A Project/Dissertation Review-1 Report

on

Digital Sale Point

Submitted in partial fulfillment of the
requirement for the award of the degree of

B.Tech (CSE)

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Under The Supervision of
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Abstract

The **Digital Sale Point** or **point of purchase** (**POP**) is the time and place where a retail transaction is completed. At the point of sale, the merchant calculates the amount owed by the customer, indicates that amount, may prepare an invoice for the customer (which may be a cash register printout), and indicates the options for the customer to make payment. It is also the point at which a customer makes a payment to the merchant in exchange for goods or after provision of a service. After receiving payment, the merchant may issue a receipt for the transaction, which is usually printed but can also be dispensed with or sent electronically.

This project entitled "**Digital Sale Point**" is an attempt to create an electronic Point of Sale system which is a self-contained computerized equipment that performs all tasks of a store check counter like payments, transaction verifications, report generation, inventory management and other day-to-day operations in a simplified and optimized fashion. It enables retailers to carry out day-to-day operations in a simplified and optimized fashion. The systems simplify the manner in which sales transactions are generated, inventory is tracked, new inventory is ordered. Overall, the systems enable the retailer to manage complete in-store operations to improve the customer experience, extend operational efficiencies, and maximize profits. Point-of-sale capabilities include fulfilling and returning web-generated orders and purchases, accessing cross-store inventory to save the sale, and enhancing the consumer experience with functionalities such as loyalty programs, and convenient emailed receipts.

HARDWARE AND SOFTWARE REQUIREMENTS

HARDWARE REQUIREMENTS:

The hardware requirements listed below are almost in a significantly higher level which represents the ideal situations to run the system. Following are the system hardware requirements used :

Processor   -   Pentium –III

Speed   - 1.1 GHz

RAM   - 256 MB (min)

Hard Disk   - 20 GB

SOFTWARE REQUIREMENTS:

A major element in building a system is a section of compatible software since the software in the market is experiencing in geometric progression. Selected software should be acceptable by the firm and the user as well as it should be feasible for the system. This document gives the detailed description of the software requirements specification. The study of requirement specification is focused specially on the functioning of the system. It allows the analyst to understand the system, functions to be carried out and the performance level which has to be maintained including the interfaces established.

Operating System   - WindowsApplication Server - Tomcat

Front End   - HTML, Java, Jsp

Scripts   - JavaScript.

Server side Script   -   Java

Server Pages.Database   - Mysql

Database Connectivity   - JDBC.

List of Tables

1. Product

Field Name	Field Type	Field Length	Constraints	Default Values
productId	Number	10	Primary Key	'auto generated'
productName	Varchar2	10	-	-
productPrice	Number	10	-	-
productDescription	Varchar2	7	-	-
productCategory	Varchar2	7	-	-
manufacturingDate	Date	20	-	-
expirationDate	Date	20	-	-

2. Customer

Field Name	Field Type	Field Length	Constraints	Default Values
customerId	Number	10	-	'auto generated
customerName	Varchar2	10	-	'-
emailId	Varchar2	20	-	-
mobileNo	Number	2	-	-

3. Product_Order

Field Name	Field Type	Field Length	Constraints	Default Values
Prod_ID	Number	10`	Primary Key	'auto generated'
Prod_Name	Varchar2	20	-	-
Prod_Category	Varchar2	20	-	-
Prod_Description	Varchar2	20	-	-
Amount	Number	5	-	-
Order_Unit	Number	10	-	-
Prod_Price	Number	(20,2)	-	-
manufacturingDate	Date	(20,2)	-	-
expirationDate	Date	20		-
Product_Detail	Number	10	References Bill (Bill id)	'auto generated'

4. Bill

| Field Name	Field Type	Field Length	Constraints	Default Values
Bill_Id	Number	10	-	'auto generated
Customer_Id	Number	10	-	'-
emailId	Varchar2	20	-	-
Order_Status	Varchar2	2	-	-

List of Figures

Flow Diagram

```
                          ┌─────────┐
                          │  Login  │
                          └────┬────┘
                               │
          ┌────────────────────┴───────────────────┐
          │                                         │
┌──────────────────┐                      ┌──────────────────┐
│ EPOS Administrator│                      │   Administrato   │
└──────────────────┘                      └──────────────────┘
          │                                         │
                                     ┌───────────────┴──────────────┐
  ┌───────────┐                      │                              │
  │  Product  │              ┌──────────────┐           ┌───────────────────┐
  └───────────┘              │  Employee M  │           │ Report Generation │
        │      ┌─────────┐   └──────────────┘           └───────────────────┘
        ├─────▶│   Add   │          │                            │
        │      └─────────┘          │   ┌──────────────┐         │   ┌───────────┐
        │      ┌─────────┐          ├──▶│  Add Employ  │         ├──▶│   Store   │
        ├─────▶│ Update  │          │   └──────────────┘         │   └───────────┘
        │      └─────────┘          │   ┌──────────────┐         │   ┌───────────┐
        │      ┌─────────┐          ├──▶│ Reset Passwor│         ├──▶│   Stock   │
        └─────▶│  View   │          │   └──────────────┘         │   └───────────┘
  ┌───────────┐└─────────┘          │   ┌──────────────┐         │   ┌───────────┐
  │   Store   │                     ├──▶│    Updat     │         ├──▶│   Sale    │
  └───────────┘                     │   └──────────────┘         │   └───────────┘
        │      ┌─────────┐          │   ┌──────────────┐         │   ┌───────────┐
        ├─────▶│   Add   │          └──▶│     View     │         ├──▶│ Purchase  │
        │      └─────────┘              └──────────────┘         │   └───────────┘
        │      ┌─────────┐                                       │   ┌───────────┐
        ├─────▶│ Update  │                                       └──▶│Profit/Loss│
        │      └─────────┘                                           └───────────┘
        │      ┌─────────┐
        └─────▶│  View   │
  ┌───────────┐└─────────┘
  │ Supplier  │
  └───────────┘
        │      ┌─────────┐
        ├─────▶│   Add   │
        │      └─────────┘
        │      ┌─────────┐
        ├─────▶│ Update  │
        │      └─────────┘
        │      ┌─────────┐
        └─────▶│  View   │
  ┌───────────┐└─────────┘
  │ Purchase  │
  └───────────┘
        │      ┌─────────┐
        ├─────▶│  Order  │
        │      └─────────┘
        │      ┌─────────┐
        ├─────▶│ Payment │
        │      └─────────┘
        │      ┌─────────┐
        └─────▶│ Return  │
  ┌───────────┐└─────────┘
  │ Transfer  │
  └───────────┘
        │      ┌─────────┐
        ├─────▶│ Transfer│
        │      └─────────┘
        │      ┌─────────┐
        └─────▶│  View   │
  ┌───────────┐└─────────┘
  │  Offer    │
  └───────────┘
        │      ┌─────────┐
        ├─────▶│   Add   │
        │      └─────────┘
        │      ┌─────────┐
        └─────▶│ Update  │
  ┌───────────┐└─────────┘
  │  Stock    │
  └───────────┘
```
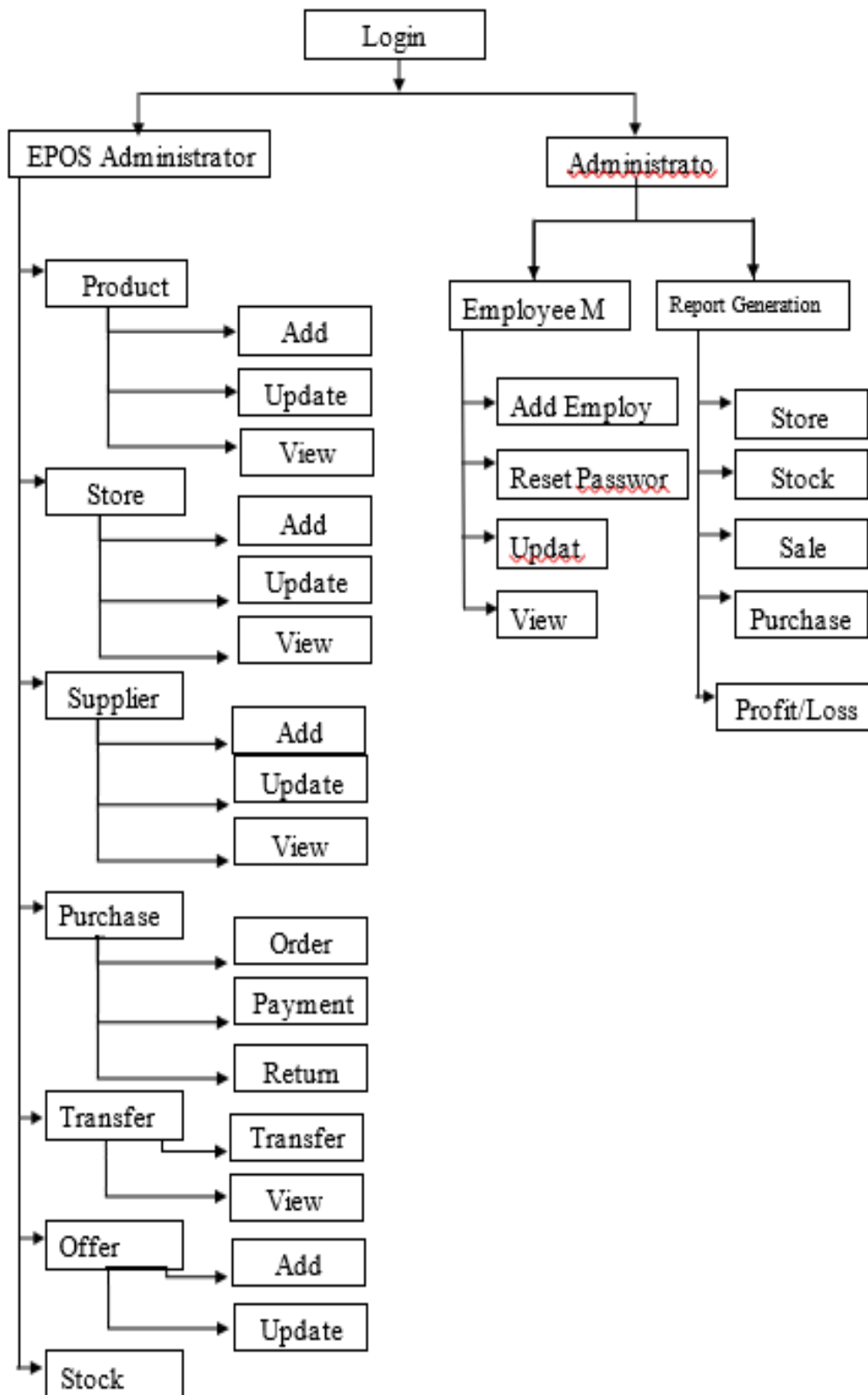
Use Case Diagram
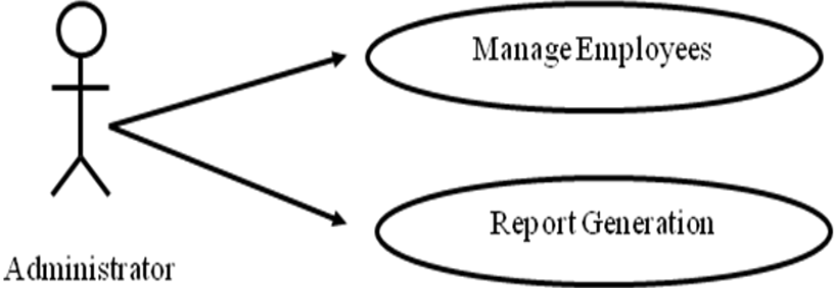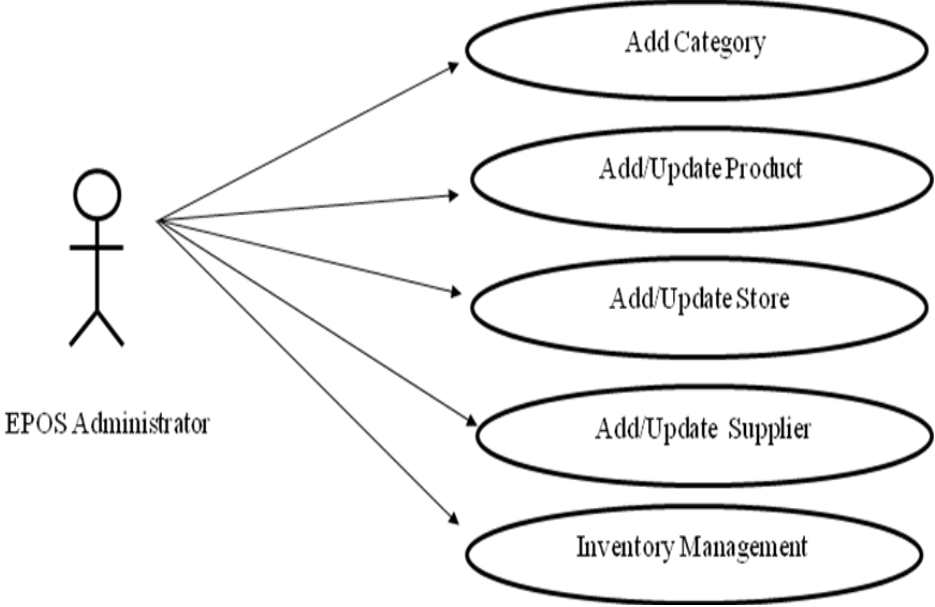
Use Cases Description:

1. Add product

Purpose -
   This use case describes how the system allows various management actions to be performed on products existing in the inventory. These include adding, viewing and updating products in the stock.

Actors -
   POS Administrator.

Preconditions-
   POS Administrator should be logged in.

Post Conditions-
   EPOS Administrator adds/updates the information of product in database.

Basic flow
Add New Product :
•   The user navigates to Add new Product in the EPOS products in the POS product link on the POS Administrator home screen.
•   The system displays the product form.
•   The user enter the details of the new product.
•   On clicking the Save button, the validated data is updated to the database.

2. Order

Inventory Management

Purpose

This use case describes how the system provides a categorized way of viewing and addition of stock, transferring stock to various stores and making payment to the supplier

Actors

POS Administrator

Preconditions

Administrator should be logged in.

Post Conditions

EPOS Administrator   adds   the   information in database.

Basic flow

Order New Product:

• 	The user navigates to Order New Stock in the Purchase link on the POS Administrator home screen.

• 	The user selects the Product and then and quantity which are to be ordered.

• 	The user then clicks the order button to order the products.

Payment :

• 	The user navigates to Payment in the Purchase link on the EPOS Administrator home screen.

• 	The user selects the transfer id.

• 	The system displays the order details corresponding to the transfer id.

• 	The received quantity and minimum stock level is set and the payment is done.

3. 	**Report Generation**

Purpose

This use case describes how the system provides a categorized way of viewing and generating various types of reports. The various types of reports are sales report, purchase report, store report, profit and loss report and stock report. The user has the option of printing the reports as well.

Actors

Administrator

Preconditions

Administrator should be logged in.

Post Conditions

Reports Are Generated.

Basic flow

- User clicks on Report link in the Administrator Home Screen.

- The user selects the type of report which is to be generated.

- The user then selects the period for which the report is required.

- The corresponding report is then generated.

Alternate flows

- On cancellation the user is redirected to the home screen.

- In case of error, a message denoting the error is displayed

Architecture Diagram

Web

Controlle

Servlet/JSP

HTTP
REQUE

HTTP
RESPON

JS
P

Vie

Bean

Model

Topic/Queu

EJ

MDB

Databas
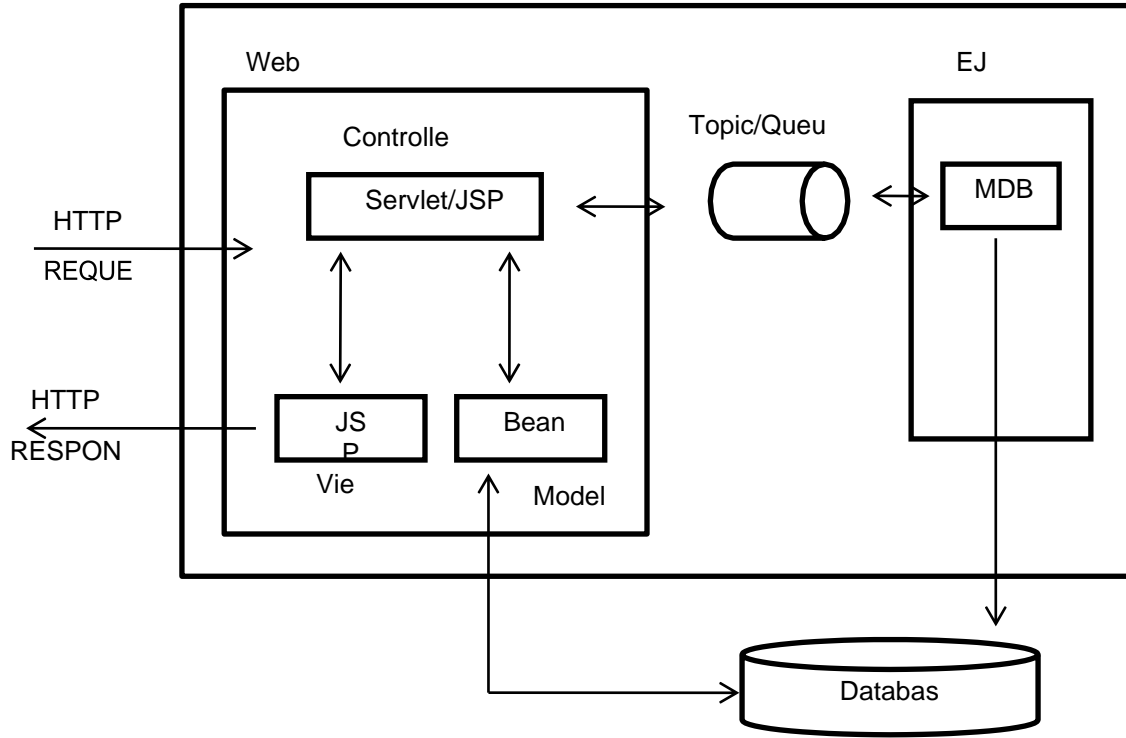
Diagram

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CHAPTER-1
Introduction

This project entitled "**Digital Sale Point**" is an attempt to create an electronic Point of Sale system which is a self-contained computerized equipment that performs all tasks of a store check counter like payments, transaction verifications, report generation, inventory management and other day-to-day operations in a simplified and optimized fashion. It enables retailers to carry out day-to-day operations in a simplified and optimized fashion. The systems simplify the manner in which sales transactions are generated, inventory is tracked, new inventory is ordered. Overall, the systems enable the retailer to manage complete in-store operations to improve the customer experience, extend operational efficiencies, and maximize profits. Point-of-sale capabilities include fulfilling and returning web-generated orders and purchases, accessing cross-store inventory to save the sale, and enhancing the consumer experience with functionalities such as loyalty programs, and convenient emailed receipts

Problem Statement

Sale is the most important and essential function for the existence of the Retail Business. A Retail Management System is needed that can handle every EPOS and management operations with a challenge. The system should accept various currencies and the balance will have to be paid either in the same currency, or in US $ or in INR. Prices are fixed taking US $ as base currency, for payment to suppliers. Record of sales must be kept impeccably. The System should allow generation of various reports likes sales or stock report.

Proposed Solution

After the rigorous study of the problem statement and the retail domain we come to solution that this application should be a complete web sale system that performs the functions of automating the usual working process of an retail company. It should allow to keep track of customers, supplier, product, employee and inventory. The system should also be flexible enough to add offers and discounts for various products. The system must accept payments by cash or credit cards or points. Moreover it should allow customer to exchange products within 7 days of billing. It provides sales reports, coordinates inventory data and generate reports based on various perspective. Overall, the systems enable the retailer to manage complete in-store operations to improve the customer experience, extend operational efficiencies, and maximize profits. This system allows the user to see the data they need in real time anywhere. The application will be divided into four modules on the basis of types of users.

- Customer Sales Representative Module

- Store Manager Module

- EPOS Administrator Module

- Administrator Module

The Modules that I will be working on are:

Module I- Administrator -: The Administrator primarily has two roles. He is responsible for addition and updating of employees in the various stores. Moreover he can reset password of any account as per requirement. The other is able to create various reports likes sales or purchase etc which helps to take strategic decisions.

Module II- EPOS Administrator-: A EPOS Administrator is responsible for the overall backend support of the application. He is responsible for the complete inventory and stock management. He is able to add new stores and transfer stock to the respective stores. The EPOS Administrator adds new supplier and orders new stock and is responsible for payment to the supplier. The EPOS Administrator receives messages from various store managers when they have low stock at the stores.

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Methodology

The Quantitative Research approach was utilised in this study. Data was generated in quantitative form so as to subject it to quantitative analysis. The data was collected using a self-administered questionnaire with close-ended type questions. The questionnaire was administered to 32 SMEs and 30 complete questionnaires were returned representing a 93.75 response rate. The respondents were selected using purposive sampling. The questionnaires were analysed using descriptive statistics .

Functionalities for Admin
1. Admin should be able to perform Login and Logout.

After Login Admin will be able to perform below operations
Product Management
- • Add a new Product
- • View Product by Productid and view all Products in tabular format

Order Management
- • View submitted customer Orders
- • Change the Order status from pending to dispatched.
- • Generate reports for all sold products group by product category.

Functionalities for Customer
- • Search available Products
- • Only registered Customer are allowed to place an order initial order status will be pending.
- Once order is placed system should generate bill: a. Product list along with unit product price, number of units, total amount of the product as row of the bill.
- b. Total bill amount.
- c. System generated bill date & time.
- d. Amount must be in $ and Bill must contain Infogain as @Copyroght Infogain Training

- • Customer should be able to track order with orderId and emailId of the customer
- Customer dashboard should contain below options: • Place Order

- Track order with orderId

CHAPTER-2

Literature Survey

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Literature Review
Point Of Sale System Definition A point of sale (POS) can be generally defined as a point at which a sale is made, the ownership (and usually the possession) is conveyed from the retailer to the buyer, and indirect taxes (such as VAT) become payable. A point of sale is, commonly, a retail outlet. Kim & Kim (2007) define a point of sale system as a "supply net administration system for customer management" which delivers real time control of merchandise in stock and sale analysis. According to Ellram, et al. (1999), POS systems deliver valuable, near-real-time information on sales, such a system can be used to update inventory stock status and generate purchase orders as needed. POS systems can make effective use of consumer's sale data which is essential to introduce Customer Relationship Management (CRM) and Supply Chain Management (SCM)

According to Kim & Lim (2011) there are a number of POS system categories. A typical POS system comprises of several client computers connected through privately owned connection lines, such as the electronic data exchange (EDI), with local servers at one or more stores (Figure 1). The server runs all data processes for these on-line POS systems, while the client computers provide the userinterface operations. Stemming from this strong, server-dependent design is the need to maintain the connection between the server and the clients throughout the processing of a sales transaction as disconnection will result in data loss and force the client(s) to suspend all transactions (sales/entries) until the link is re-established. Subsequently, in this type of POS system, disconnection from the server can be a major hazard, and small business owners, who are vulnerable to the frustrations of their customers, may have to bear the expense of having an in-house server at each store location.
.
 Information Systems According Krismiaji (2015), the information system is an organized way to collect, add, process, and store the data so that the group / organization can achieve its objectives

   A. Accounts
   According to Laudon (2014), Information Systems is a set of interrelated components that collect, process, store, and distribute information to assist in decision-making and business management
  B. **Sales**
       Sales is comprised of the sale of goods or services, either in cash or in the form of credits . Sales is the activity of trade in goods and services to customer
  C. **Point of Sales**
       (POS) Point of Sales or simply called POS, it can be defined as software that records sales transactions. Before the POS system is developed, many people use a cash register, or even manually, to manage their business. But the teller machine function itself is no longer sufficient, so that POS has been developed .

Conclusion

The project report thus, thoroughly reviews the process of engineering the modules Module I-Administrator and Module II- EPOS Administrator of the EPOS. It comprehensively covers the requirement analysis, followed by a EPOS. It comprehensively covers the requirement analysis, followed by a meticulous coverage of each aspect of the design level, relevant to the modules. It then records the testing process conducted on each of the modules, covering all features of a store check counter like, payments by cash or credit cards, transaction verifications, sales reports, inventory management and several other services.

With the constant constraint checking, there is less chance of entering wrong information up to 70-80 per cent. The whole access has been given to the administrator which ensures proper security. The report generation mechanism helps the administrator in creating various types of reports .
 The design of the front end has been done keeping in mind the novice users. The project helped us to work on JAVA technology and provided an insight into the capabilities of this technology. The projects also lead to the understanding as to how the principle of the software development life cycle is followed. One very important experience that we gained was the constant monitoring of the problem statement while making the project and to make sure that the project was leading in the right direction and whether whatever we have done is in accordance with what is needed.

Concluding this document, I would like to thank all those who helped me directly or indirectly during my training and make this transition from academics to the industries, a smooth and knowledgeable one.
It is expected that the new developed software would resolve the problem of data duplicity and redundancy to a much greater extent and hence, user can come up with separated and isolated data. The front end, JAVA, being platform independent is more user friendly than the C interface.