view of the system. It mainly use Classes, interfaces and their relationships. The Figure 4.6, shows the Class Diagram for proposed

system. Administrator has the attributes like Id, name and password and operations are save records, maintain the catalog, maintain records, manage the system change password, change username. Login class has attributes like Id and password. Item number,name,unit are the attributes of the class item. Get price,number of items are operations of the class item.The date and status are the attributes of the class order. Calculate tax, calculate total are the operation of class order. There are also other classes Record, billing system and customer they have their own attributes and operations. And they all are attached to each other with association relation.

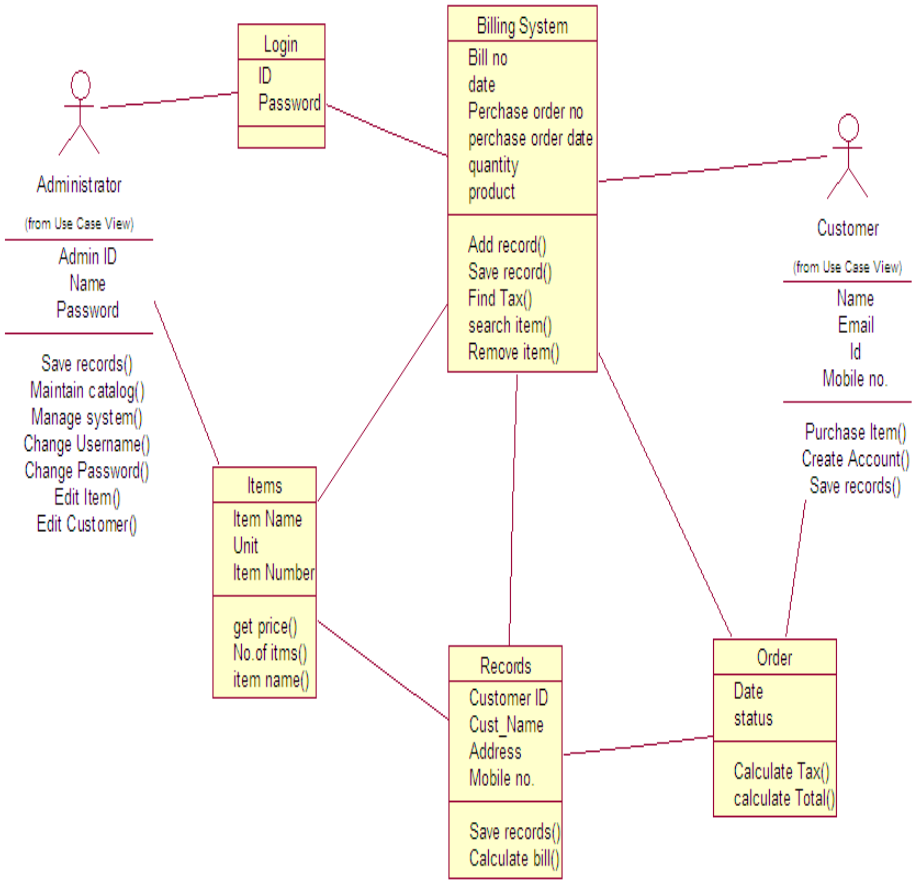

Figure 4.6: Class Diagram of Billing System

The Figure 4.6, consists of classes like login,items,billing system,record,order.The classes are connected with each other according to the association of one to other.

4.2.3 Sequence Diagrams

The Figure 4.7 shows the sequence diagram for adding the customer.

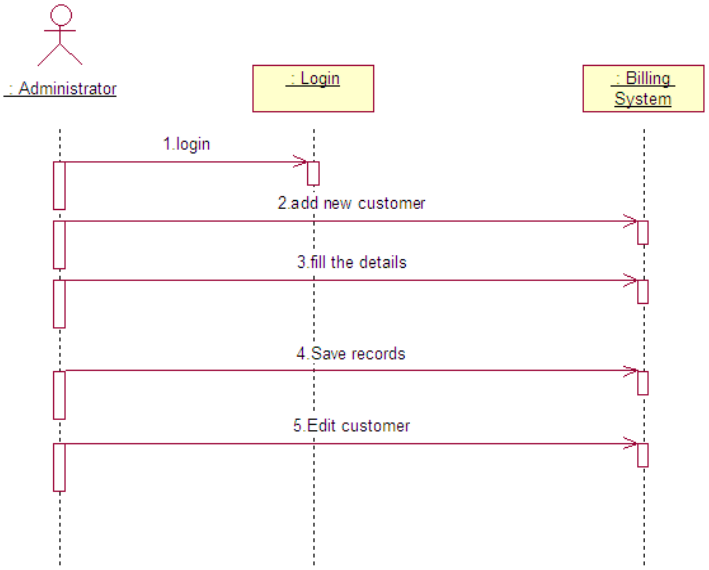

Figure 4.7: Sequence diagram of add or edit customer

The sequence diagram shows the work flow, message passing and how elements cooperate over time to achieve a result.In this sequence diagram the administrator first login into the system. If the customer is new administrator add that customer and fill his detail information and save the record. If administrator wants to edit the any details of customer then modification will be done. The Figure 4.8, shows the sequence diagram for adding items.

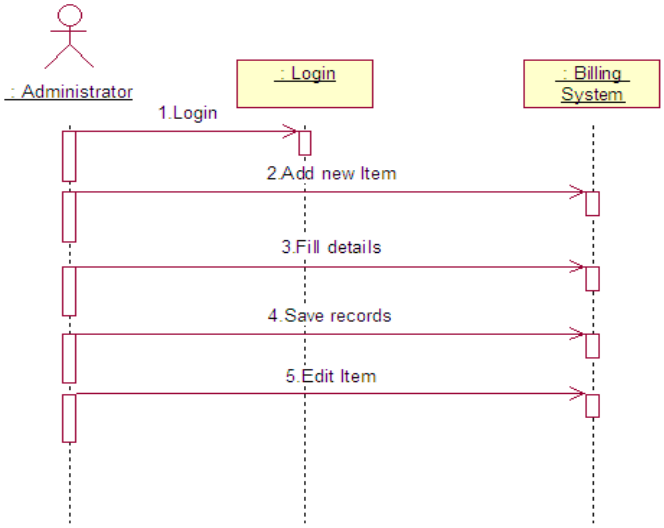

Figure 4.8: Sequence diagram for add item

In this sequence diagram the administrator first login into the system. If administrator want to add new items then fill his detail of item and save the record. If administrator wants to edit the any details of item then modification will be done. The Figure 4.9, shows the sequence diagram for purchase item.

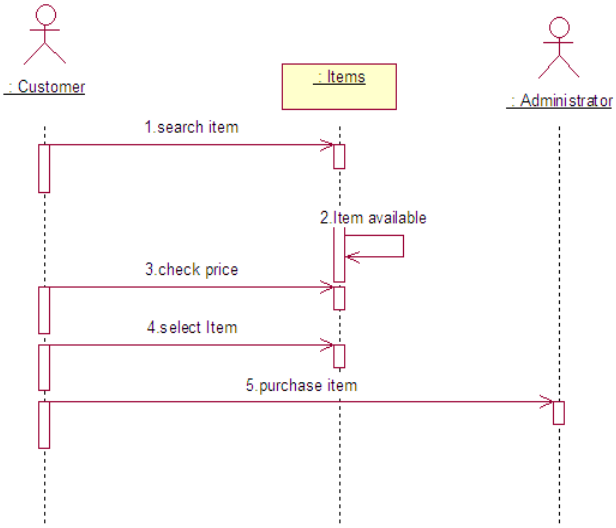

Figure 4.9: Sequence diagram for purchase item

If customer wants to buy any item first he will search that item. If item is available he will check the price of that particular item.If he wants to buy then he will select the item and purchase it.

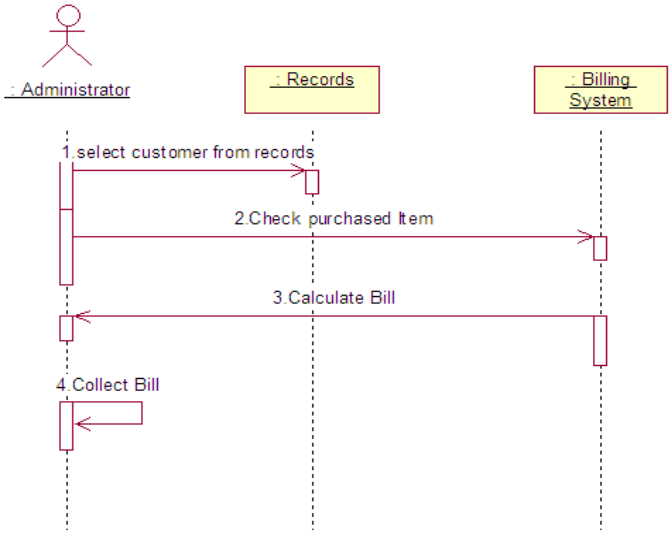

Figure 4.10: Sequence diagram for billing system

The Figure 4.10, shows the sequence diagram for billing system. First administrator select the customer from record and fill their items details. Administrator check the price of that purchased item. The system will calculate the bill and save the records.

4.2.4 Component Diagram

A component diagram shows the organization and dependencies among set of components. These diagrams are used to model static view of the system. The Figure 4.11 shows the component diagram for the proposed system.

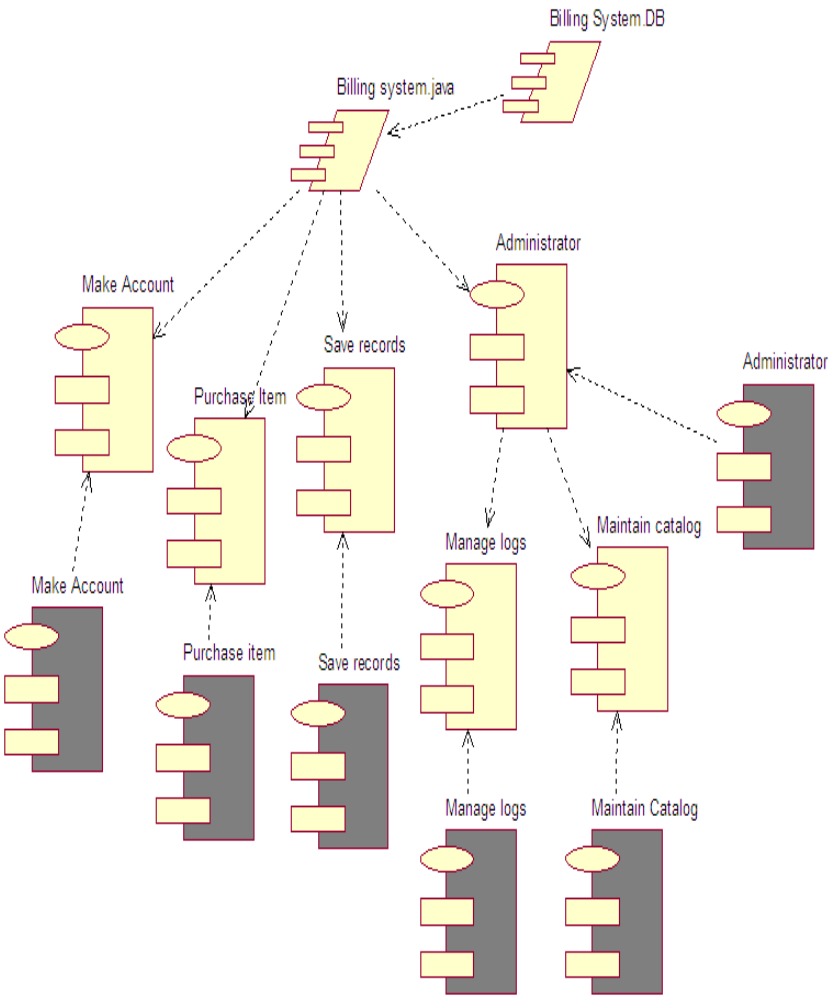

Figure 4.11: Component Diagram of billing system

The component diagram includes various components like the main database-Billing_System.db,sou files Billingsystem.java,and the files including Additem.java,Addcustomer.java.Then the object files such as Addcustomer.obj, Billing.obj,Additem.obj,etc.

4.2.5 Deployment Diagram

A deployment diagram represents the configuration of run time processing nodes and the components that live on them. The Figure 4.12 shows the deployment diagram for system.

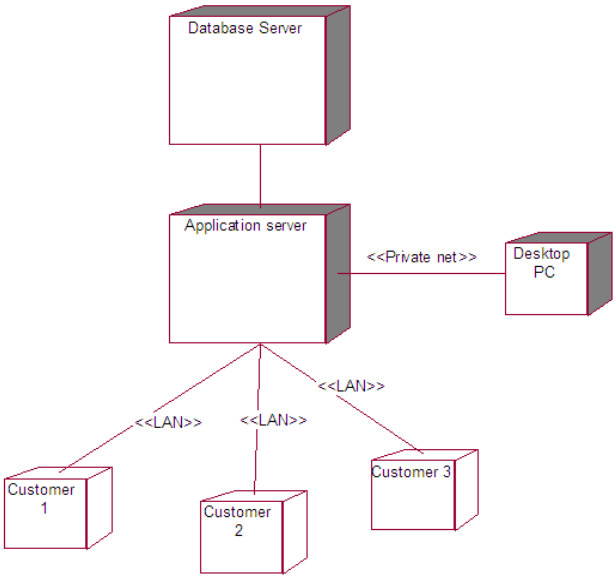

Figure 4.12: Deployment Diagram for billing system

Deployment diagrams includes various nodes such as database server,application server,PC,custome server and PC is in private net while application server and customers are in Local Area Network.

4.2.6 Summary

This chapter includes various UML diagrams which shows the overall design of project. The next chapter describes the Implementation of the System.

Chapter 5

Implementation

Important phase in system development is the successful implementation of the new system design. Implementation includes all those activities that take place to convert from the old system to the new system..

This chapter is elaborated in following sections: Section 5.1 describes the Implementation Details. Section 5.2 explains the Flow of system in development.

5.1 Implementation Details

The application is Windows based,as Windows is more user friendly than other operating systems.The code is written in Java as Java is easily understandable.The database in created in Microsoft Access.Connectivity between database and Java source code is provided with the help of JDBC.Source code is developed using NetBeans,also one can use JCreator and latest versions of Eclipse.

All the details are stored into appropriate database. The functionality of the proposed system includes the following: Customer information, Item information and billinng information. The administrator can find relevant data in each module itself .He/she can modify, delete, update, view, or insert new data as when required. Performing these tasks is a very simple task in the product and the administrator can do it quite easily. The database is connected dynamically to front-end so that any changes made to database are immediately reflected to the administrator.

5.2 Work Flow

1. Create database on any drive.

2. Open control panel -administrative tools-Data source(odbc).

3. Click add button then click on Microsoft Access Driver(.mdb,.accdb).

4. Click Select then choose drive where is your database.

5. Select Billing_System

6. Then give name as Billing_System and press OK button.

7. Install Java and NetBeans.

8. Now run the project.

5.3 Summary

This chapter explains Implementation details of the project like Implementation Environment and Flow of System. The next chapter contains the discussion of system.

Chapter 6

Discussion

It takes lot of time in calculating the bills manually.It is really hectic and irritating job for the owner/administrator.Also it can be difficult to maintain the records on paper.So the billing system application can overcome problems and helps the administrator to calculate bills and maintain records easily and much faster.

This chapter includes discussion of the overall system.Section 6.1 elaborates the advantages of the system.Diadvantages are discussed in section 6.2 while the section 6.3 includes applications.

6.1 Advantages

1. The system reduces much of the human efforts in calculating bill especially for huge product.
2. The system saves money and resources of organizations and excludes of use of paper or sheets in market bill.
3. It can detect the Product information and their price instantaneously using billing technology.
4. It can be done faster with the large number of softwares.
5. It saves time.
6. It provide accuracy and faultless in billing calculations.
7. The system is designed having attractive Graphical User Interface and with detailed description.
8. It is flexible and user-friendly.

6.2 Disadvantages

1. If the data is in huge number then the file size is huge.
2. It require large database.
3. If this technique is gone in the wrong hands then this can be lossy to the administrator.

6.3 Applications

- It will help the admin in fast billing.
- It enable administrator to maintain a great database of all customers visited and purchase item from cafeteria.
- It will enable to see report regarding item.
- It is easy to maintain in future prospect.

6.4 Summary

The chapter includes discussion of system.And in the next chapter conclusion and future scope is discussed.

Chapter 7

Conclusion and Future Scope

The system reduces much of the human efforts in calculating bill especially for huge product.It is easily understandable to everyone as it has attractive GUI.So the objective of reducing time in calculating bills is fulfilled.The application can be easily implemented.Anyone can afford it.User friendly environment is provided by the application.

This application will help the administrator in fast billing.One can also use finger print scanner or biometric device to make the system more secure.This project enable administrator to maintain a great database of all customer visited and purchase item from cafeteria.Project will enable to see record regarding item and category.It is easy to maintain in future prospect.

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