

# CERTIFICATE

BILLING MANAGEMENT SYSTEM

Sr. No. <b>364</b>	Roll No. 10
<b>SKILL TRAINING CENTRE</b> (GNE CAMPUS) <b>A Self Finance Scheme of NSET</b> Gill Park, Gill Road, Ludhiana-141006, Punjab (INDIA)	
<b><u>TRAINING CERTIFICATE</u></b>	
This is to certify that	Gursimar Kaur
Son / Daughter of	S.Amarjit Singh
Mother's Name	Smt.Tarandeep Kaur
Address	H.No. 179, Block-V, Sikandri Road, Khud Mohalla Ludhiana
has successfully completed the training in	Python
held from	03/06/2019 to 15/07/2019
Date of Issue	16/07/2019
Prepared by	P.P.
Checked by	H.P.
	Trainer
	Training Coordinator

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(Gursimar)

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# CHAPTER 1. INTRODUCTION TO COMPANY

## 1.1 SKILL TRAINING CENTRE (STC GNDPC)

Guru Nanak Dev Polytechnic College, was established by Nankana Sahib Education Trust in 1953 and then Guru Nanak Dev Engineering College in 1956. Both the colleges are spread over in an area of 88 acres in an ideal surroundings on Ludhiana- Malerkotla Road at a distance of 10 kms from railway station and 5 kms from bus stand.

Ludhiana is thickly populated industrial city. There is a vast scope of employment. With the result Nankana sahib Education Trust established Skill Training Centre in 1985-1986 sparing 2 acres land in the campus of Guru Nanak Dev Polytechnic College, Ludhiana providing well quipped workshop labs of 50'x30; sizes with an independent Admin block. This campus is also laid out beautifully with well-planned lawns, playgrounds and solar systems etc. Its guest house really presents charming situation furnished with all types of facilities.

## **CHAPTER 2. INTRODUCTION TO PROJECT**

### **2.1 OVERVIEW**

In this day and age, technology is bringing major changes to every sector. If you are running a company then you might be in search of ways to streamline your billing process. One of the best ways to do that is by opting for a billing management software. It helps you to make the whole process of billing in your organization quite easy and enables you to focus on other parts of your organization. This really helps you to focus more on your production and process management which leads to the growth of your business.

Now, the first question that you might have in your mind is how you can choose the best bill management tool for your company. Frankly speaking, it is not a cake walk when it comes down choosing a particular bill management software for your company. The reason for that is you have got an enormous amount of choice which can sometimes make you baffled. That is why you must be looking for ways to make sure that you are getting the right billing management tool for your company otherwise you could be in for a lot of trouble. Also, if you choose the wrong software, you might be facing loss in your business which you just cannot afford.

### **2.2 EXISTING SYSTEM**

Many sellers go for handwritten system to make bills that is time consuming process. On the other hand some go for software today but the main thing is interface that helps user to interact easily with the system if that interface is difficult to use that makes the software complex then that is not easy for the non-technical person to interact with system easily .So the main thing in the already made system is that all the options and functions opened in the same window no tabs provided here that is not in our system.

#### **LIMITATIONS OF EXISTING SYSTEM**

1. Time Consuming
2. Interface



## 2.3 USER REQUIREMENT ANALYSIS

Prior to the software development efforts in any type of system it is very essential to understand the requirements of the systems and users. A complete specification of the software is the 1st step is the analysis of system. Requirements analysis provides the designer with the representation of functions and procedures that can be translated into data, architecture and procedural design.

The goal of requirement analysis is to find out how the current system is working and if there are any areas where improvement is necessary and possible. This may result in using alternative ways to data capturing and processing.

### INTERFACE REQUIREMENT

#### 1. User Interface

The package must be user friendly and robust. It must prompt the user with proper message boxes to help them perform various actions and how to precede further the system must respond normally under any in out conditions and display proper message instead of turning up faults and errors.

#### 2. Hardware Specification

### HARDWARE REQUIREMENTS:

The system must have the following hardware requirements:

- Pentium IV Processors
- 2 GB of RAM
- Hard Disk(2 GB or more)

### SOFTWARE REQUIREMENTS:

The system must have the following software requirements:

- Language used: Python

- Pycharm(IDE)
- MySql Database

## 2.4 FEASIBILITY STUDY

The objective of feasibility study is to determine whether or not the proposed system is feasible. The feasibility is determined in terms of four aspects. These are:-

### 1. Technical Feasibility

In this, one has to test whether the system can be developed using existing technology or not. It is evident that necessary hardware and software are available for development and implementation of proposed system. We acquired the technical knowledge of working in languages, and then only we have started designing our project.

### 2. Behavioral Feasibility

The customers are using different types of peripherals devices. Our system is capable of providing user friendly interface for all devices (Like laptops, mobile phone).

### 3. Economic Feasibility

As a part of this, the costs and benefits associated with the proposed system are compared and the project is economically feasible only if tangible and intangible benefits outweigh the cost. The cost for proposed online shopping system is outweighing the cost and efforts involved in maintaining the registers, books, files and generation of various reports. The system also reduces the administrative and technical staff to do various jobs that single software can do. So, this system is economically feasible.

### 4. Legal feasibility

Legal feasibility determines whether the proposed system conflicts with legal requirements, e.g. the Data Protection Act. It will be done by some legal advisors.

## **2.5 OBJECTIVES OF PROJECT**

The project will solve the following objectives: -

- Add and maintains records of available products.
- Add and maintains customer details.
- Provides convenient solution of billing pattern.
- Make an easy to use environment for users.

## CHAPTER 3. PRODUCT DESIGN

### 3.1 USER REQUIREMENTS

End user features that facilitate the enjoyment of Internet shopping might include the following:

- Users should be able to use the application for any compatible version of windows..
- Transactions should be secure.
- User should be able to generate bills.
- Application visitor should be able to search the database using relevant keywords to identify items of interest.
- Efficient result should be provided with less time complexity.
- The performance of the application should not degrade with an increase in the number of customers or services offered.

### 3.2 DATA FLOW DIAGRAM

In our DFD, we give names to data flows, processes, and data stores. Although the names are descriptive of the data, they do not give details. So the following the DFD, our interest is to build some structured place to keep details of the contents of data flow, processes, and data store. A data dictionary is a structured repository of data about data. It is a set of rigorous definition of all DFD data element and data structure

#### DFD Symbols

In the DFD, there are four symbols,

- 1) **A Square** defines a source (originator) or destination of system data.
- 2) **An Arrow** identifies data flow- data in motion .It is pipeline through which information flows.
- 3) **A circle or bubble** (or a oval bubble) represents a process that transforms incoming data flow(s) into outgoing data flow(s)

- 4) **An open rectangle** is a data store-data at rest, or temporary repository of data.

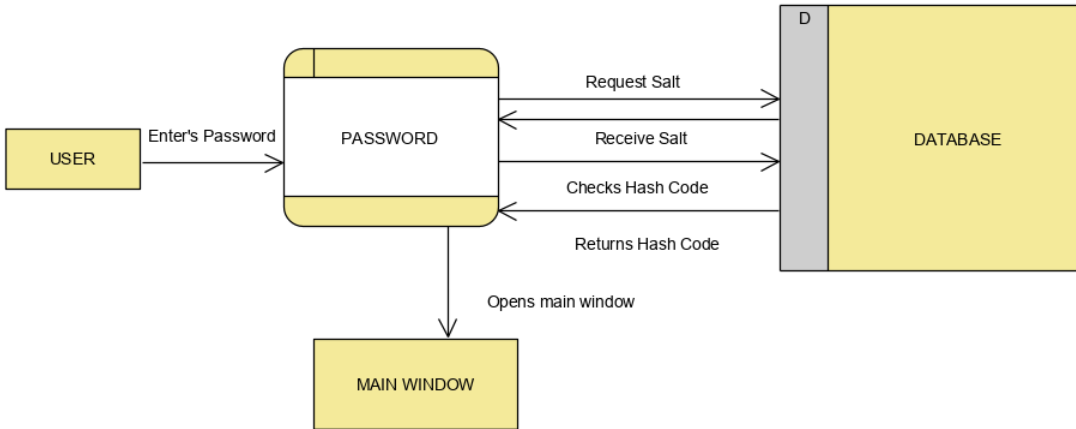


FIGURE 3.1 : Data flow in password verification

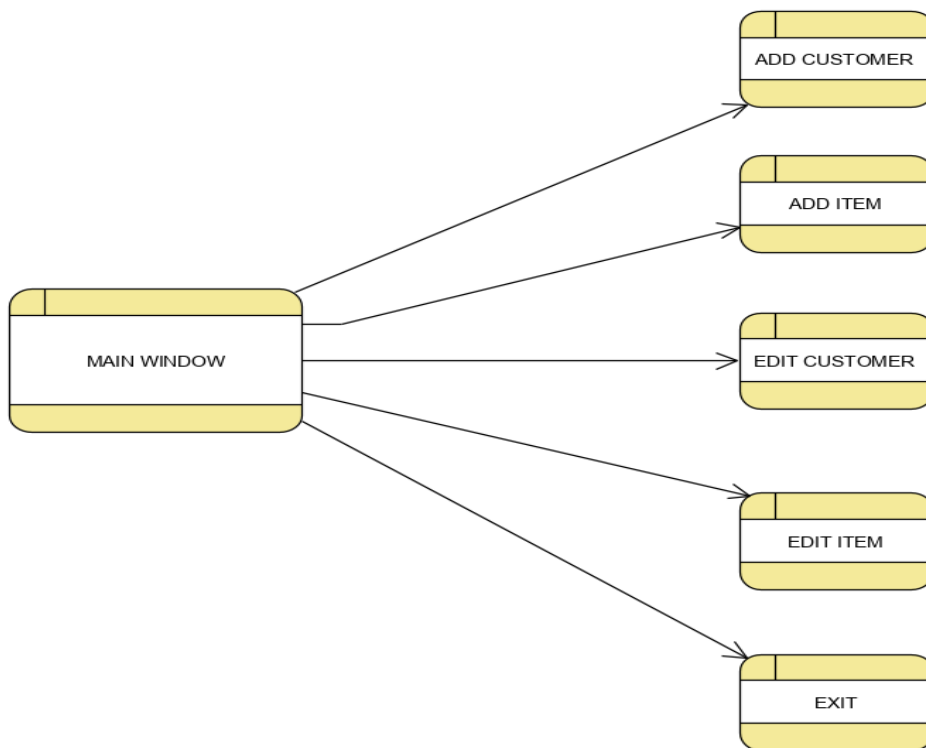


FIGURE 3.2 : Data flow when user selects any option for main page

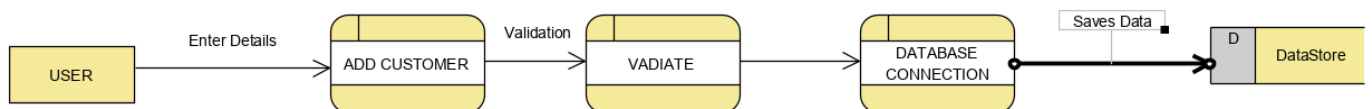


FIGURE 3.3 : Data flow to add a new customer in database

## BILLING MANAGEMENT SYSTEM

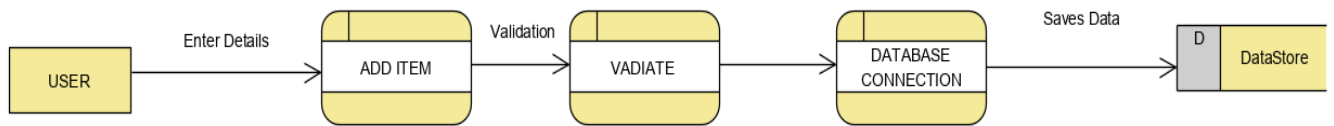


FIGURE 3.4 : Data flow to add a new item

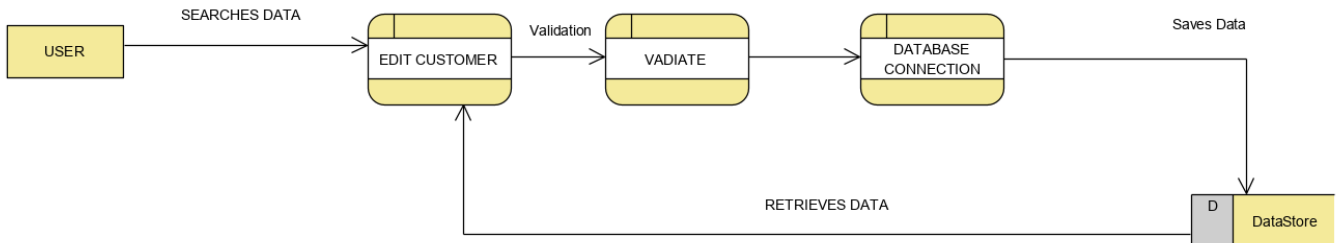


FIGURE 3.5 : Data flow while editing existing customer

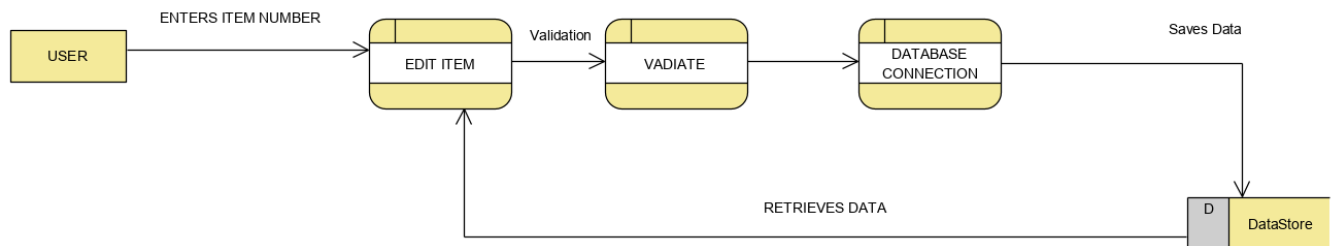


FIGURE 3.6: Data flow for editing existing item

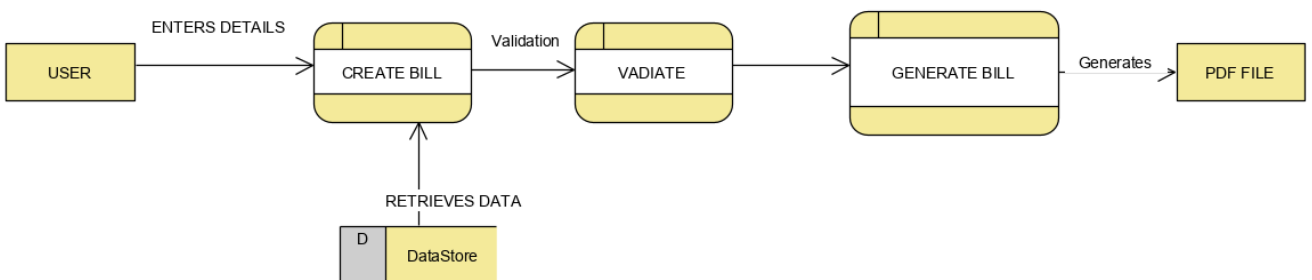


FIGURE 3.7: Data flow for billing

### 3.3 TABLE STRUCTURE

Table 3.3.1. Customers Table

S.NO	NAME	TYPE	DESCRIPTION
1	customer_id	bigint	PRIMARY KEY
2	First_name	Varchar	
3	Last_name	Varchar	
4	Address	Varchar	
5	State	Varchar	
6	City	Varchar	
7	Gst_number	Varchar	
8	addhar_card_number	Varchar	
9	pan_number	Varchar	
8	phone_number	Varchar	

Table 3.3.2. Passwords table

S.NO	NAME	TYPE	DESCRIPTION
1	hash	Varchar	
2	salt	Varchar	

Table 3.3.3 Items table

S.NO	NAME	TYPE	DESCRIPTION
1	Item_id	Varchar	PRIMARY KEY
2	Item_name	Varchar	
3	Price	Varchar	
4	Gst_per	Varchar	Default : None
5	Hsn_code	Varchar	

### 3.4 E-R DIAGRAM

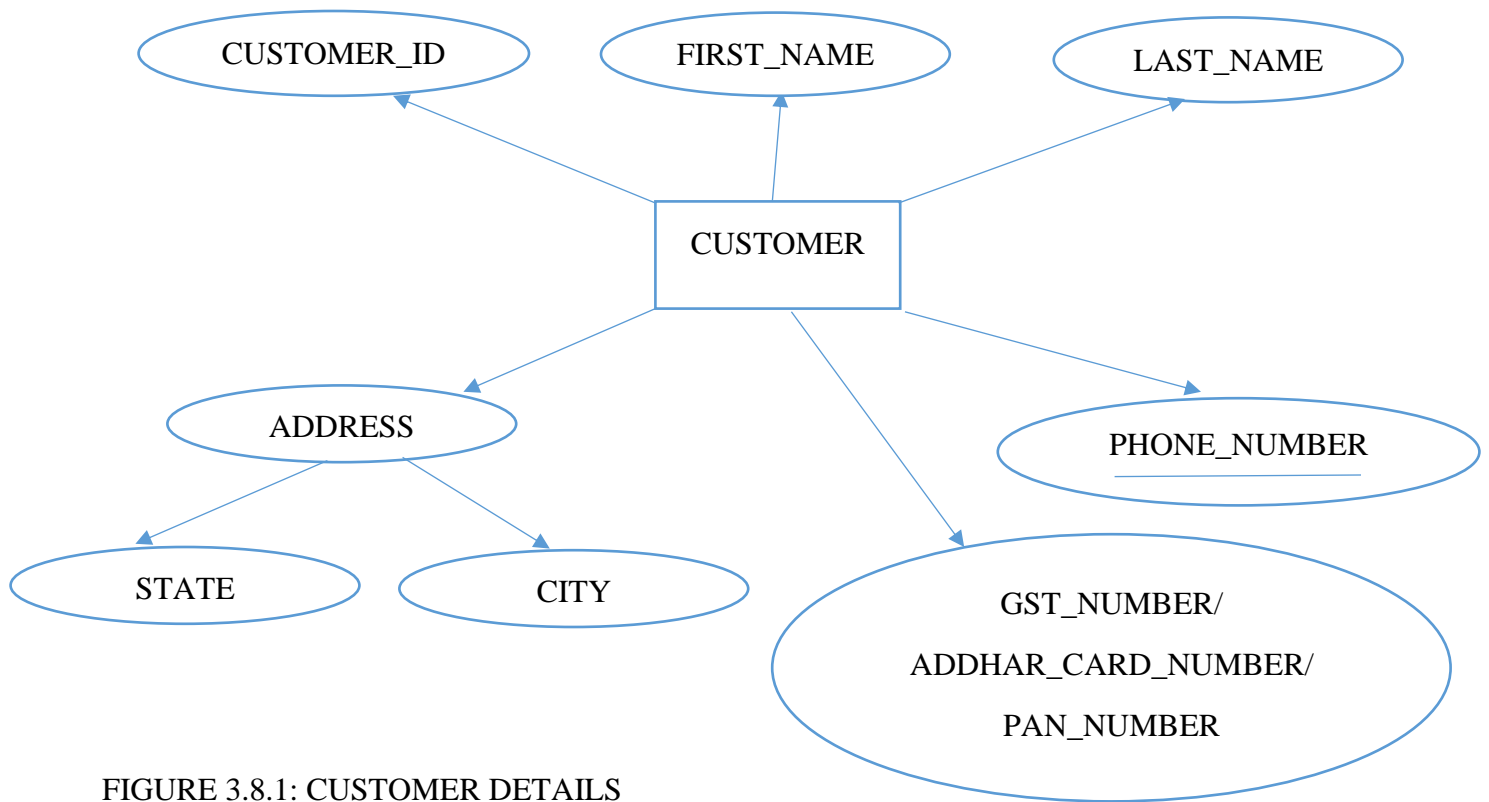


FIGURE 3.8.1: CUSTOMER DETAILS

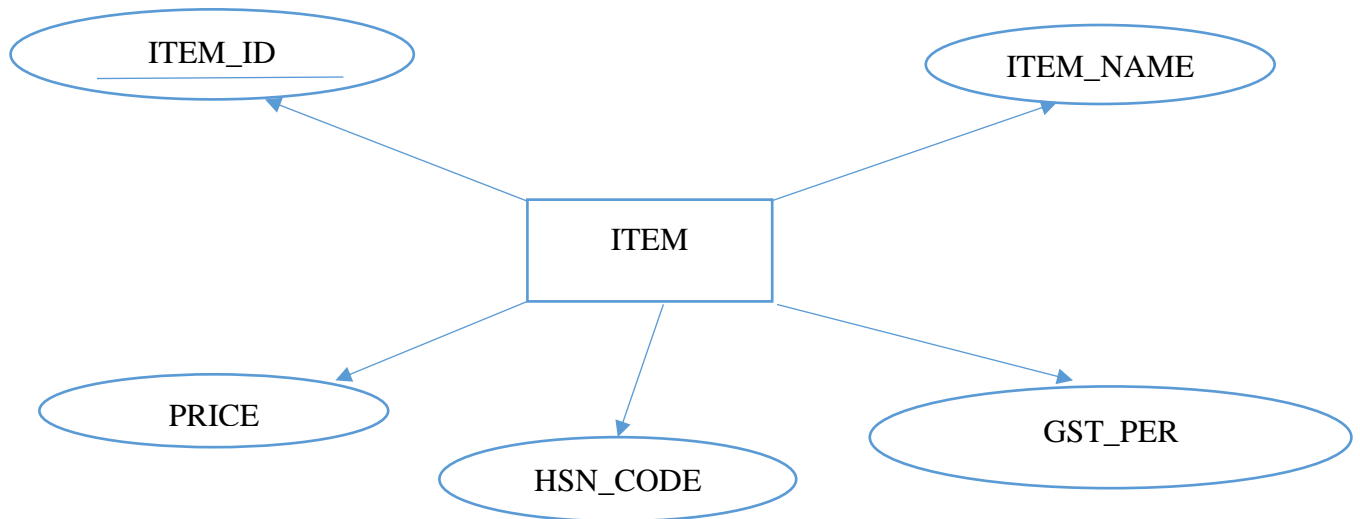


FIGURE 3.8.2: ITEM DETAILS



### **3.5 ASSUMPTIONS AND DEPENDENCIES**

The product does require back-end database server for storing the username, password, and other required information for different types of user and administrator of the system as well as various databases regarding various valuable information. User must be trained for basic computer functionalities. User must have the basic knowledge of English. The system must be able to respond to database software within reasonable time. The System must always be connected to the internet.

### **3.6 SPECIFIC REQUIREMENTS**

Some of the requirements for project are

- Security
- Reliability
- Maintainability
- Portability
- Extensibility
- Reusability
- Compatibility
- Resource utilization

## CHAPTER 4. DEVELOPMENT AND IMPLEMENTATION

### 4.1 INTRODUCTION TO LANGUAGES

#### 4.1.1 PYTHON

Python is an interpreted, object-oriented, high-level programming language with dynamic semantics. Its high-level built in data structures, combined with dynamic typing and dynamic binding, make it very attractive for Rapid Application Development, as well as for use as a scripting or glue language to connect existing components together. Python's simple, easy to learn syntax emphasizes readability and therefore reduces the cost of program maintenance. Python supports modules and packages, which encourages program modularity and code reuse. The Python interpreter and the extensive standard library are available in source or binary form without charge for all major platforms, and can be freely distributed.

Often, programmers fall in love with Python because of the increased productivity it provides. Since there is no compilation step, the edit-test-debug cycle is incredibly fast. Debugging Python programs is easy: a bug or bad input will never cause a segmentation fault. Instead, when the interpreter discovers an error, it raises an exception. When the program doesn't catch the exception, the interpreter prints a stack trace. A source level debugger allows inspection of local and global variables, evaluation of arbitrary expressions, setting breakpoints, stepping through the code a line at a time, and so on. The debugger is written in Python itself, testifying to Python's introspective power. On the other hand, often the quickest way to debug a program is to add a few print statements to the source: the fast edit-test-debug cycle makes this simple approach very effective.

#### 4.1.2. MySQL Database

MySQL is a fast, easy-to-use RDBMS being used for many small and big businesses. MySQL is developed, marketed and supported by MySQL AB, which is a Swedish company. MySQL is becoming so popular because of many good reasons –

- MySQL is released under an open-source license. So you have nothing to pay to use it.
- MySQL is a very powerful program in its own right. It handles a large subset of the functionality of the most expensive and powerful database packages.

- MySQL uses a standard form of the well-known SQL data language.
- MySQL works on many operating systems and with many languages including PHP, PERL, C, C++, JAVA, etc.
- MySQL works very quickly and works well even with large data sets.
- MySQL is very friendly to PHP, the most appreciated language for web development.
- MySQL supports large databases, up to 50 million rows or more in a table. The default file size limit for a table is 4GB, but you can increase this (if your operating system can handle it) to a theoretical limit of 8 million terabytes (TB).
- MySQL is customizable. The open-source GPL license allows programmers to modify the MySQL software to fit their own specific environments

#### 4.1.3. MVC

The **Model-View-Controller (MVC)** is an architectural pattern that separates an application into three main logical components: the **model**, the view, and the controller. Each of these components are built to handle specific development aspects of an application. MVC is one of the most frequently used industry-standard web development framework to create scalable and extensible projects.

##### MVC Components

Following are the components of MVC –

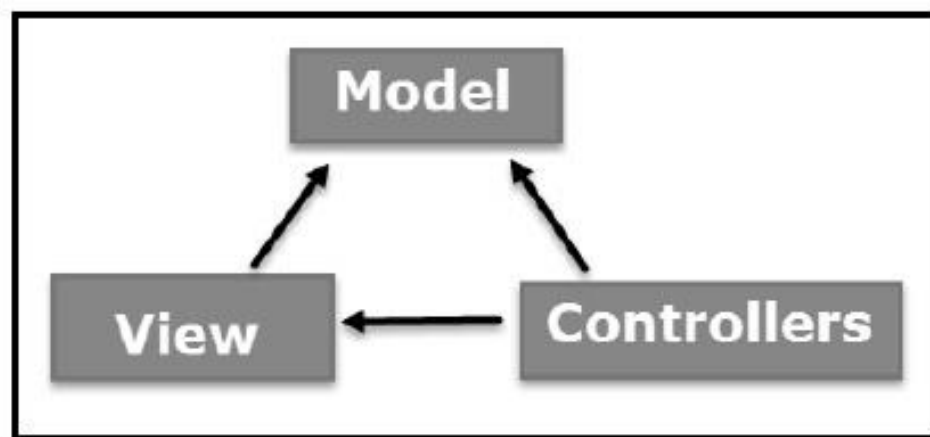


FIGURE 4.1 Model View Controller

## Model

The Model component corresponds to all the data-related logic that the user works with. This can represent either the data that is being transferred between the View and Controller components or any other business logic-related data. For example, a Customer object will retrieve the customer information from the database, manipulate it and update it data back to the database or use it to render data.

## View

The View component is used for all the UI logic of the application. For example, the Customer view will include all the UI components such as text boxes, dropdowns, etc. that the final user interacts with.

## Controller

Controllers act as an interface between Model and View components to process all the business logic and incoming requests, manipulate data using the Model component and interact with the Views to render the final output. For example, the Customer controller will handle all the interactions and inputs from the Customer View and update the database using the Customer Model. The same controller will be used to view the Customer data.

## 4.2 SCREENSHOTS

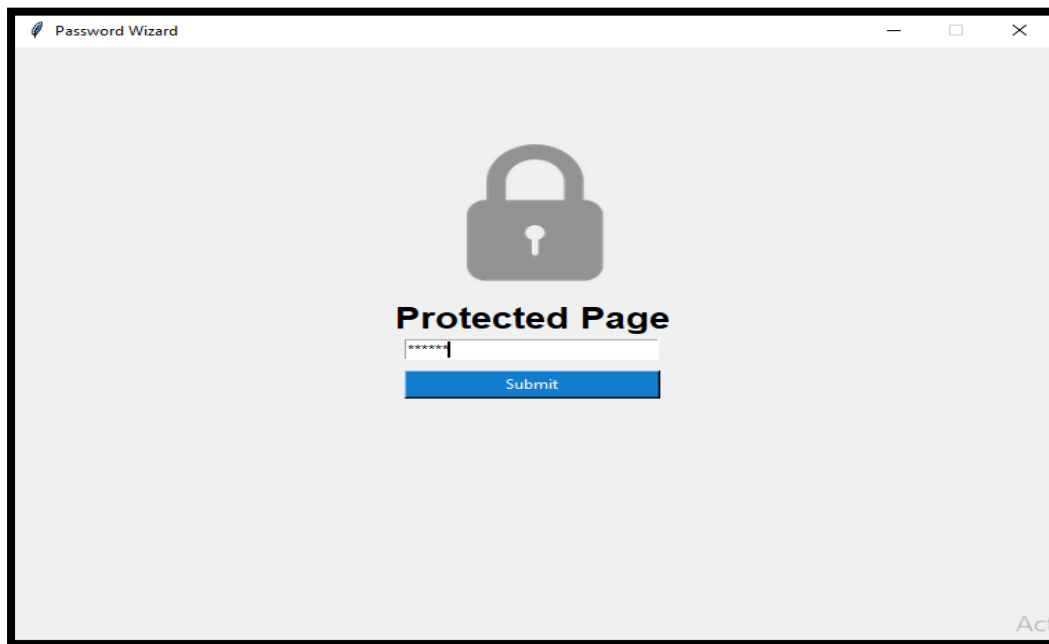


FIGURE 4.2 : Password Validation

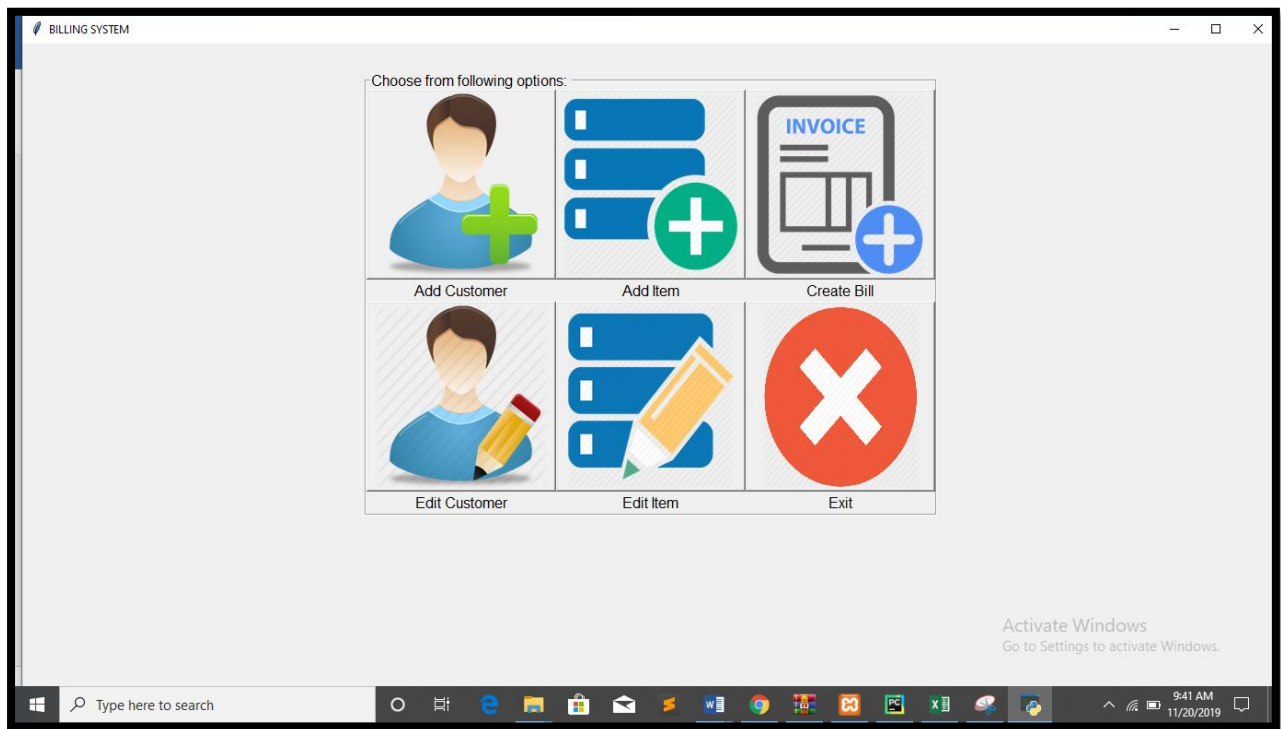


FIGURE 4.3 : Main Window

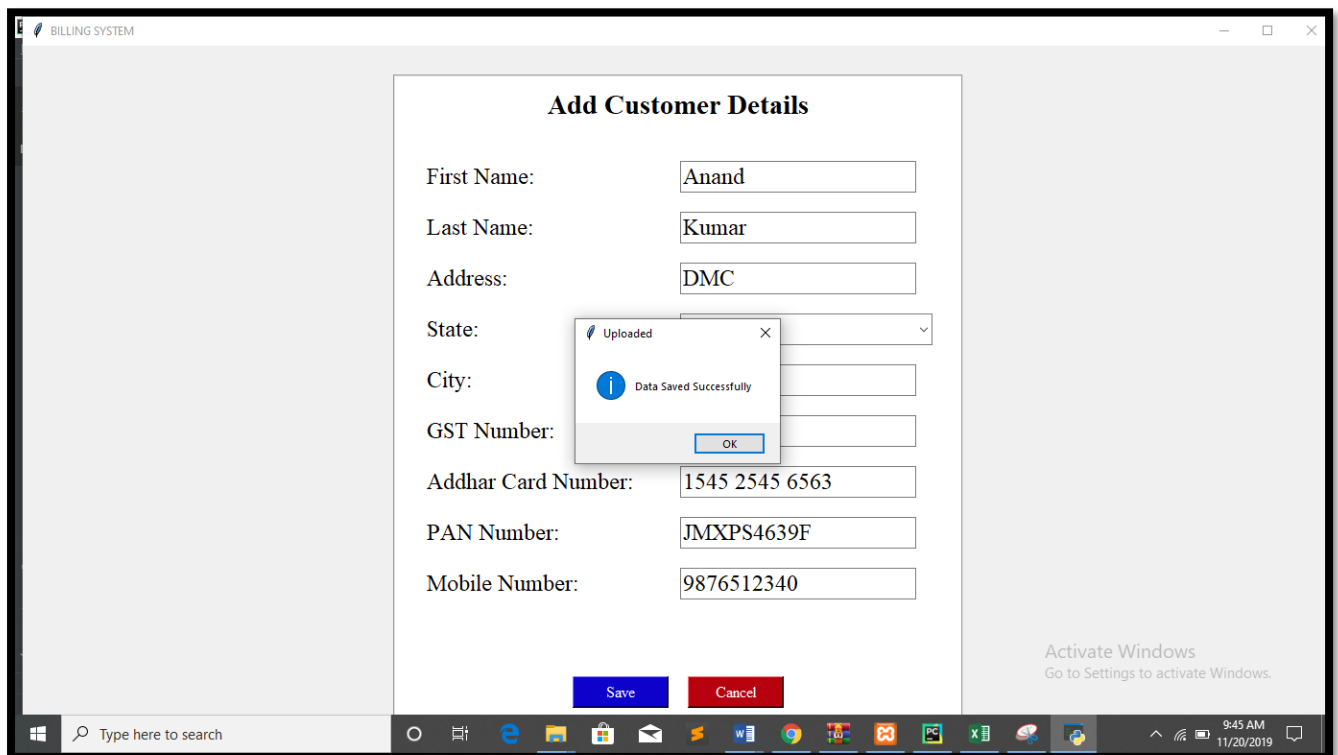


FIGURE 4.4 : Add Customer Module

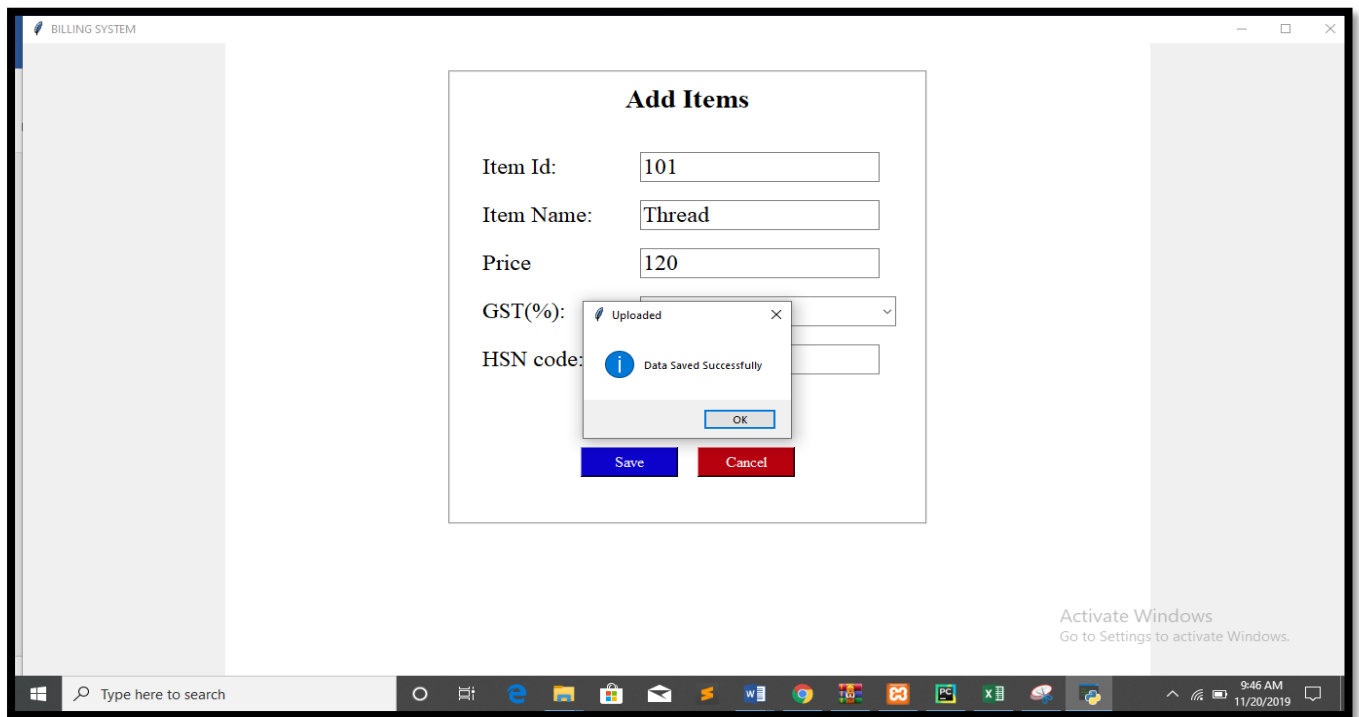


FIGURE 4.5 : Add Item Module

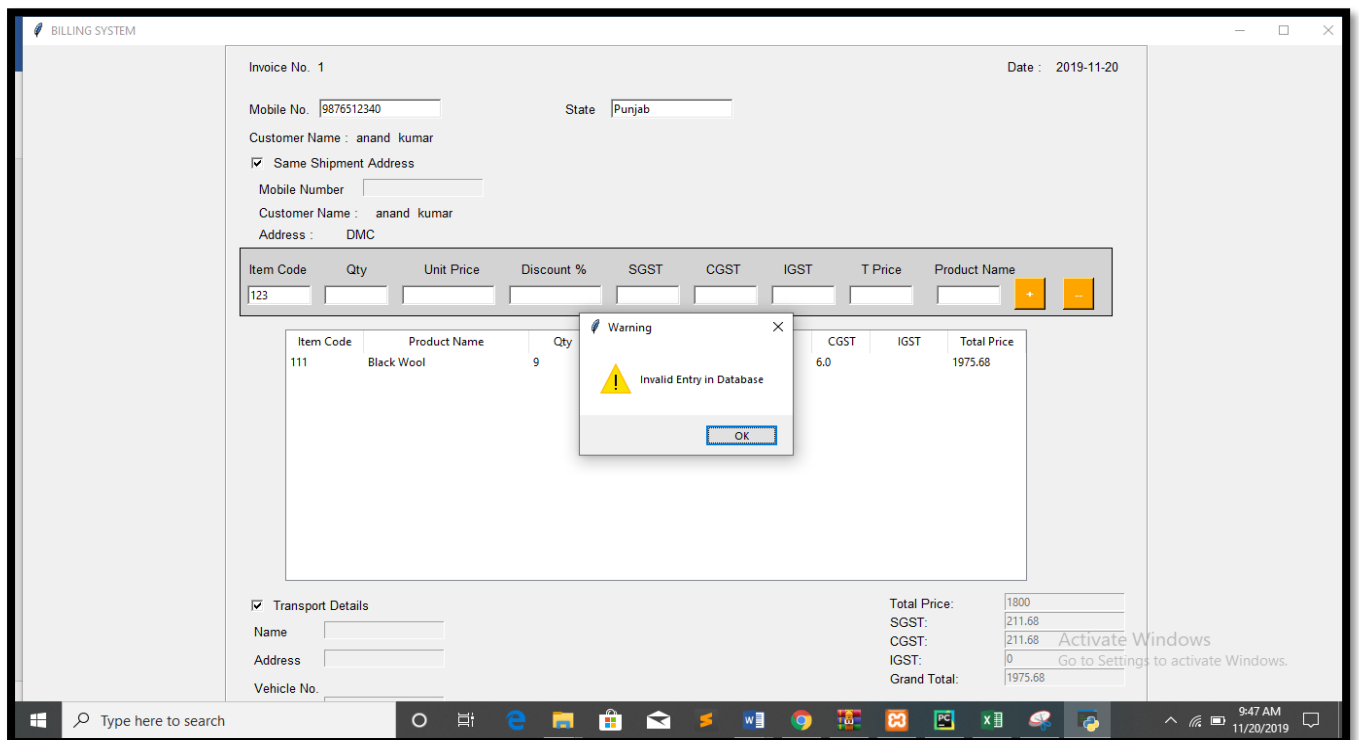


FIGURE 4.6 : Validate if invalid entry in Database

BILLING SYSTEM

Invoice No. 1 Date : 2019-11-20

Mobile No.  State

Customer Name : anand kumar

☒ Same Shipment Address

Mobile Number

Customer Name : anand kumar

Address : DMC

Item Code	Qty	Unit Price	Discount %	SGST	CGST	IGST	T Price	Product Name
111	9	200	2	6.0	6.0			Black Wool
101	2	120	12	9.0	9.0			Wool

☒ Transport Details

Name

Address

Vehicle No.

Total Price: 2040

SGST: 249.696

CGST: 249.696

IGST: 0

Grand Total: 2224.696

Activate Windows  
Go to Settings to activate Windows.

9:48 AM  
11/20/2019

FIGURE 4.7 : Create Bill Module

BILLING SYSTEM

Invoice No. 1 Date : 2019-11-20

Mobile No.  State

Customer Name : anand kumar

☒ Same Shipment Address

Mobile Number

Customer Name : anand kumar

Address : DMC

Item Code	Qty	Unit Price	Discount %	SGST	CGST	IGST	T Price	Product Name
111	9			6.0				Black Wool
101	2			9.0				Wool

**Confirm**

Are you Sure to generate bill

☒ Transport Details

Name

Address

Vehicle No.

Total Price: 2040

SGST: 249.696

CGST: 249.696

IGST: 0

Grand Total: 2224.696

Activate Windows  
Go to Settings to activate Windows.

9:48 AM  
11/20/2019

FIGURE 4.8 : Generate Bill

19980464 [Protected View] - Excel (Product Activation Failed)

File Home Insert Page Layout Formulas Data Review View Tell me what you want to do... Sign in Share

PROTECTED VIEW Be careful—files from the Internet can contain viruses. Unless you need to edit, it's safer to stay in Protected View. Enable Editing

K46

S.No	Item code	Product Name	HSN code	Qty	Price	SGST	CGST	IGST	Dis %	Total
1		COMPANY NAME								
2		company address								
3		company address								
4					Date	2019-07-19				
5		Invoice No.			Phone:	9779478123				
6		GST No.	some gst no							
7		PAN No.	some pan no		E-mail:	sameersharma8123@gmail.com				
8										
9		Statement								
10										
11		Bill To:			Bill For:					
12		Name	sfdafdsfas		Name	sfdafdsfas				
13		Address	FSD		Address	fdsfas				
14		GST No.			GST No.	FSD				
15		Addhar No.			Addhar No.					
16		PAN No.	JMXPS4639K		PAN No.					
17		Phone No.	9779478111		Phone No.	JMXPS4639K				
18										
19										
20										
21										

Activate Windows Go to Settings to activate Windows.

Ready Type here to search

11/20/2019 9:49 AM

FIGURE 4.9 : Excel File of Bill

BILLING SYSTEM

### Edit Customer Details

Search using Mobile No.

First Name:

Last Name:

Address:

State:

City:

GST Number:

Addhar Card Number:

PAN Number:

Mobile Number:

Activate Windows Go to Settings to activate Windows.

Type here to search

11/20/2019 9:50 AM

FIGURE 5.0 : Search Mobile in Edit Customer Module



**Edit Customer Details**

Search using Mobile No.

First Name:

Last Name:

Address:

State:

City:

GST Number:

Addhar Card Number:

PAN Number:

Mobile Number:

Activate Windows  
Go to Settings to activate Windows.

FIGURE 5.1 : Edit Customer Module

**Edit Customer Details**

Search using Mobile No.

First Name:

Last Name:

Address:

State:

City:

GST Number:

Addhar Card Number:

PAN Number:

Mobile Number:

Uploaded  
Data Saved Successfully  
OK

Activate Windows  
Go to Settings to activate Windows.

FIGURE 5.2 : Data Saved Successfully after Updation

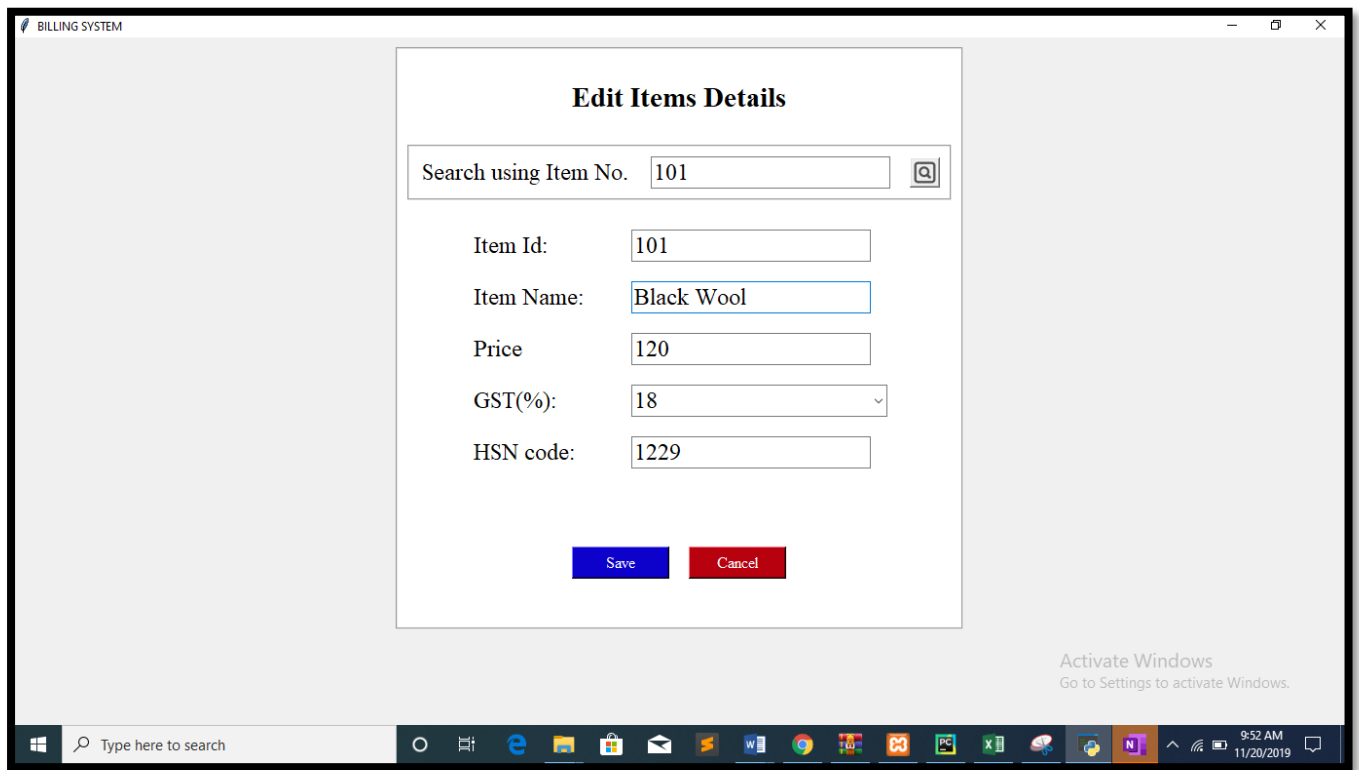


FIGURE 5.3 : Search Item id in Edit item Module

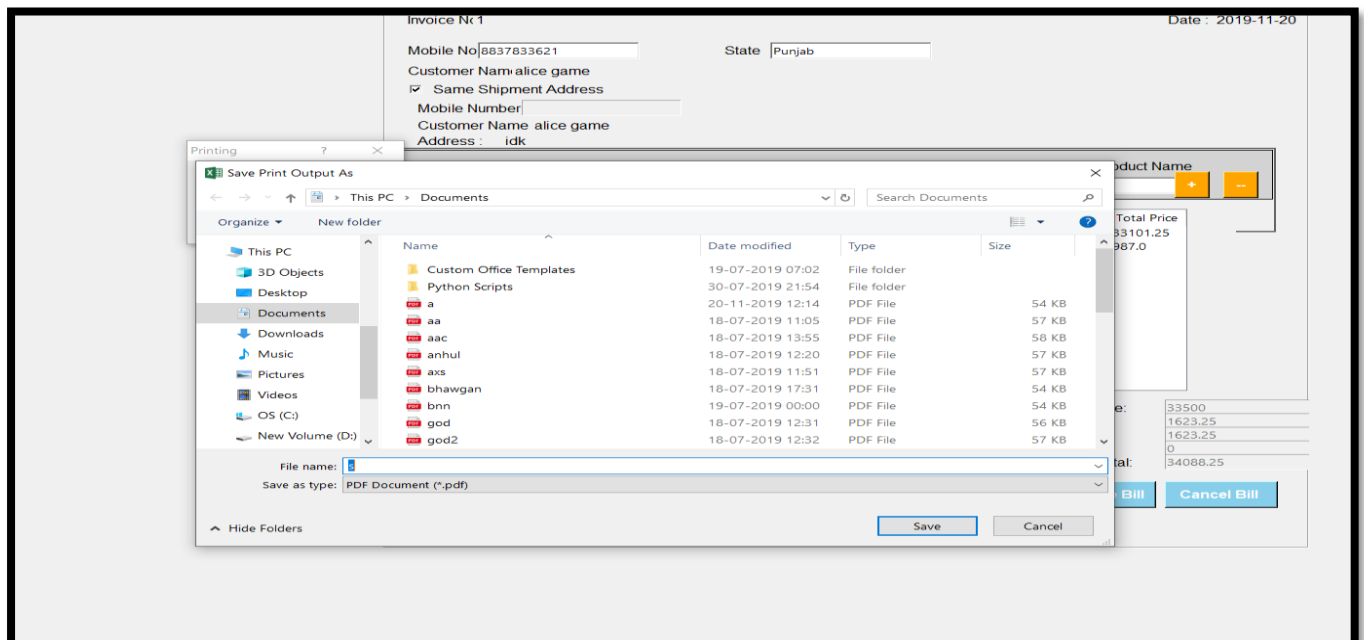


FIGURE 5.4 : Save PDF Option

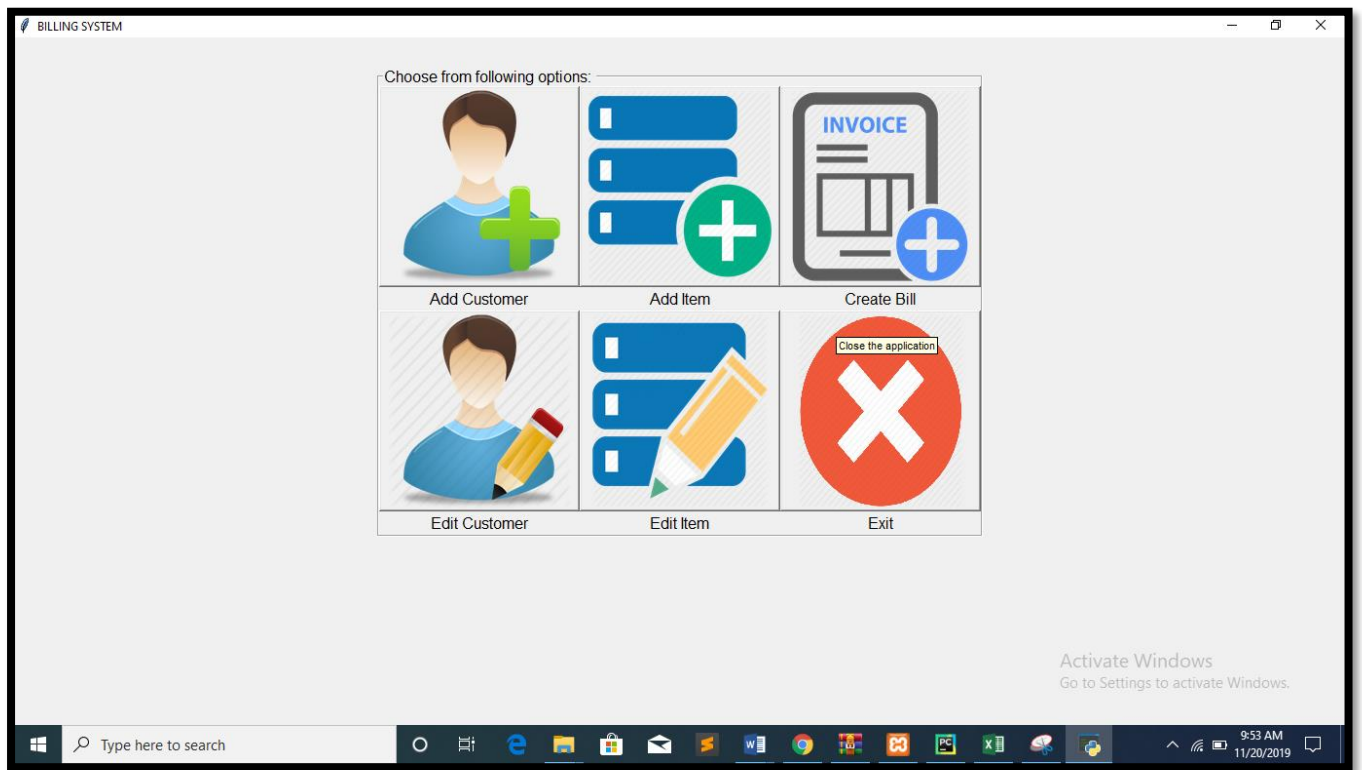


FIGURE 5.5 : Exit Module

## COMPANY NAME

company address

company address

Date 2019-11-20

**Invoice No.**

Phone: 9779478123

GST No. some gst no

E-mail: [sameersharna8123@gmail.com](mailto:sameersharna8123@gmail.com)

PAN No. some pan no

**Statement**Bill To:

Name alicegame  
 Address idk  
 GST No.  
 Addhar No. 1234 6547 9999  
 PAN No.  
 Phone No. 8837833621

Bill For:

Name alicegame  
 Address game  
 GST No. idk  
 Addhar No.  
 PAN No. 1234 6547 9999  
 Phone No.

S.No	Item code	Product Name	HSN code	Qty	Price	SGST	CGST	IGST	Dis %	Total
1	666	sweater	1121	65	500	2.5	2.5		3	33101.25

Total 32500  
 CGST 1576.25  
 IGST 0  
 Grand Total 33101.25

**T/C**

1. The shipping cost needs to be beared by the seller
2. The seller is not responsible for any damage that happens during the transit
3. If invoice has not been paid in 5 days after due date,  
a tax of 10% of total value is applied to each day of delay

**TRANSPORTATION**

Name: jay  
 Address: kkk  
 Vehicle: 4003

FIGURE 5.6 : Bill PDF

## 4.3 TESTING

Software testing is a process of running with intent of finding errors in software. Software testing assures the quality of software and represents final review of other phases of software like specification, design, code generation etc.

### Unit Testing

Unit testing emphasizes the verification effort on the smallest unit of software design i.e.; a software component or module. Unit testing is a dynamic method for verification, where program is actually compiled and executed. Unit testing is performed in parallel with the coding phase. Unit testing tests units or modules not the whole software.

The functionality of the modules was also tested as separate units. Each of the modules was tested as separate units. In each module all the functionalities were tested in isolation.

In the Add Customer Module when a customer details has been added to database it has been made sure that if the item already exists in the record then dialog box of message data already exists appear. Otherwise data added successfully and new record is inserted in the database.

In the Add Item Module when a item details has been added to database it has been made sure that if the item already exists in the record then dialog box of message data already exists appear. Otherwise data added successfully and new record is inserted in the database.

In the Edit Customer Module First a record is searched by a mobile number if found in the database then field equivalent details are shown and you can change the details according to your requirement otherwise the data already present will be as it is in the database.

In the Edit Item Module First a record is searched by a item number if found in the database then field equivalent details are shown and you can change the details according to your requirement otherwise the data already present will be as it is in the database.

In Create bill module validations are there to check whether the data is valid or not and if not it will show the dialog box with the given problem message. All the data relative to either with mobile number or item number will be show just by hit tab button.

**Validation Testing**

I have used a number of test cases for testing the product. There were different cases for which different inputs were used to check whether desired output is produced or not.

1. Addition of a new customer to the database should create a new row in the shopping cart.
2. Addition of an existing customer to the database has to update the details.
3. Any changes to items in the database have to update the summary correctly.

## CHAPTER 5. CONCLUSION AND FUTURE SCOPE OF PROJECT

### 5.1 CONCLUSION

The system has been developed with much care and is free of errors and at the same time is efficient and not time consuming. The purpose of the project was to develop a window based application from which a user can create bills.

The project helped us in gaining valuable information and practical knowledge on topics like backend, integrating back end with front end, and lot more things. The entire system is secured. Also the project helped us in understanding of development phases of project and software development life cycle. We also learnt how to test different features of project.

This project has given us immense satisfaction in having designed an application which can useful to create bill.

### 5.2 FUTURE SCOPE

We can implement machine learning in it :- As we create a lot of bills, so by scraping that data and by applying machine learning algorithms on that we can predict the future sales of the product's, by this we can check whether the user is in profit or going in loss.

Implement data visualizations like Matplotlib or Seaborn etc.:- By implementing data visualization libraries we can make graphs of up and down of the sales in more effective and user friendly way,

So just by seeing the graphs we can easily visualize the data.

## REFERENCES

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