A Database Mini Project Report

on

"GST FILING SYSTEM"

Submitted to the

Savitribai Phule Pune University

In partial fulfillment for the award of the Degree of

Bachelor of Engineering

in

Information Technology

by

Dnyaneshwari Abuj 33301 -K11

Amod Dhopavkar 33304 -K11

Arpit Singh Batra 33306 -K11

Aniket Bedare 33310 -K11

Under the guidance of

Dr/Prof. Ravindra Murumkar

Department of Information Technology

Pune Institute of Computer Technology College of Engineering

Sr. No 27, Pune-Satara Road, Dhankawadi, Pune - 411 043.

2019-2020

CERTIFICATE

This is to certify that the mini project report entitled **"GST Filing System"** being submitted by **Abuj Dnyaneshwari (K11 - 33301), Amod Dhopavkar (K11 - 33304) , Arpit Singh Batra (K11 – 33306) , Aniket Bedare (K11 - 33310)** is a record of bonafide work carried out by him/her under the supervision and guidance of Prof. Ravindra Murumkar in partial fulfillment of the requirement for **TE (Information Technology Engineering) – 2015 course** of Savitribai Phule Pune University, Pune in the academic year 2019-2020.

Date:

Place: Pune

Guide Subject Coordinator Head of the Department

Principal

This Project Based Seminar report has been examined by us as per the Savitribai Phule Pune University, Pune requirements at Pune Institute of Computer Technology, Pune – 411043 on GST Filing System.

Internal Examiner

External Examiner

ACKNOWLEDGEMENT

We have taken efforts in this project. However, it would not have been possible without the kind support and help of many individuals and organizations. I would like to extend my sincere thanks to all of them.

We are highly indebted to Prof. Ravindra Murumkar for their guidance and constant supervision as well as for providing necessary information regarding the project & also for their support in completing the project.

We would like to express my gratitude towards my parents & members of PICT for their kind co-operation and encouragement which help me in completion of this project. We would like to express my special gratitude and thanks to industry persons for giving me such attention and time.

Our thanks and appreciations also go to our faculties in developing the project and people who have willingly helped us out with their abilities.

(Students Name & Signature)

Abuj Dnyaneshwari
Amod Dhopavkar
Arpit Singh Batra
Aniket Bedare

CONTENTS

Sr. No	TITLE	Page no
1.	Content's Abstract	6
2.	Introduction	6
3.	Overview	6
4.	Background and Motivation	7
5.	Methodology	7
6.	Scope	7
7.	Requirements	8
8.	E-R Diagram	8
9.	Schema Diagram	9
10.	Relational Database Design	10
11.	Database Normalization	12
12.	Graphical User Interface	20
13.	Conclusion	27
14	References	27

1. Abstract

In this project we have created a software which is easy to use and is user friendly. For this application we used MySQL DB as backend to store the data and Swing for the user interface. Only the shop owners who have a GST number are able to use this application. The shop owner is able to do the GST Filing process very easily by adding the invoice details of product and calculate the total tax due.

2. Introduction: -

GST filing is an important part of day-to-day business. Business owners need to file GST either monthly or at least quarterly depending on the volume of business that he does. Managing different invoices (depending on the product category) and calculating total GST to be paid can become a headache.

Also, the concept of ITC (Input Tax Credit) which facilitates tax refund in case a business owner makes some purchases is almost absent in our country.

Through our project we have tried to simplify GST calculations by building a software that calculates GST1 as well as ITC and thus; the total tax due in a hassle-free manner.

3. *Overview*: -

This report discusses result of the work done in development of "GST Filing System" on "Swing" Front-end Platform and "MySQL" as back-end Platform. Swing provides a good connecting facility between all pages, also the back-end, i.e., MySQL is most important to save all the data related the application.

3.Background and Motivation

Business owners need to file GST on a monthly or at least on a quarterly basis, depending in the volume of business done.

Conventional system: The business owners needs to consult a Charted Accountant and manually file GST which is both, time consuming and costly.

Technical system: It provides a graphical UI based system to file GST and automatically calculates the total tax due each month.

4. Objective: -

Need of GST Filing system: -

1) Basic overview of GST Filing.
2) Convenience
3) Saves time and money
4) Time-bound

5. Methodology: -

To implement the above goals, the following methodology needs to be followed:

1. Specifying the Application and various components of the Architecture.
2. Specifying the bindings between the tasks and the resources either manually or by the design

Tools.
3. Specifying the port interconnections between the resources.

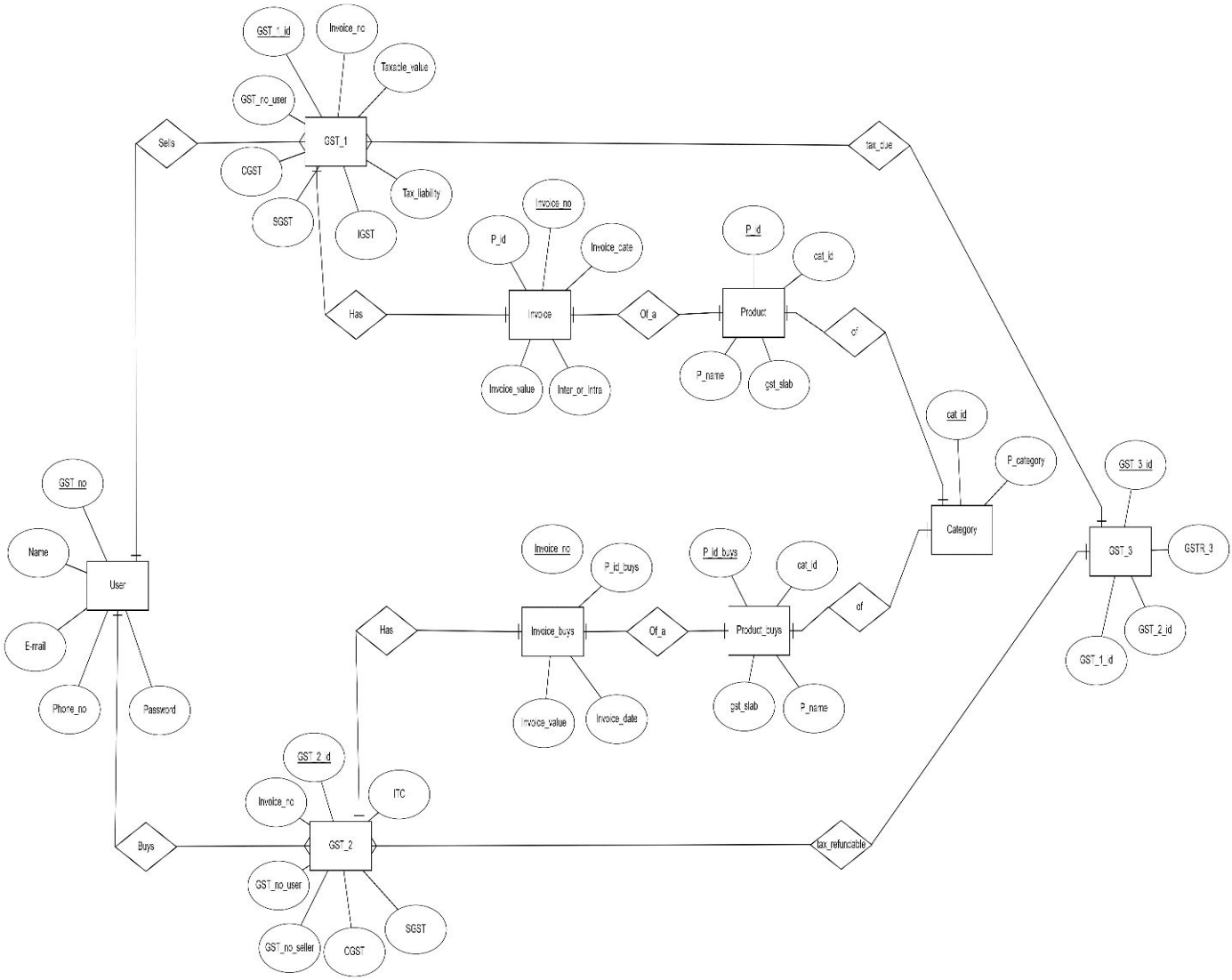
6. *Scope of Project: -*

The scope of the project is to give a simple and attractive software to simplify the work as well as to reduce the efforts while doing it by traditional means.
In this application we are able to calculate GST of any business stakeholder by taking invoice details of every product.

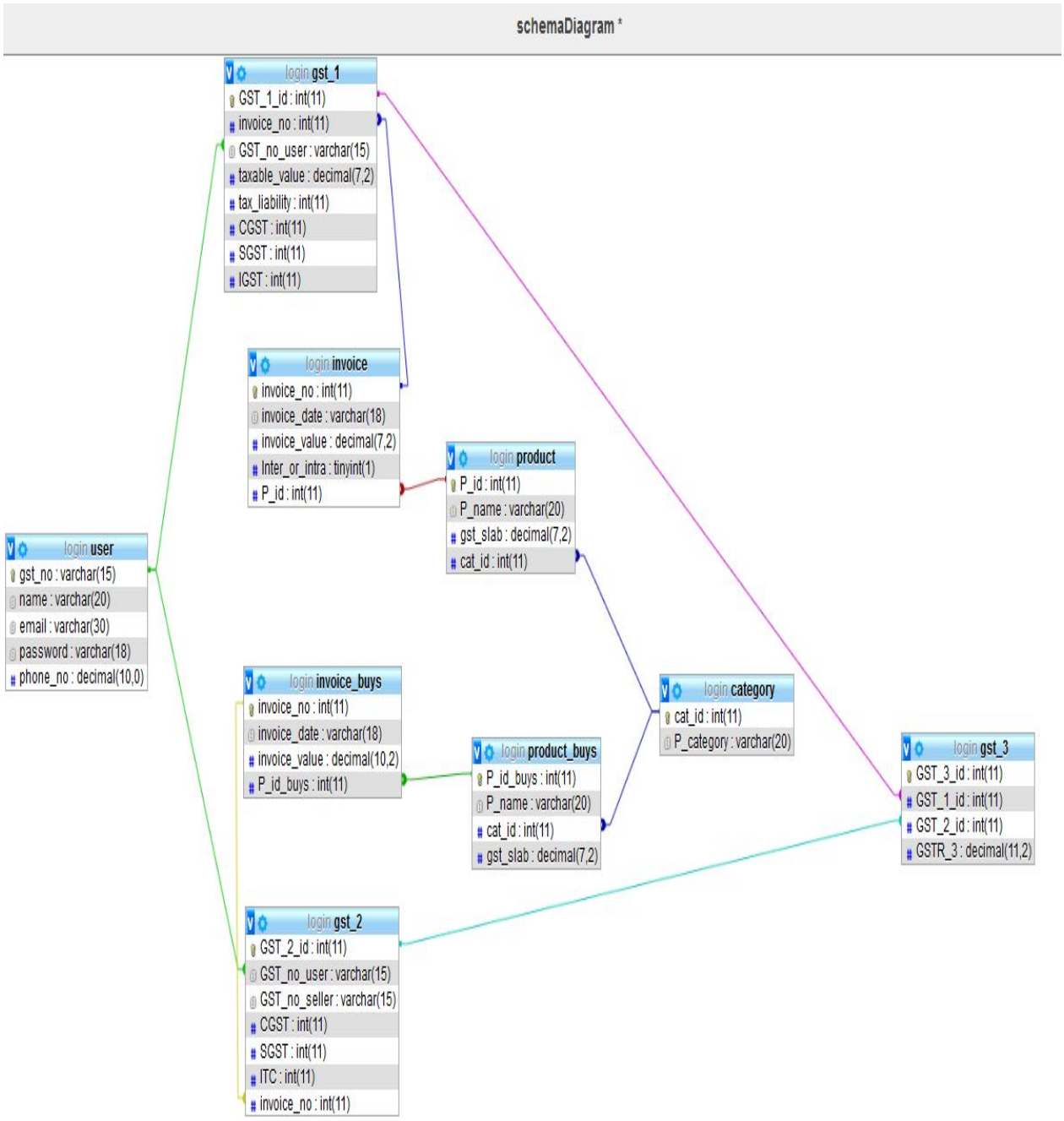
7. *Requirements: -*

We are going to perform the project on windows platform so we need the OS as windows. Any version of windows as windows XP, windows 7 or windows 8. The system should have minimum ram of 256MB as well as minimum storage capacity of 15GB.The system should contain the server software named as “XAMPP”. And MySQL DB of version 2.6.3 or above. First, we have to install both software and we have to do connectivity between them by changing the configuration file of “XAMPP”.

8. E-R Diagram: -



9. Schema Diagram: -



10. Relational Data Base Design: -

1] User: -

GST_no, Name, E-mail, Phone_no, Password

GST_no	Name	E-mail	Phone_no	Password

2] GST_1: -

GST_1_id, Invoice_no, Taxable_value, tax_liability, IGST, CGST, GST_no_user, SGST

GST_1_id	Invoice_no	Taxable_value	Tax_liability	IGST	CGST	SGST	GST_no_user

3] GST_2: -

GST_2_id, Invoice_no, GST_no_user, GST_no_seller, CGST, SGST, ITC

GST_2_id	Invoice_no_GST	GST_no_user	GST_no_seller	CGST	SGST	ITC

4] GST_3: -

GST_3_id, GSTR_3, GST_2_id, GST_1_id

GST_3_id	GSTR_3	GST_2_id	GST_1_id

5] Invoice: -

P_id, Invoice_no, Invoice_date, Inter_or_intra, Invoice_value

P_id	Invoice_no	Invoice_date	Inter_or_intra	Invoice_value

6]Invoice_buys: -

Invoice_no, P_id_buys, Invoice_value, Invoice_date

Invoice_no	P_id_buys	Invoice_value	Invoice_date

7] Product: -

P_id, cat_id, P_name, GST_slab

P_id	P_name	Cat_id	GST_slab

8] Product_buys: -
P_id_buys, cat_id, P_name, GST_slab

P_id_buys	P_name	Cat_id	GST_slab

9] Category

Cat_id, p_category

cat_id	P_category

11. Database Normalization: -

First Normal Form: -

The relation is in 1NF if it has no repeating groups. All tables have no repeating groups so they are in 1NF.

Tables: -

1] User: -
GST_no, Name, E-mail, Phone_no, Password

GST_no	Name	E-mail	Phone_no	Password

2] GST_1: -

GST_1_id, Invoice_no, Taxable_value, tax_liability, IGST, CGST, GST_no_user, SGST

GST_1_id	Invoice_no	Taxable_value	Tax_liability	IGST	CGST	SGST	GST_no_user

3] GST_2: -

GST_2_id, Invoice_no, GST_no_user, GST_no_seller, CGST, SGST, ITC

GST_2_id	Invoice_no_GST	GST_no_user	GST_no_seller	CGST	SGST	ITC

4]GST_3: -

GST_3_id, GSTR_3, GST_2_id, GST_1_id

GST_3_id	GSTR_3	GST_2_id	GST_1_id

5] Invoice: -

P_id, Invoice_no, Invoice_date, Inter_or_intra, Invoice_value

P_id	Invoice_no	Invoice_date	Inter_or_intra	Invoice_value

6]Invoice_buys: -

Invoice_no, P_id_buys, Invoice_value, Invoice_date

Invoice_no	P_id_buys	Invoice_value	Invoice_date

7] Product: -
P_id, cat_id, P_name, GST_slab

P_id	P_name	Cat_id	GST_slab

8] Product_buys: -
P_id_buys, cat_id, P_name, GST_slab

P_id_buys	P_name	Cat_id	GST_slab

9] Category: -

Cat_id, p_category

cat_id	P_category

Second Normal Form

A relation is said to be in second normal form if it is already in first normal form and it has no partial dependency

1) **User: -**

The absence of partial dependency in relation takes it into 2NF without any modification.

2) GST_1: -

The absence of partial dependency in relation takes it into 2NF without any modification.

3) GST_2: -

The absence of partial dependency in relation takes it into 2NF without any modification.

4) GST_3: -

The absence of partial dependency in relation takes it into 2NF without any modification.

5) Invoice: -

The absence of partial dependency in relation takes it into 2NF without any modification.

6) Invoice_buys: -

The absence of partial dependency in relation takes it into 2NF without any modification.

7) Product: -

The absence of partial dependency in relation takes it into 2NF without any modification.

8) Product_buys: -

The absence of partial dependency in relation takes it into 2NF without any modification.

9) Category: -

The absence of partial dependency in relation takes it into 2NF without any modification

Tables: -

1] User: -

GST_no, Name, E-mail, Phone_no, Passward

GST_no	Name	E-mail	Phone_no	Passward

2] GST_1: -

GST_1_id, Invoice_no, Taxable_value, tax_liability, IGST, CGST, GST_no_user, SGST

GST_1_id	Invoice_no	Taxable_value	Tax_liability	IGST	CGST	SGST	GST_no_user

3] GST_2: -

GST_2_id, Invoice_no, GST_no_user, GST_no_seller, CGST, SGST, ITC

GST_2_id	Invoice_no_GST	GST_no_user	GST_no_seller	CGST	SGST	ITC

4]GST_3: -

GST_3_id, GSTR_3, GST_2_id, GST_1_id

GST_3_id	GSTR_3	GST_2_id	GST_1_id

5] Invoice: -

P_id, Invoice_no, Invoice_date, Inter_or_intra, Invoice_value

P_id	Invoice_no	Invoice_date	Inter_or_intra	Invoice_value

6]Invoice_buys: -

Invoice_no, P_id_buys, Invoice_value, Invoice_date

Invoice_no	P_id_buys	Invoice_value	Invoice_date

7] Product: -

P_id, cat_id, P_name, GST_slab

P_id	P_name	Cat_id	GST_slab

8] Product_buys: -
P_id_buys, cat_id, P_name, GST_slab

P_id_buys	P_name	Cat_id	GST_slab

9] Category: -

Cat_id, p_category

cat_id	P_category

Third Normal Form

A relation is said to be in third normal form if it is already in 1st and 2nd NF and has no transitive dependency.

1) **User:**
   In User every attribute depends on primary key so it is in 3rd normal form

4) **GST_1:**
   In GST_1 every attribute depends on primary key so it is in 3rd normal form.

5) **GST_2:**
   In GST_2 every attribute depends on primary key so it is in 3rd normal form.

6) **GST_3:**
   In GST_3 every attribute depends on primary key so it is in 3rd normal form.

6) **Invoice:**
   In Invoice every attribute depends on primary key so it is in 3rd normal form.

7) **Invoice_buys:**
   In Invoice_buys every attribute depends on primary key so it is in 3rd normal form.

8) **Product:**
   In Product every attribute depends on primary key so it is in 3rd normal form.

9) **Category:**
   In Category every attribute depends on primary key so it is in 3rd normal form.

Tables:

1] User: -

GST_no, Name, E-mail, Phone_no, Passward

GST_no	Name	E-mail	Phone_no	Passward

2] GST_1: -

GST_1_id, Invoice_no, Taxable_value, tax_liability, IGST, CGST, GST_no_user, SGST

GST_1_id	Invoice_no	Taxable_value	Tax_liability	IGST	CGST	SGST	GST_no_user

3] GST_2: -

GST_2_id, Invoice_no, GST_no_user, GST_no_seller, CGST, SGST, ITC

GST_2_id	Invoice_no_GST	GST_no_user	GST_no_seller	CGST	SGST	ITC

4]GST_3: -

GST_3_id, GSTR_3, GST_2_id, GST_1_id

GST_3_id	GSTR_3	GST_2_id	GST_1_id

5] Invoice: -

P_id, Invoice_no, Invoice_date, Inter_or_intra, Invoice_value

P_id	Invoice_no	Invoice_date	Inter_or_intra	Invoice_value

6]Invoice_buys: -

Invoice_no, P_id_buys, Invoice_value, Invoice_date

Invoice_no	P_id_buys	Invoice_value	Invoice_date

7] Product: -

P_id, cat_id, P_name, GST_slab

P_id	P_name	Cat_id	GST_slab

8] Product_buys: -
P_id_buys, cat_id, P_name, GST_slab

P_id_buys	P_name	Cat_id	GST_slab

9] Category: -

Cat_id, p_category

cat_id	P_category

12] Graphical User Interface: -

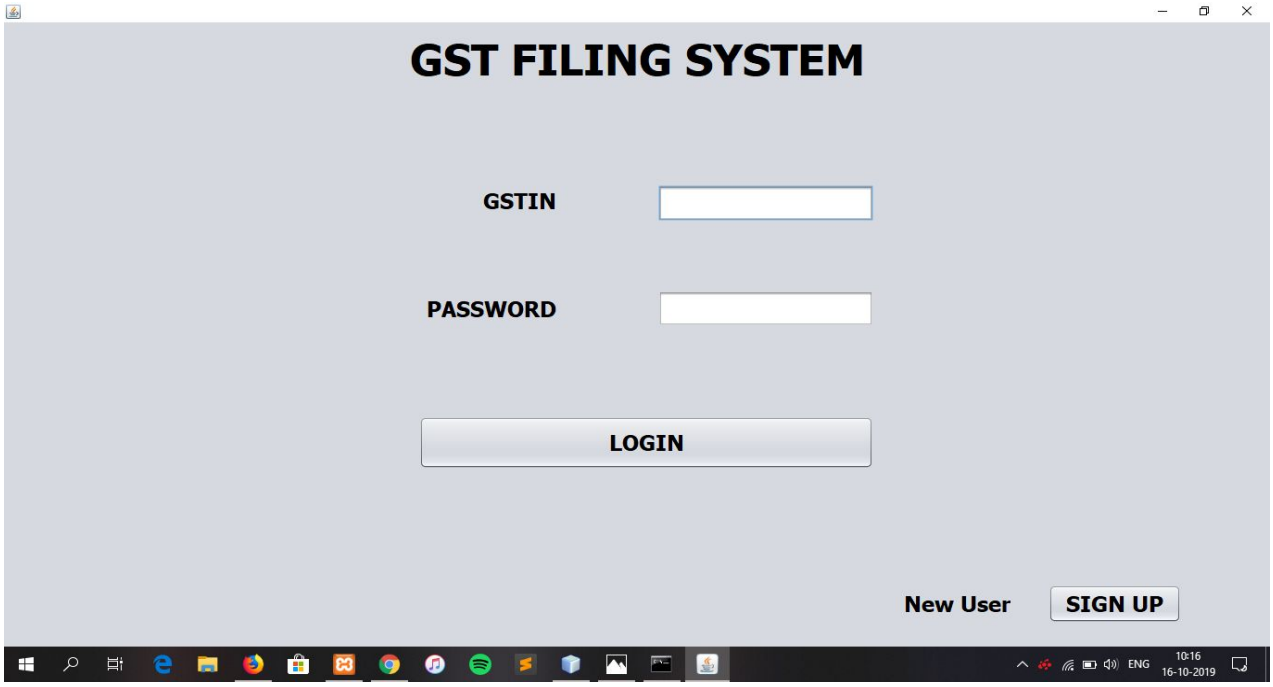
The application is very user friendly and uses a GUI interface implemented in SWING to Communicate with the user. Various features are self – explanatory. Forms are easy to fill in and components can be added, removed and updated very easily through a Single dialog box.
List boxes are used to display all the components at once so that user can see all the components of a Particular type at once. One can just select the component and modify and remove the component. (based on the access control of the person)

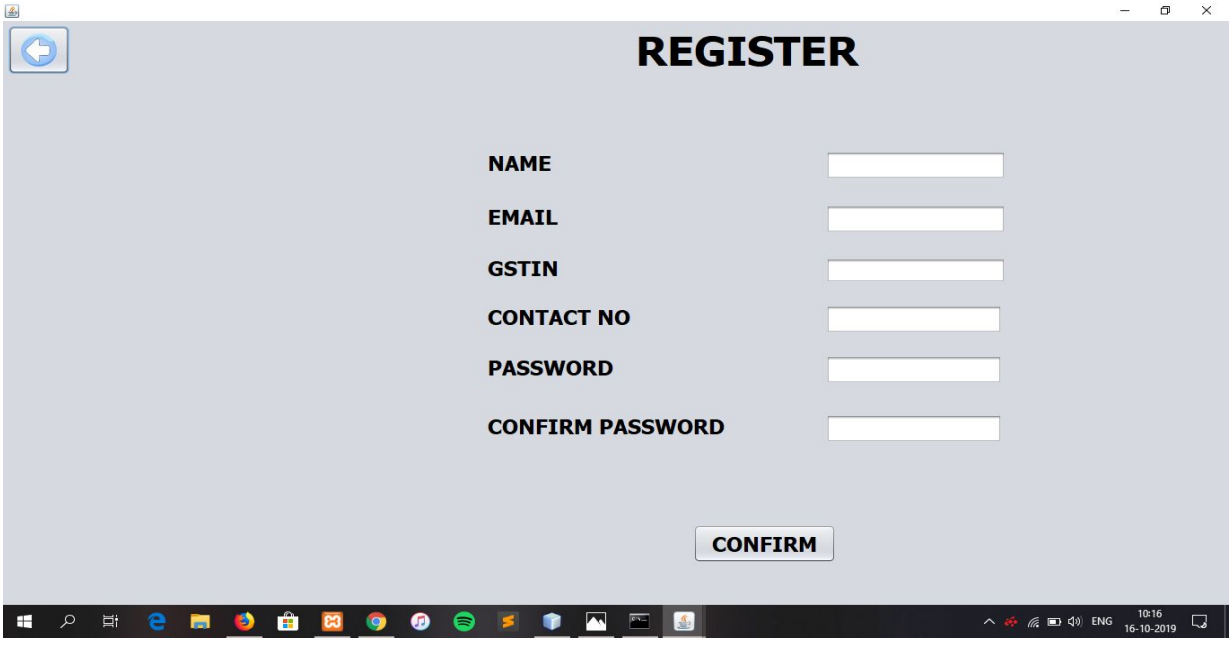
Features: -

1. Clean separation of various components to facilitate easy modification and revision.
2. All the data is maintained in a separate file to facilitate easy modification
3. All the data required for different operations is kept in a separate file.
4. Quick and easy saving and loading of database file.

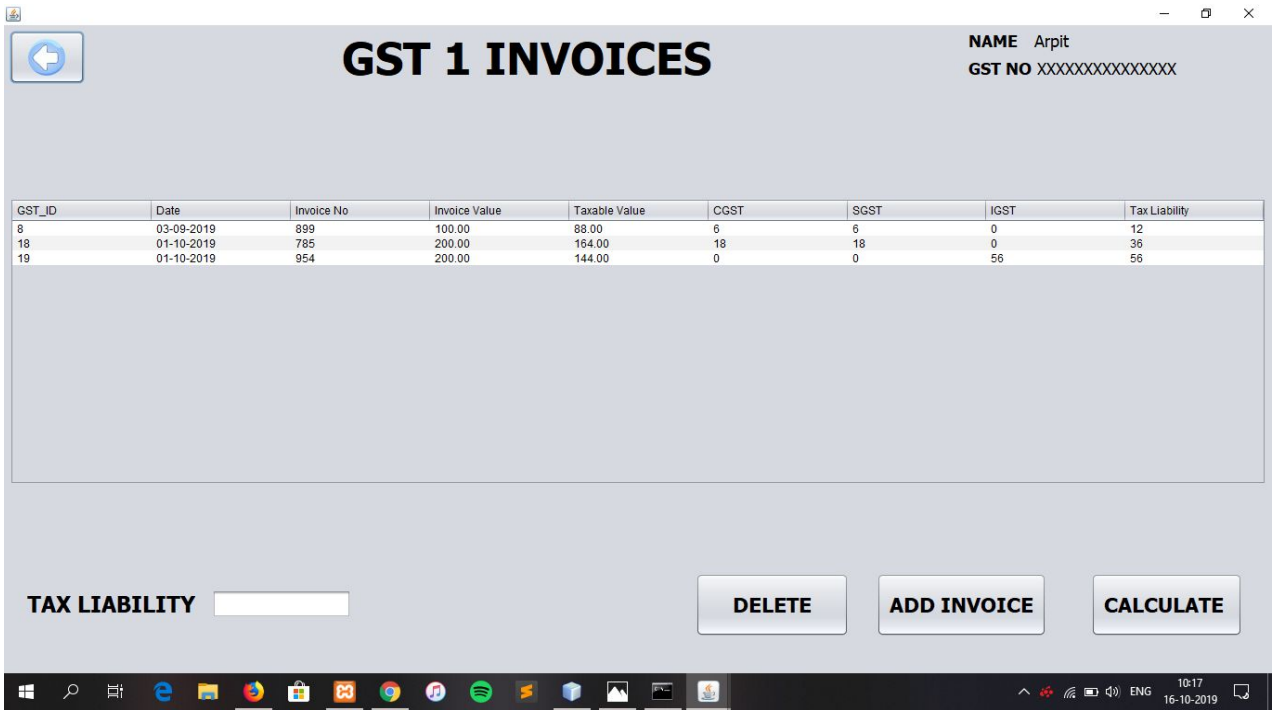
Snapshots of the application

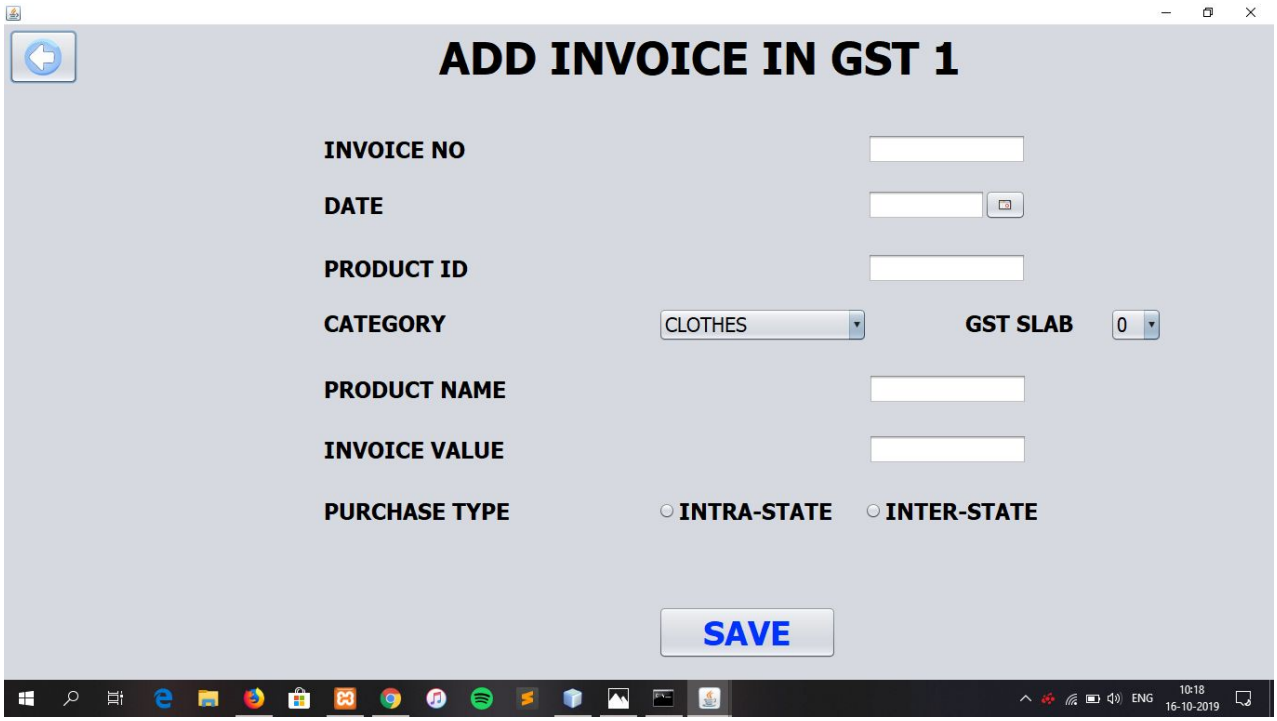
User View: -

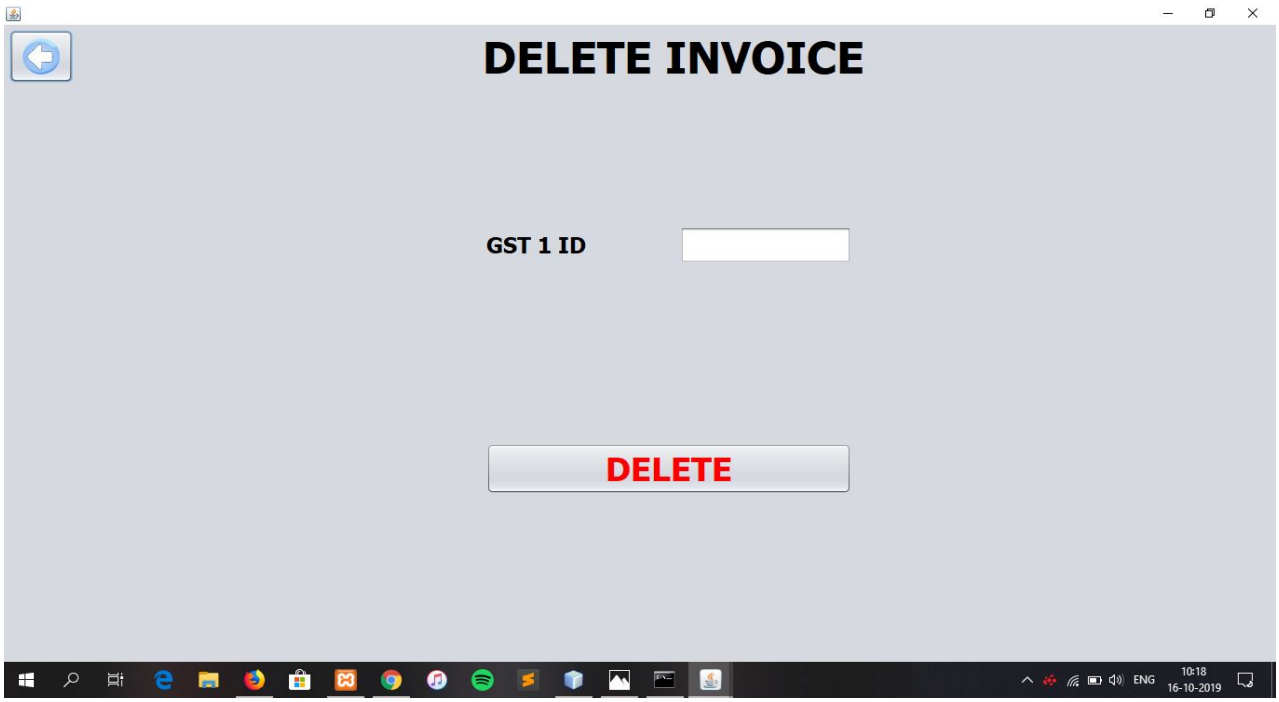

GST FILING SYSTEM
GSTIN
PASSWORD
LOGIN
New User
SIGN UP
ENG
10:16
16-10-2019

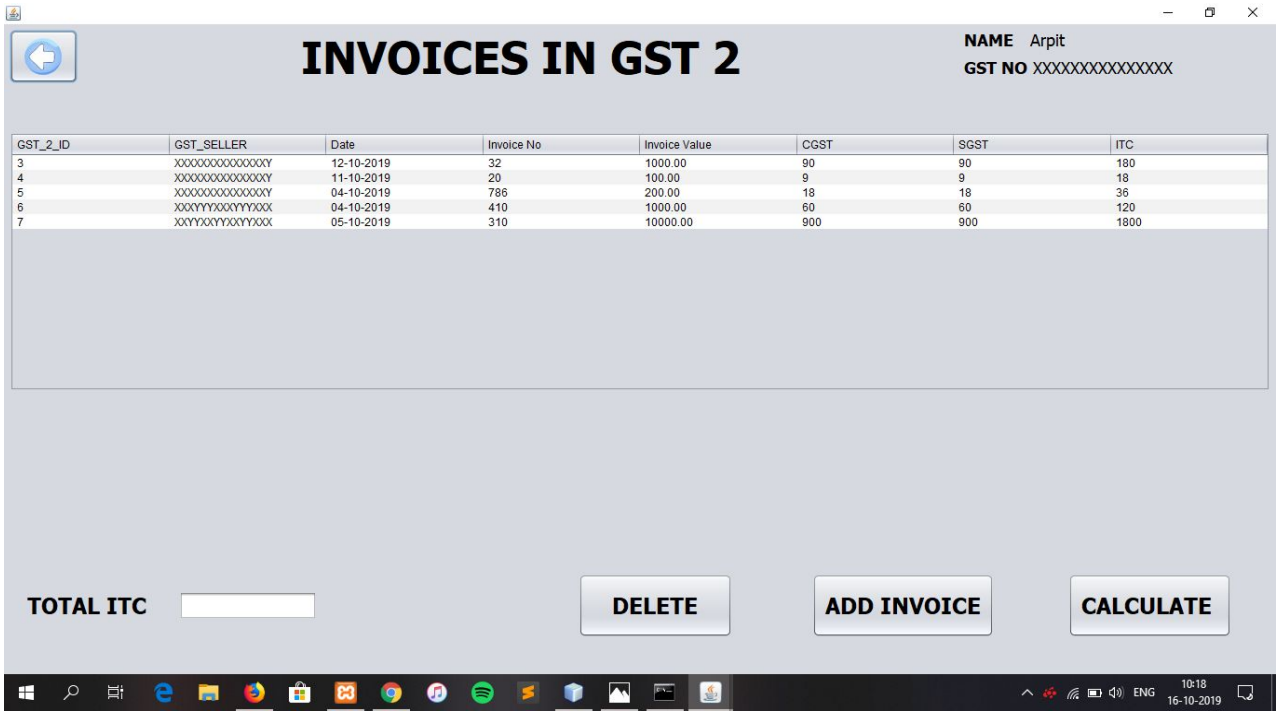

REGISTER
NAME
EMAIL
GSTIN
CONTACT NO
PASSWORD
CONFIRM PASSWORD
CONFIRM
ENG
10:16
16-10-2019

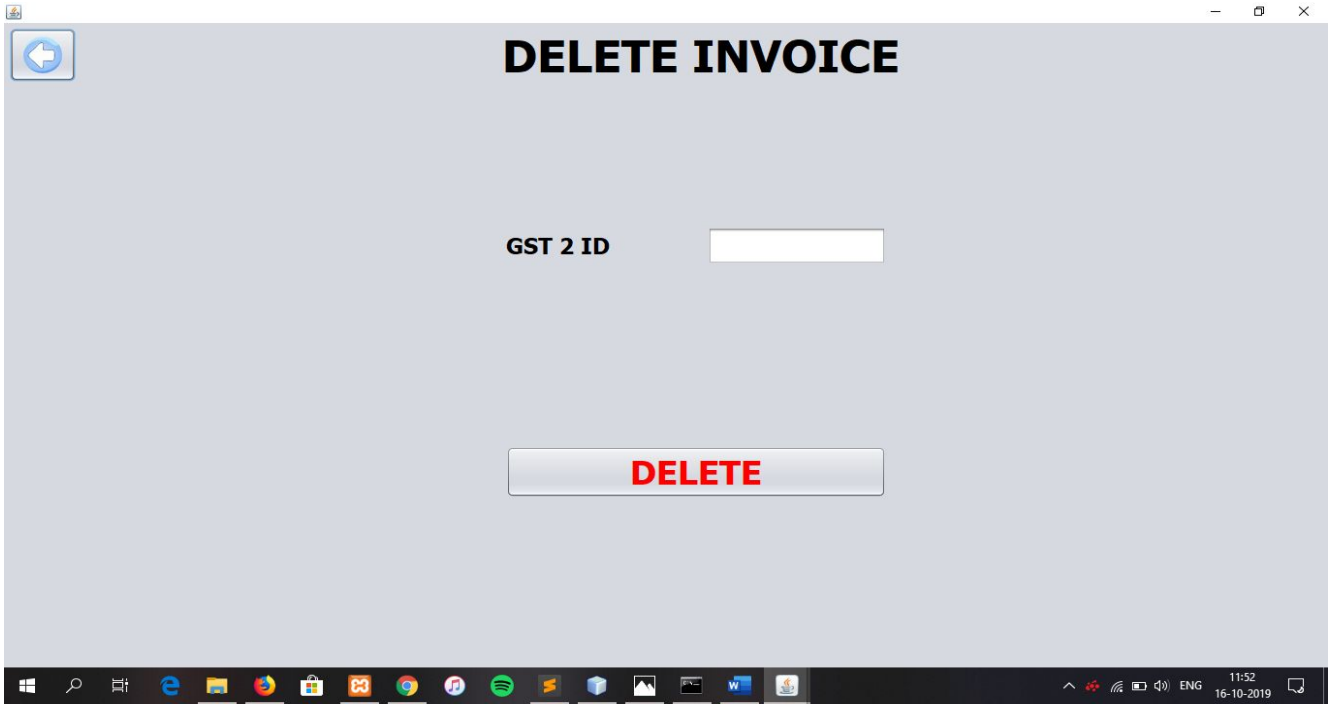

GSTR FILING
NAME Arpit
GST NO XXXXXXXXXXXXXX
GSTR1
GSTR2
GSTR3
ENG
10:17
16-10-2019


GST 1 INVOICES
NAME Arpit
GST NO XXXXXXXXXXXXXX
GST_ID | Date | Invoice No | Invoice Value | Taxable Value | CGST | SGST | IGST | Tax Liability
8 | 03-09-2019 | 899 | 100.00 | 88.00 | 6 | 6 | 0 | 12
18 | 01-10-2019 | 785 | 200.00 | 164.00 | 18 | 18 | 0 | 36
19 | 01-10-2019 | 954 | 200.00 | 144.00 | 0 | 0 | 56 | 56
TAX LIABILITY
DELETE
ADD INVOICE
CALCULATE
ENG
10:17
16-10-2019

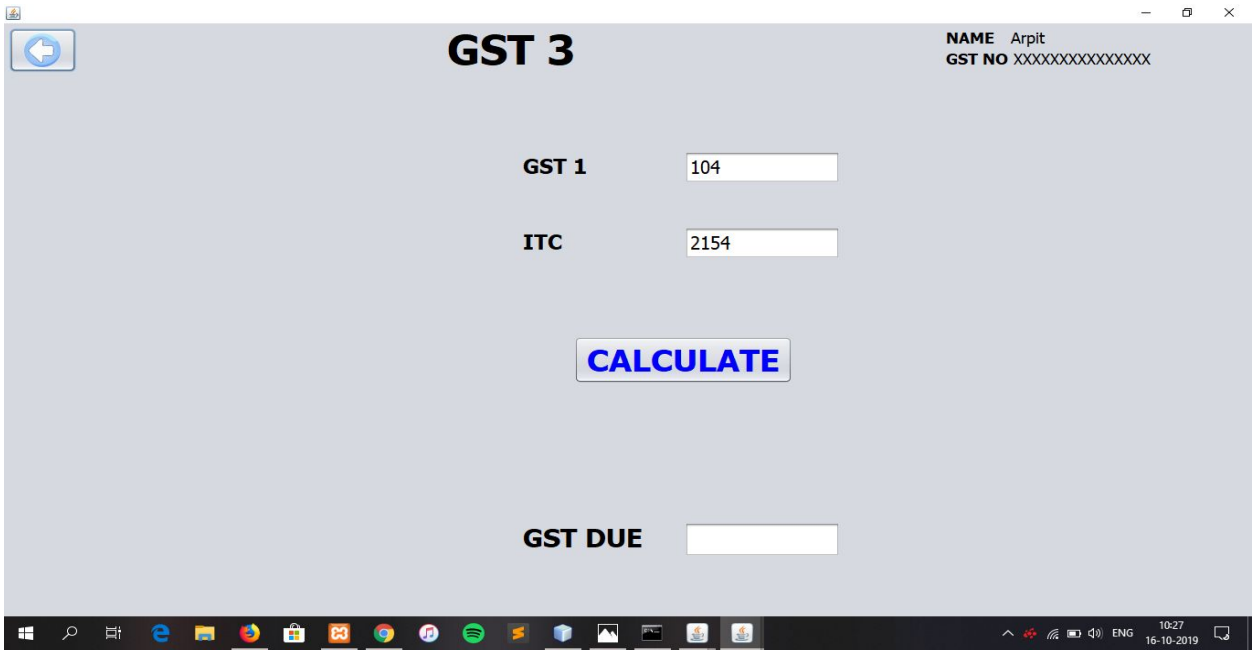

ADD INVOICE IN GST 1
INVOICE NO
DATE
PRODUCT ID
CATEGORY
CLOTHES
GST SLAB
0
PRODUCT NAME
INVOICE VALUE
PURCHASE TYPE
INTRA-STATE
INTER-STATE
SAVE


DELETE INVOICE
GST 1 ID
DELETE


INVOICES IN GST 2
NAME Arpit
GST NO XXXXXXXXXXXXXX
GST_2_ID | GST_SELLER | Date | Invoice No | Invoice Value | CGST | SGST | ITC
3 | XXXXXXXXXXXXXY | 12-10-2019 | 32 | 1000.00 | 90 | 90 | 180
4 | XXXXXXXXXXXXXY | 11-10-2019 | 20 | 100.00 | 9 | 9 | 18
5 | XXXXXXXXXXXXXY | 04-10-2019 | 786 | 200.00 | 18 | 18 | 36
6 | XXXYYYXXXYYYXXX | 04-10-2019 | 410 | 1000.00 | 60 | 60 | 120
7 | XXYYXXYYXXYYXXX | 05-10-2019 | 310 | 10000.00 | 900 | 900 | 1800
TOTAL ITC
DELETE
ADD INVOICE
CALCULATE
ENG
10:18
16-10-2019


DELETE INVOICE
GST 2 ID
DELETE
ENG
11:52
16-10-2019


ADD INVOICE IN GST 2
INVOICE NO
85
DATE
03-10-2019
PRODUCT ID
84
PRODUCT NAME
MOUSE
GST NO OF SELLER
CATEGORY
CLOTHES
GST SLAB
0
INVOICE VALUE
SAVE
ENG
11:50
16-10-2019



13) Future Scope: -

1. To make the project client-server based.
2. To generate reports for a given time span.

14) Conclusion: -

Thus, we have successfully implemented GST filling system which helps us in calculation of the GST of a shop owner.

We have successfully implemented various functionalities of MySQL and Swing and created the fully functional database management system for GST filing system.

Concepts Used: -

1.MySQL - (database backend)
2.Swing - (front end)
3.JDBC - (connectivity)

Software Used: -

1. NetBeans
2. MySQL

References: -

1. YouTube tutorials.
2. Google
3. TutorialsPoint