Dine POS

A Project Report

Submitted by

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190500116021

In partial fulfillment for the award of the degree of

BACHELOR OF ENGINEERING

in

Information Technology

Sigma Institute of Technology and Engineering , Vadodara

Gujarat Technological University, Ahmedabad

May, 2023

Sigma Institute of Technology and Engineering

Ajwa road, Vadodara- 390019

CERTIFICATE

This is to certify that the project report submitted along with the project entitled **Dine POS** has been carried out by **Vaghasiya Nehal** under my guidance in partial fulfillment for the degree of Bachelor of Engineering in **Information Technology**, 8th Semester of Gujarat Technological University, Ahmedabad during the academic year 2022-23.

Dr.Shivam Upadhyay
Internal Guide

Prof. Kalyani Adawadkar
Head of the Department

Company Certificate

29/04/2023

TO WHOM IT MAY CONCERN

This is to certify that **Vaghasiya Nehal**, a student of **Sigma Institute Of Engineering** ,woked as intern in our company. She has successfully completed her internship in the field of Core Python from **23-01-2023** to **29-04-2023** under the guidance of **Nayan Savaliya.**

During the period of her internship program with us, she had been exposed to different processes and was found diligent, hardworking and inquisitive.
We wish her every success in her life and career.

For Arise Techno Pvt.ltd.

Arise Techno
Nayan Savaliya
Founder & Director

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Sigma Institute of Technology and Engineering

Ajwa road, Vadodara- 390019

DECLARATION

I hereby declare that the Internship report submitted along with the Internship entitled **Dine POS** submitted in partial fulfillment for the degree of Bachelor of Engineering in **Information Technology** to Gujarat Technological University, Ahmedabad, is a bonafide record of original project work carried out by me at **Arise Techno Pvt.ltd** under the supervision of **Nayan Savaliya** and that no part of this report has been directly copied from any students' reports or taken from any other source, without providing due reference.

Name of the Student	Sign of Student
Vaghasiya Nehal	

ACKNOWLEDGEMENT

I wish to express my sincere gratitude to our External guide Mr. Nayan Savaliya for continuously guiding me at the company and answering all my doubts with patience. I would also like to thank my Internal guide Dr. Shivam Upadhyay for helping me through my internship by giving me the necessary suggestions and advice along with their valuable co-ordination in completing this internship.

I express sincere and heartfelt thanks to Dr. Priyesh Gandhi (Principal, Sigma Institute of Engineering, Bakrol, Vadodara). I would also like to thank to our HOD Prof. Kalyani Adwadkar(Head of The Department, IT branch).

Also, I appreciate the guidance given by the developer at Arise Techno Pvt.ltd, Mr. Nayan Savaliya as well as the panels, especially for the internship that has advised me and gave guidance at every moment of the internship. Thus, in conclusion to the above said, I once again thank the staff members of Arise Techno Pvt.ltd. for their valuable support in completion of the project.

Thank you all

ABSTRACT

I am currently doing internship at Surat in Software Company and its name is the Arise Techno Pvt.Ltd. Throughout my 12-week internship duration, I have gained a vast amount of knowledge and experience. Initially, we were introduced to the basics of programming languages such as C and C++, which are essential for anyone who intends to write programs. The company then provided advanced training on concepts related to my field of interest.

During the internship, I learned the core concepts of Python and the MySQL database, which provided me with a deeper understanding of how to work with GUI for designing. Following my training, I was assigned to work on a project called "Dine POS," a software system designed for hotel management. This project was aimed at simplifying the billing process for customers. Users need only enter the number of items ordered by the customer, and the system will automatically calculate and generate the bill upon giving the command. The software provides database connectivity for storing bills, which means users can view or delete any data at any time.

One of the exciting features of this software is that everything has been coded, including the design. This project provided me with hands-on experience, which is an excellent way to gain valuable knowledge and skills in my field of interest. Overall, my experience at Arise Techno Pvt. Ltd. has been highly beneficial and has provided me with a solid foundation in software development.

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Chapter 1 Overview of the Company:-

1.1 History:

I am pursuing my internship training in “Arise Techno Pvt.ltd” which is located in Varachha area of Surat. Arise Techno Pvt.ltd was established in 2020, Arise Techno Pvt.ltd specializes in web development, graphics design, ui/ux, ecommerce web development, web design, IT Services, digital marketing, SEO, and application/software development. It continues to build a global service company by attracting and developing extraordinary talent.

This company was founded by respected “Nayan Savaliya”. There are a numerous technologies the company works on daily projects such as Java, MEAN, MERN, Python, Dotnet, PhP, Flutter and many more with veteran programmers and their juniors. We provide our services in various countries.

1.2 Overview:

Arise Techno is your go-to website designer, web developer, and e-commerce development specialist. It is also providing dedicated developer for your work. They are a committed team that is focused on evaluating performance. We are eager to learn new things and collaborate with others. We are also available for long-term projects. We also guarantee that you will have the most pleasant experience possible with us. If you have any concerns, please feel free to email us. We'll get back to you as soon as possible.
Arise Techno Business Policies; Scalability, Creativity and Cost Effectiveness: -

1. Scalability: It is one of the most important attributes that needs to be measured while coming up with a technology solution. It has to be considered from simple to most complex technology projects in any organization. Arise Techno understands the nuances of any solutions that it offers to their clients and internally evaluate how will any particular solution be scalable when a company scales up.

2. Creativity: In today’s competitive world, where market is bombarded with lots of Apps to ease any solution be it mobile or desktop or web or cloud. So, in order

to get that competitive advantage any organization needs to have a rain check on what a particular technology solution will do, how will it ease my operations? Arise Techno are technology agnostic and believe "Creativity is mother of all Invention" and always consider what different that they can do which will ease any of our client's process hassles.

3. Cost Effectiveness: It is one of the important attributes that is being determined as everyone works on budgets even the wealthiest. Arise Techno is always focused on providing a solution which always helps our clients better manage their IT Cost and Risk attached by our operating model. We are work as a client's partner to provide each technical solution for their business.
Website of Company: - https://arisetechno.com

1.3 Different product / Scope of work:

The company provides solutions in various domains like medical, educational, consumer based products and many more. Our company aims to provide timely and excellent quality with a client centered approach. Well experienced developers in our company transform the client vision into incredible applications and software by leveraging the latest technologies.

1.4 Organization Chart:

- **Hitesh Desai & Hasmukh Rafaliya**
  Founder & CEO
  These are working in IT field since many years. He founded "*Arise Techno Pvt.ltd "* with his partners in 2019.
  Expertise: Business Management, Client Relationship and Software Development.

- **Pradip Malaviya**
  CTO- Chief Technology Officer
  Pradip sir is the Chief Technology Officer. He has vast experience in web development and all major domains.
  Expertise: Project Management, Teams co-ordination, Delivery management.

- **Hiral Khunt**

  Branch Head

  Hiral mam is the Branch Head. She is working as a Head Developer in *Java Department.* She has expertise in team management and mentorship.

- **Nayan Savaliya**

  Project Head- External Guide

  Ashish sir is our mentor during internship and he was always there in all of needs and guided us through his best. He has vast experience in web development specially in python.

1.5 Capacity of plant:

Our company harbors 3 Project managers under which there are Team Leaders which leads a team with senior and junior developers counting about in total 5-10 employees.

Chapter 2 Overview of different department:-

2.1 Details of Department:

There are different departments and all those have many different projects they work on. Names of the departments are Advance Java, MEAN, MERN, Python, Dotnet, PhP and Flutter.

Department Name	Team Leader	Senior Developer	Junior Developer
Java	2	5	05
MEAN	1	7	12
Dotnet	2	8	15
PhP	2	3	08
Python	2	5	11
Flutter	1	8	12
MERN	2	3	03

Table 2.1 Details of Department

We also have digital marketing team, testing and Quality assessment and network team with continuous support to our hardworking professional

2.2 List of technical specification of equipment:

Hardware Requirement	6 GB Ram, 256 GB SSD/Hard Disk, System for testing.
Software Requirement	IDLE, XAMPP, Browser.
OS Requirement	Windows 10/11, Ubuntu, MacOS, Linux.
Processor	Intel I3/I5/I7th/10th gen.

Table 2.2 Technical Specification of Equipment

2.3 Production Stages

There are 3 main stages of every production: First is development and testing after that in stage and then it will be uploaded on production mode and it will be live.

• Stage 1: Project Planning:

The first stage of SDLC is all about “What do we want?” Project planning is a vital role in the software delivery lifecycle since this is the part where the team estimates the cost and defines the requirements of the new software.

• Stage 2: Gathering Requirements & Analysis:

The second step of SDLC is gathering maximum information from the client requirements for the product. Discuss each detail and specification of the product with the customer.

• Stage 3: Design:

In the design phase (3rd step of SDLC), the program developer scrutinizes whether the prepared software suffices all the requirements of the end-user. Additionally, if the project is feasible for the customer technologically, practically, and financially.

• Stage 4: Coding or Implementation:

Time to code! It means translating the design to a computer-legible language. In this fourth stage of SDLC, the tasks are divided into modules or units and assigned to various developers. The developers will then start building the entire system by writing code using the programming languages they chose. This stage is considered to be one of the longest in SDLC.

• Stage 5: Testing:

Once the developers build the software, then it is deployed in the testing environment. Then the testing team tests the functionality of the entire system. In this fifth phase of SDLC, the testing is done to ensure that the entire application works according to the customer requirement.

• Stage 6: Deployment:

The sixth phase of SDLC: Once the testing is done, and the product is ready for deployment, it is released for customers to use. The size of the project determines the complexity of the deployment. The users are then provided with the training or documentation that will help them to operate the software. Again, a small round of testing is performed on production to ensure environmental issues or any impact of the new release.

• Stage 6: Maintenance:

The actual problem starts when the customer actually starts using the developed system and those needs to be solved from time to time. Maintenance is the seventh phase of SDLC where the developed product is taken care of. According to the changing user end environment or technology, the software is updated timely.

Chapter 3 Introduction to Internship :-

3.1 Internship summary:

The internship was started on 23rd January 2023 and on first day we have done our all joining process as trainee engineers and completed the paperwork. When we joined specific Python technology was assigned to us. We started off with our basic training on C & C++. When we became proficient we were assigned into dedicated technology project on our skillful performance.

Fig 3.1 Processing Model of Python

I am assigned as a junior python developer from 23 jan 2023. In starting there are only task is to learn the technology. We started learning the conceptual core python and started to understand the project and our tasks.

3.2 Purpose:

Our main purpose for joining into this industrial training was to develop our skills and enhance our knowledge to become a skillful developer in this field.

3.3 Objective:

We trained rigorously for 12 weeks and gained a lot from our supporting seniors and from online sources too.

3.4 Scope:

There is lots of scope in internship because if we do UDP then we can't get hands on experience in well-established technology in market because in internship we get professionals to guide us very perfectly.

3.5 Technology and Literature review:

I am assigned as python trainee. Python is a programming language and computing platform first released by Guido van Rossum in 1991.

3.6 Internship Planning:

3.6.1 Internship approach and justification:

Internships are very efficient for fresher in every industry as practical approach is necessary for any individual to contribute to their respective fields. They get real world experience as they face difficulties and solve their issues to make the world a better place.

3.6.2 Internship effort and Time, Cost Estimation:

There are mainly 12 weeks of training provided in our company and if any trainee needs more than that then also they also available to train perfect trainee in their respective work. Even if anyone is able to do work on live then they welcome with confirmation.

We are taught on how to estimate the cost of our service with accurate planning to provide our service/product to the clients.

3.6.3 Roles and Responsibilities:

As an intern we are not yet trusted with dedicated projects but we are given small modules/components to build which are tested by our seniors and then implemented in live projects.

As time progresses we will eventually get our dedicated projects to work on and deal with clients directly.

3.6.4 Group Dependencies:

As an intern we are not able to do big task in live projects so our seniors divided into groups of 2 or 3 and give some dedicated task.

Projects are usually divided among a group to complete with a deadline. And there arrives a time where a module of a project gets dependent on another module to provide essential data. Dependency occurs in such timeframe.

Dependencies have a direct impact on the progress of product development, and arise frequently in cross-functional product teams. That's why it's so important that dependencies are clearly mapped out and planned for, to avoid any disruptions to overall product development.

3.7 INTERNSHIP SCHEDULING:

- Project Scheduling is the culmination of a planning activity that is primary component of software project management.
- When combined with estimation methods and risk analysis, scheduling, establishes a road map for the project management.
- Scheduling begins with the process composition. The characteristics of the project are used to adapt an appropriate task set for the work to be done.
- The task network is used to compute the critical project path, a time line chart and a variety of project information.
- When creating a software project schedule, the planner begins with a set of tasks. If automated tools are used, the work breakdown is input as a task network or task outline. Effort, duration, and start date are then input for each task. In addition, tasks may be assigned to specific individuals.

Week 1	Introduction of company and the scope of python in IT field. Started with basic, C & C++. Download software for programming in python.
Week 2	Learn about syntax of python and performed some tasks related to beginner programs and learned about functional knowledge of if…else, looping and conditional statements.
Week 3	Learned about data types in python, i.e. List, Set, Tuple and Dictionary. Also gained knowledge of methods in this all data types and performed operations on them.
Week 4	Learned about UDF with its 4 types. Additionally, gained knowledge of class & object, inheritance and its 5 types, function recursion and global keyword with lambda operations.
Week 5	Learned about 1D & 2D array and how to define function. Also worked with method overloading and overriding. Then we started working on concept of database and installed XAMPP server.
Week 6	Fired queries like INSERT, DELETE and UPDATE in python to operate database. Started working on Tkinter and created a calculator using Tkinter in python.
Week 7	Understood about our project idea and started with one of the frame of menu dishes & drinks and added calculator in design.
Week 8	Completed the menu frame and add buttons at the bottom of calc and activated them by using message box and other different methods. Also settled entry box of menu using “place” method and gave default value as ‘0’.
Week 9	Created a database named as “restaurant_data” and activate the buttons of queries INSERT, DELETE & UPDATE to store delete and update the billing data in the database.

Week 10	Learned about file handling, exception handling with different concept. Performed I/O operations in this methods and started working on assignments.
Week 11	Completed assignment 3 to 7 which includes logic box to file operator methods.
Week 12	Completed assignment 8 to 12 of databases and RegEx operations.

Table 3.1.1 Weekly Summary

Chapter 4 Concept of Core Python:-

4.1 Basic knowledge of programming:

To learn core concept of python one should have proper knowledge of C & C++ programming languages and have to be clear with syntax of coding to easily work in python.

4.2 Python Intro:

4.2.1 What is Python?

Python is a popular programming language. It was created by Guido van Rossum, and released in 1991. It is used for: Web development, Software development, Mathematics & System Scripting.

4.2.2 What can python do?

- Python can be used on a server to create web applications.
- Python can be used alongside software to create workflows.
- Python can connect to database systems. It can also read and modify files.
- Python can be used to handle big data and perform complex mathematics.
- Python can be used for rapid prototyping, or for production-ready software development.

4.2.3 Why Python?

- Python works on different platforms (Windows, Mac, Linux, Raspberry Pi, etc).
- Python has a simple syntax similar to the English language.
- Python has syntax that allows developers to write programs with fewer lines than some other programming languages.
- Python runs on an interpreter system, meaning that code can be executed as soon as it is written. This means that prototyping can be very quick.
- Python can be treated in a procedural way, an object-oriented way or a functional way.

4.2.4 Python Syntax compared to other programming languages:

- Python was designed for readability, and has some similarities to the English language with influence from mathematics.
- Python uses new lines to complete a command, as opposed to other programming languages which often use semicolons or parentheses.
- Python relies on indentation, using whitespace, to define scope; such as the scope of loops, functions and classes. Other programming languages often use curly-brackets for this purpose.

4.3 Python Getting Started:-

Many PCs and Macs will have python already installed.

To check if you have python installed on a Windows PC, search in the start bar for Python or run the following on the Command Line (cmd.exe):

```
C:\Users\Your Name>python --version
```

To check if you have python installed on a Linux or Mac, then on linux open the command line or on Mac open the Terminal and type:

```
python --version
```

4.4 Python Comments:

Comments can be used to explain Python code. Comments can be used to make the code more readable. Comments can be used to prevent execution when testing code.

Creating a Comment: Comments starts with a #, and Python will ignore them

4.5 Variables:

A variable can have a short name (like x and y) or a more descriptive name (age, carname, total_volume). Rules for Python variables:

- A variable name must start with a letter or the underscore character
- A variable name cannot start with a number
- A variable name can only contain alpha-numeric characters and underscores (A-z, 0-9, and _)
- Variable names are case-sensitive (age, Age and AGE are three different variables)
- A variable name cannot be any of the python keywords.

4.5.1 Assign Multiple Values:

1) Many Values to Multiple Variables:

```
x, y, z = “Orange”, “Banana”, “Cherry”
print(x)
print(y)
print(z)
```

2) One Value to Multiple Variables:

```
x = y = z = “Orange”
print(x)
print(y)
print(z)
```

4.5.2 Global Variable:

Variables that are created outside of a function (as in all of the examples above) are known as global variables.

Global variables can be used by everyone, both inside of functions and outside.

```
def myfunc():
    global x
    x= “fantastic”
myfunc()
print(“python is” + x)
```

4.6 Data Types:

In programming, data type is an important concept. Variables can store data of different types, and different types can do different things. Python has the following data types built-in by default, in these categories:

Text	Str
Numeric	int, float, complex
Sequence	list, tuple, range
Mapping	Dict
Set	set, frozenset
Boolean	Bool
Binary	bytes, bytearray, memoryview

Table 4.1 Data types

These all are the built-in data types in python used to store collection of data. Main 4 data types that has been used by programmers in daily use are: List, Tuple, Set, Dictionary.

4.7 Conditional Statement:

Python supports the usual logical conditions from mathematics:

- Equals: a == b
- Not Equals: a != b
- Less than: a < b
- Less than or equal to: a <= b
- Greater than: a > b
- Greater than or equal to: a >= b

These conditions can be used in several ways, most commonly in "if statements" and loops. An "if statement" is written by using the if keyword.

4.8 Looping:

4.8.1 For Loop:

A for loop is used for iterating over a sequence (that is either a list, a tuple, a dictionary, a set, or a string).

This is less like the for keyword in other programming languages, and works more like an iterator method as found in other object-orientated programming languages.

With the for loop we can execute a set of statements, once for each item in a list, tuple, set etc.

4.8.2 While Loop:

With the while loop we can execute a set of statements as long as a condition is true. The while loop requires relevant variables to be ready, in this example we need to define an indexing variable, i, which we set to 1.

4.9 Classes & Objects:

Python is an object oriented programming language. Almost everything in Python is an object, with its properties and methods. A Class is like an object constructor, or a "blueprint" for creating objects.

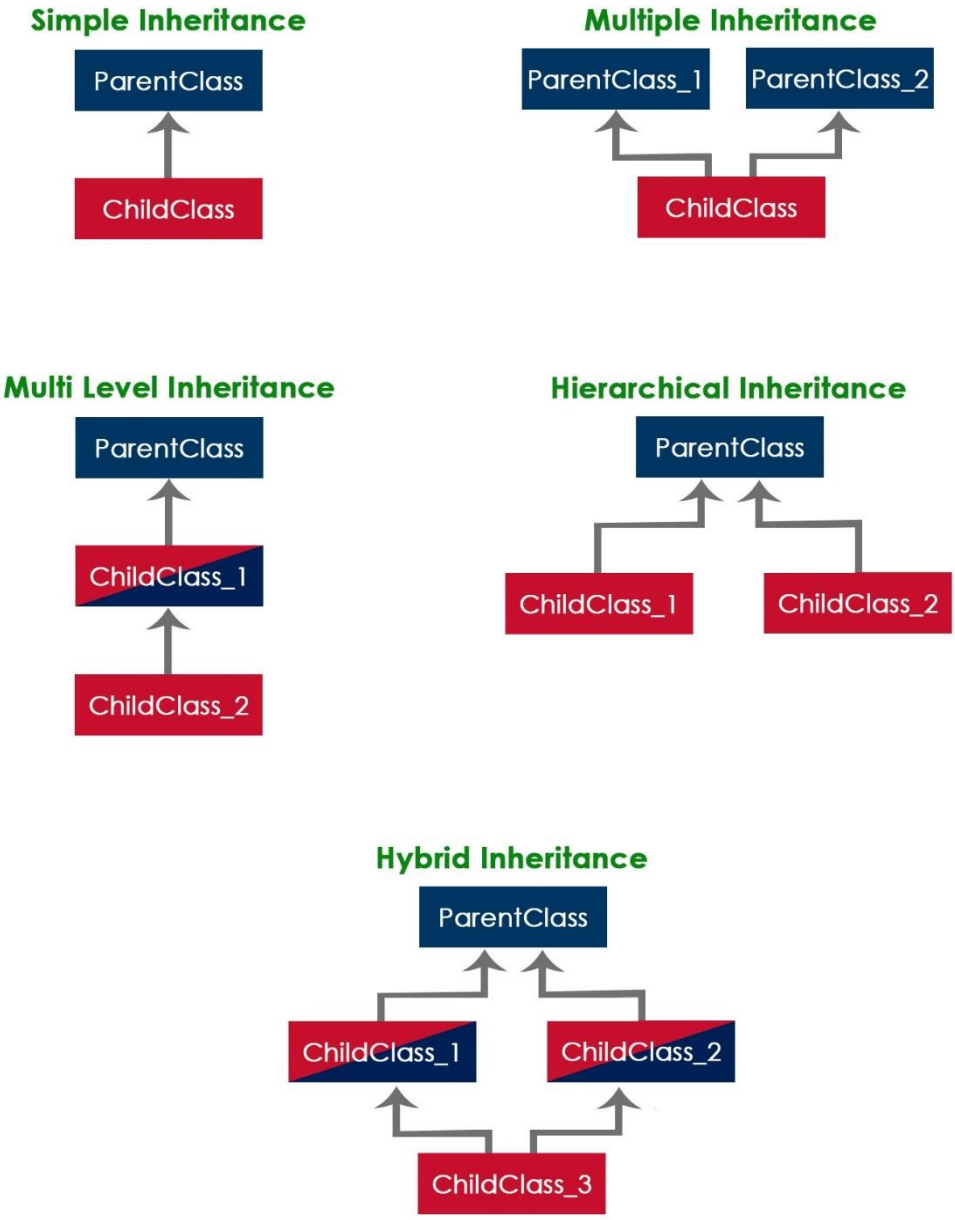


Fig. 4.1.1 Types of Inheritance

Chapter 5 Designing of Software:-

5.1 Platform:

IDLE (Integrated Development and Learning Environment) is the official IDE (Integrated Development Environment) for Python. It is included with the standard Python distribution and is available on all major platforms, including Windows, macOS, and Linux.

IDLE provides a user-friendly environment for writing, testing, and debugging Python code. It features a code editor with syntax highlighting, code completion, and other productivity features, as well as a Python shell for interactive experimentation. IDLE also provides a debugger for finding and fixing errors in your code.

To open IDLE on Windows, you can search for "IDLE" in the Start menu or navigate to the Python installation directory and run "python.exe" with the argument "-m idlelib". On macOS and Linux, you can open the terminal and run the "idle" command.

Once you have IDLE open, you can create a new Python file by selecting "File" > "New File" from the menu or by using the "Ctrl+N" shortcut. You can then start writing Python code in the editor and run it by selecting "Run" > "Run Module" from the menu or by using the "F5" shortcut.

Overall, IDLE is a great tool for learning and developing Python code. Its user-friendly interface and powerful features make it a popular choice for both beginners and experienced developers.

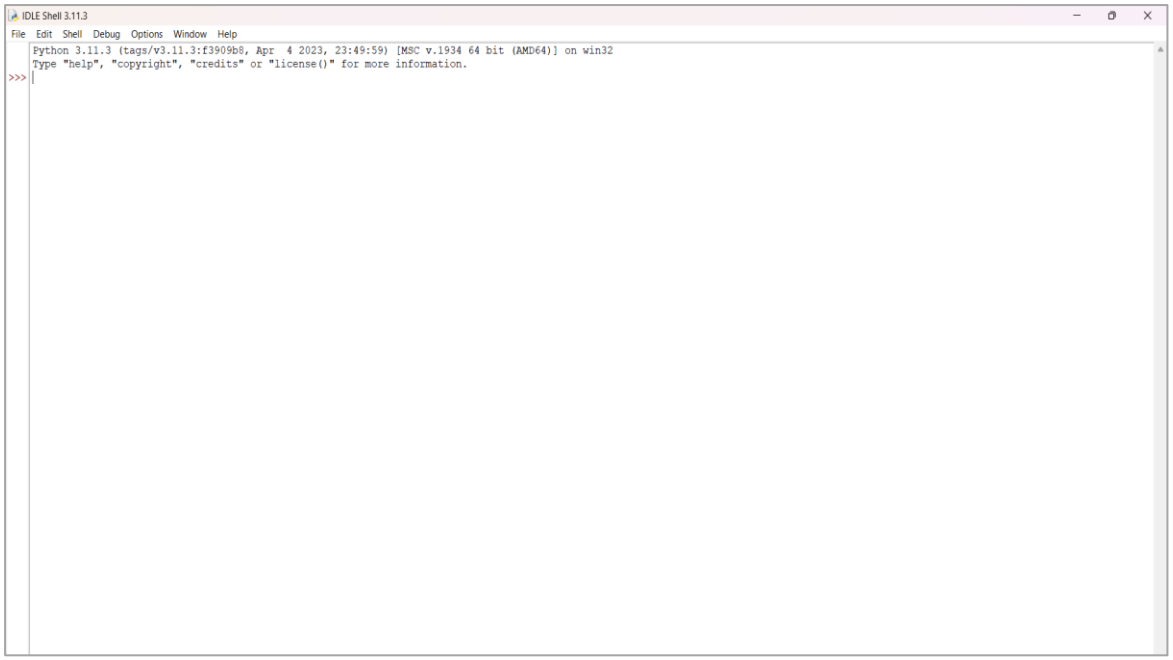


Fig. 5.1 IDLE SHELL 3.11.3

5.2 Calc using python:

This is our first and beginning task of project. This part includes creating a calculator through python coding with all the basic operations that has been used for counting.

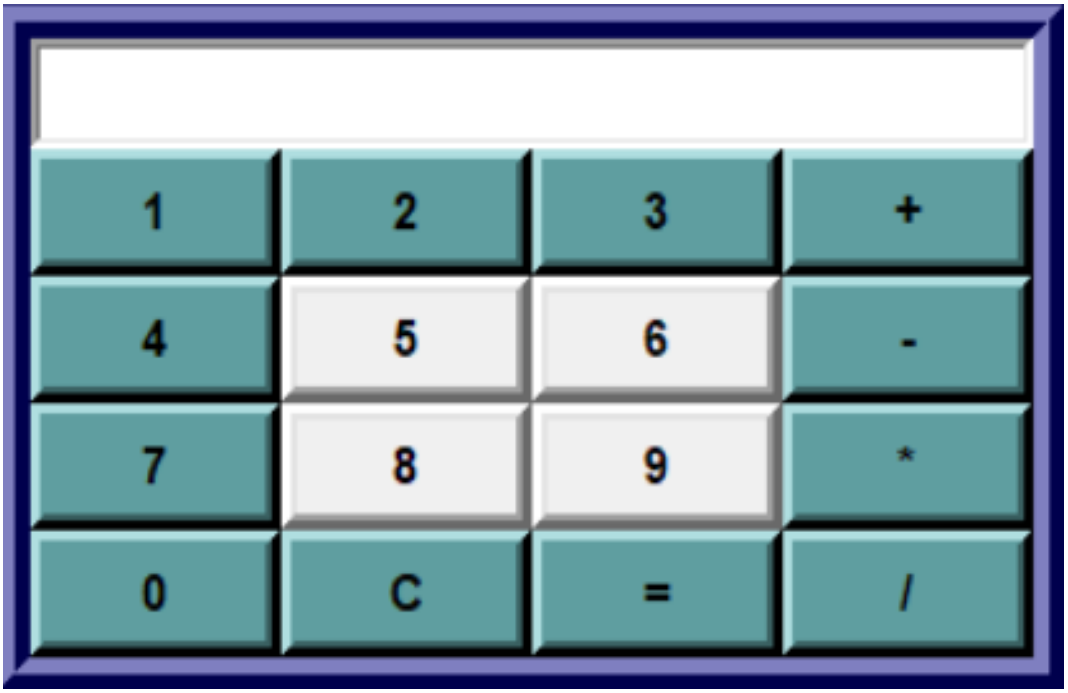


Fig. 5.3 Calculator

This calculator also includes a wide screen for showing the mathematical operations. To clear the screen there is one button named as ‘C’ with the help of it we can start from the beginning.

5.3 Menu Frame:

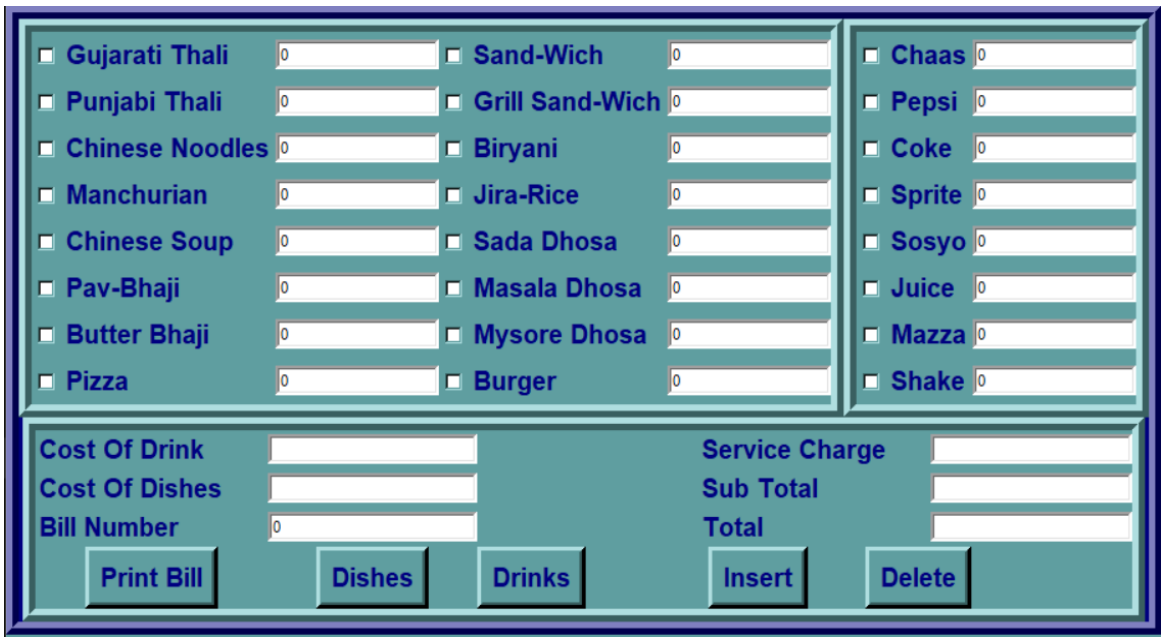


Fig. 5.4 Menu Frame

Menu frame is working like two hands of the system. Because it includes all the item's names which are used by user.

This frame is mainly divided into 3 parts.

1) Dishes Frame
2) Drinks Frame
3) Billing Frame

All these three frames are explained in detail below.

5.3.1 Dishes Frame:

- A very first thing to design something in python is to import the tkinter. So, first programmer has to import the tkinter and then it can start a designing.

- Dishes frame has been created using the buttons & entry boxes. Buttons & Entry boxes are located with the help of “Grid” method.

- Also we gave the initial default value as ‘0’ and gave onvalue and offvalue to activate the entry boxes after the clicking by the user.

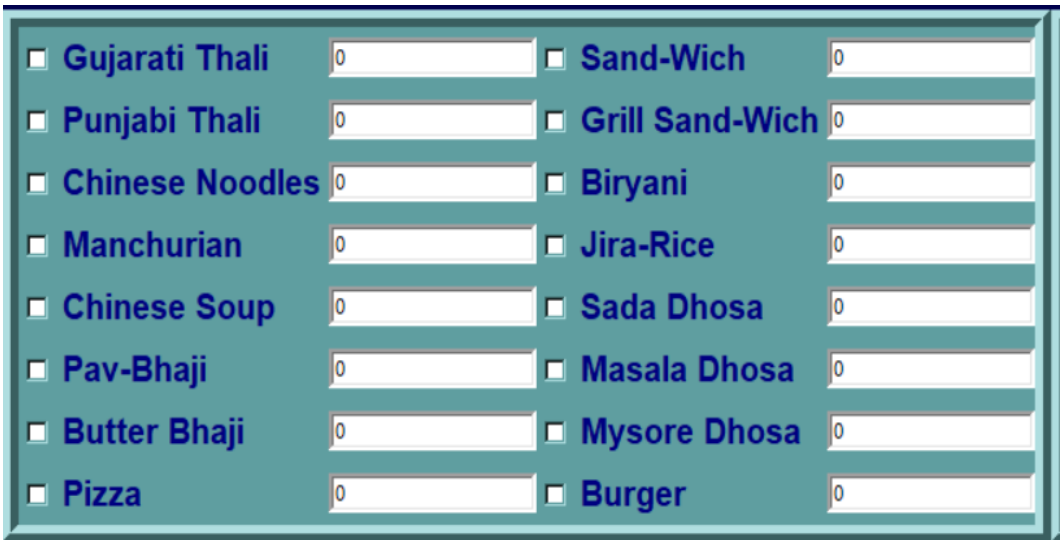


Fig. 5.5 Dishes Frame

5.3.2 Drinks Frame:

- This frame is nothing but created same as dishes frame but the only change is of items. Rest of all are remaining same.

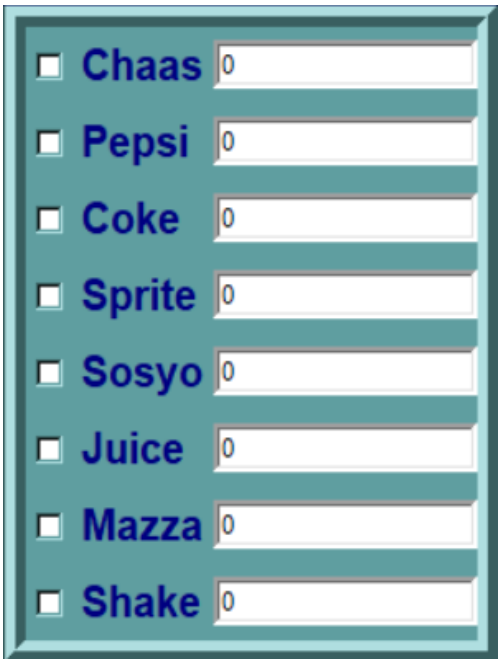


Fig. 5.6 Drinks Frame

5.3.3 Billing Frame:

- At the bottom of this frame there are 5 buttons named as: print bill, dishes, drinks, insert & delete.

- This frame includes cost of drinks, cost of dishes, service charge, subtotal, bill number & total as buttons and entry boxes. The functions of this fields are shown as below.

Cost of Drinks	Calculate the total amount of drinks
Cost of Dishes	Calculate the total amount of dishes
Service Charge	This includes service charge decided by user
Subtotal	Calculate the total of above 3
Bill Number	It crates any random bill number
Total	Calculate the total of above all the fields

Table 5.1 Functions of fields

- Now, talk about dishes & drinks buttons at bottom. This shows the price of items. For this we have to create a table into database separate for dishes and drinks.

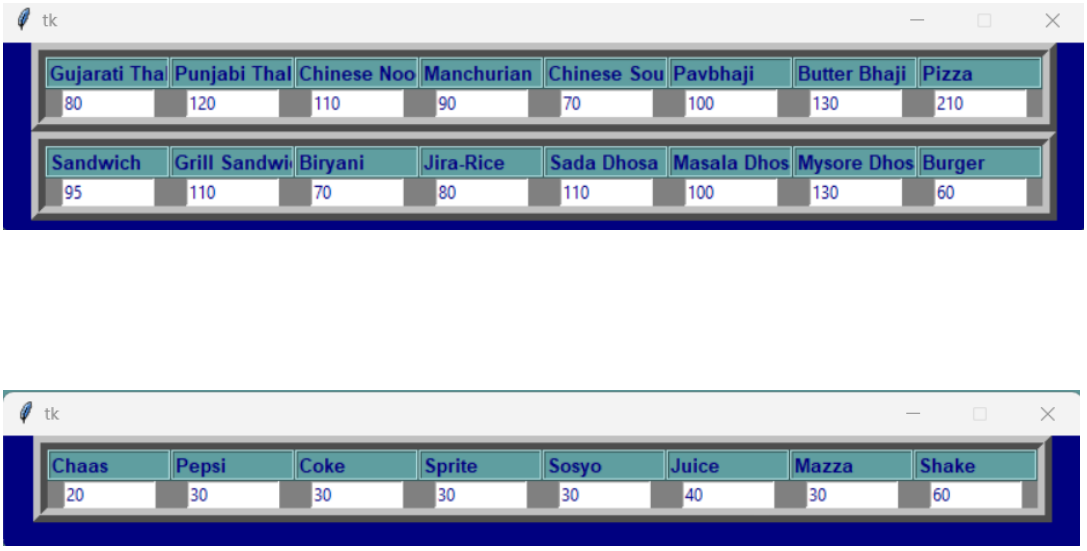


Fig. 5.7 Price List

- Then after we have to give the prices of items as default value into to table that is stored into the database.

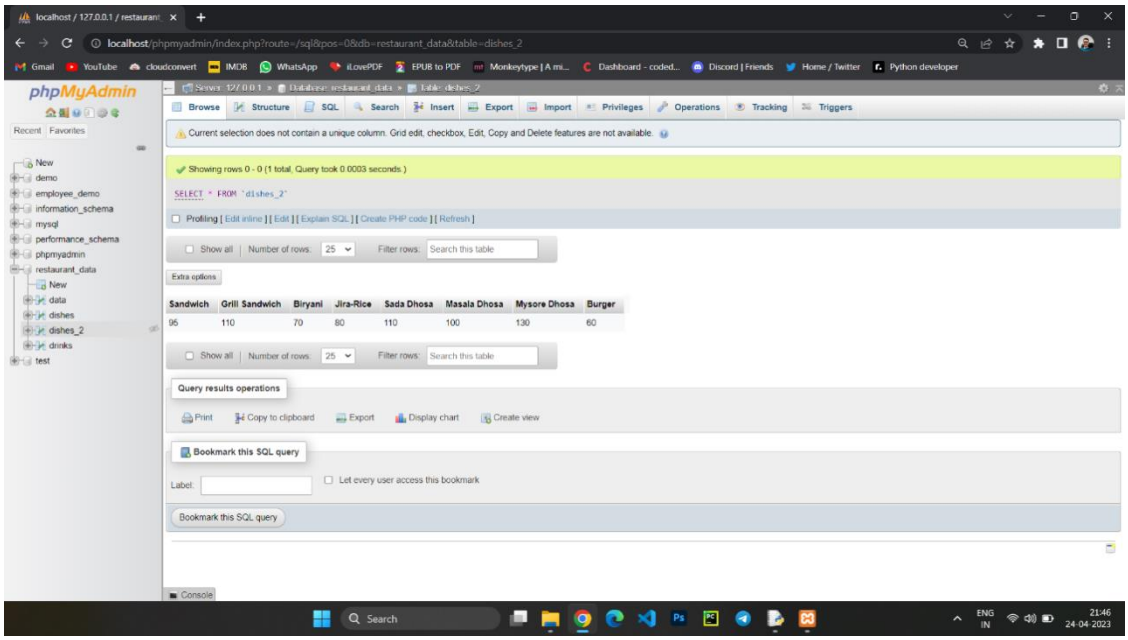
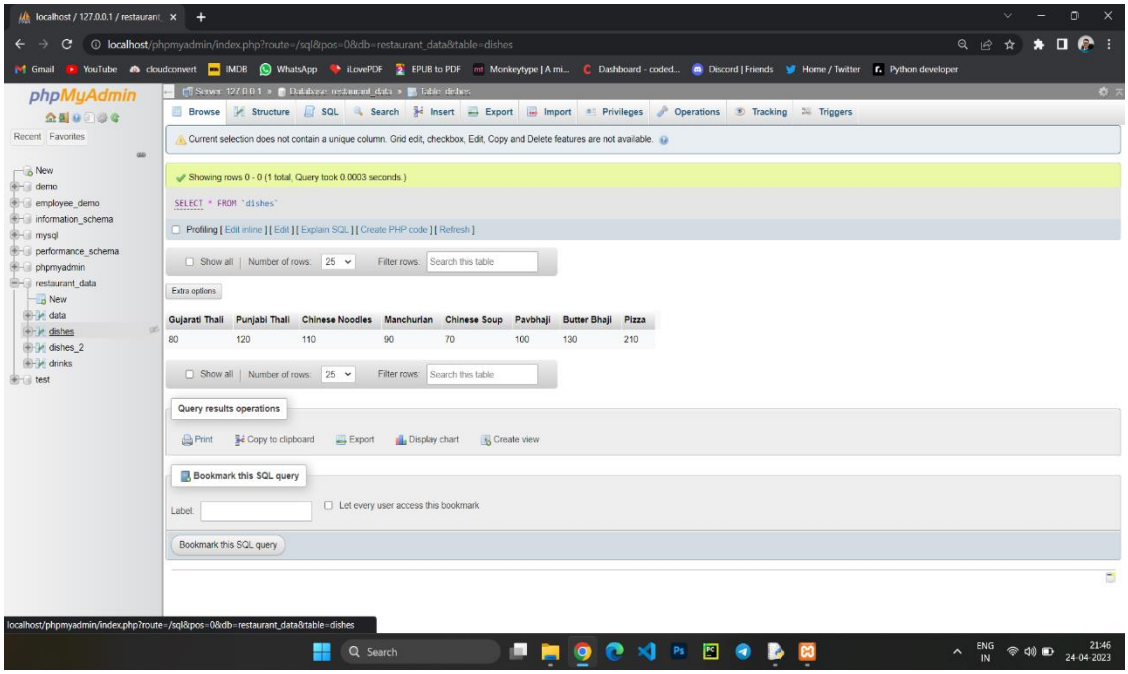
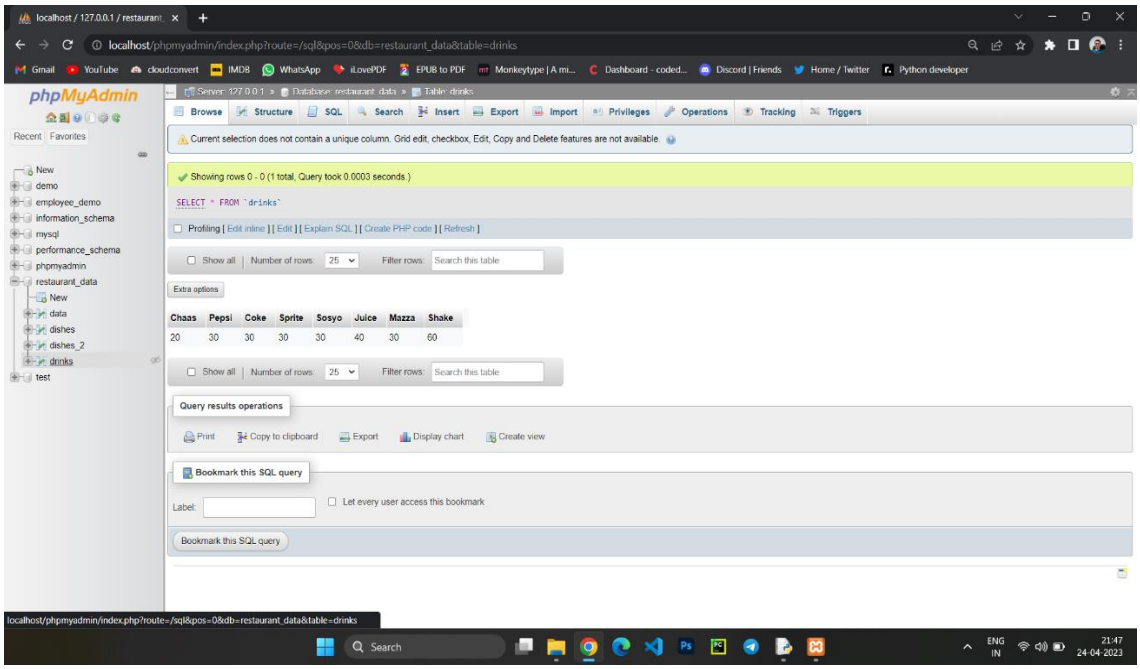


Fig. 5.8 Price List in Database





5.3.4 Insert the Data:

- To insert the the data into the database first mandatory thing is database with proper name and conditions.

- Then we have to just fired the query into the programming to insert the data. To store the billing data with bill number has been shown below in the figure.

```
def Insert():
    billnumber=BillNumber.get()
    costofdishes=CostOfDishes.get()
    costofdrinks=CostOfDrinks.get()
    servicecharge=ServiceCharge.get()
    subtotal=Subtotal.get()
    total=Total.get()

    mydb = mysql.connector.connect(
      host="localhost",
      user="root",
      password="",
      database="restaurant_data"
    )

    mycursor = mydb.cursor()
    sql = "INSERT INTO data (Bill_Number,dishes_cost,drinks_cost,service_charge,subtotal,total)VALUES (%s,%s,%s,%s,%s,%s)"
    val = (billnumber,costofdishes,costofdishes,servicecharge,subtotal,total)

    mycursor.execute(sql,val)

    mydb.commit()
    print(mycursor.rowcount, "record inserted.")
```

Fig. 5.9 Insert Query

- In this insert query we have already settled bill number as “Primary Key”. So, this can be helpful in printing of the bill and looking for bill into the database.

5.3.5 Delete the Data:

- This query includes same process as insert but the difference is to delete the data from the database we just need to have bill number.

- By just entering the bill number and clicking on the delete button data will be permanently remove from the base.

```
def Delete():
    billnumber=BillNumber.get()

    mydb = mysql.connector.connect(
      host="localhost",
      user="root",
      password="",
      database="restaurant_data"
    )

    mycursor = mydb.cursor()
    sql = "DELETE FROM data WHERE id =%s"
    val = (billnumber,)

    mycursor.execute(sql,val)

    mydb.commit()
    print(mycursor.rowcount, "record Deleted.")
```

Fig. 5.10 Delete Query

5.4 Receipt Section:

Receipt section below the calculator part includes one blank screen with 4 buttons: Total, Receipt, Reset & Exit.

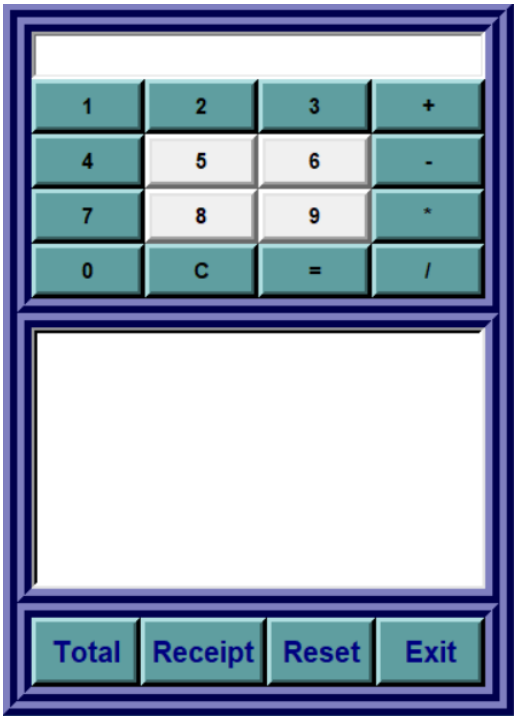


Fig. 5.11 Receipt Section

5.4.1 Exit:

- This button includes messagebox function from the python. This operation performed with the help of messagebox. User has to just import the message box into the tkinter and attach it with that button.
  So that will ask the user that he/she surely wants to quit the display or not?

5.4.2 Receipt:

- This is the heart of the software. This part of programming is bit tough to crack because it includes majorly all the syntax type of the programming.

- So, the coding receipting part of the software is shown as below.

```
def bill():
    global Billnumber,date
    if CostOfDrinks.get() != '' or CostOfDishes.get() != '':
        textReceipt.delete(1.0,END)
        Billnumber='BILL'+str(m)
        date=time.strftime('%d/%m/%Y')
        textReceipt.insert(END,'Receipt Ref:'+Billnumber+'\t\t\t'+date+'\n')
        textReceipt.insert(END,'*************************************************\n')
        textReceipt.insert(END,'Items:\t\t Cost Of Items(Rs)\n')
        textReceipt.insert(END,'*************************************************\n')
        textReceipt.insert(END,'*************************************************\n')
        if CostOfDrinks.get()!='0 Rs':
            textReceipt.insert(END,f'CostOfDrinks\t\t\t{PriceOfDrinks}Rs\n')
        if CostOfDishes.get() != '0 Rs':
            textReceipt.insert(END,f'CostOfDishes\t\t\t{PriceOfDishes}Rs\n')

        textReceipt.insert(END, f'Subtotal\t\t\t{S1}Rs\n')
        textReceipt.insert(END, f'ServiceCharge\t\t\t{50}Rs\n\n')
        textReceipt.insert(END, f'Total\t\t\t\t{T1}Rs\n')
        textReceipt.insert(END,'*************************************************\n')


        op=messagebox.askyesno("Save bill","Do you want t o save the Bill?")
        if op>0:
            bill_details=textReceipt.get('1.0',END)
            f1=open("BILL/"+(Billnumber)+".txt","w")
            f1.write(bill_details)
            f1.close()
            messagebox.showinfo("Saved",f"Bill no: {Billnumber} Saved Successfully")
        else:
            return
```

Fig. 5.12 Bill

- For adding all the mandatory fields into the bill and also we have to focus on designing of bill. So, using the '*' we made it proper and assign the textvariable values to the original values of bill to make it happen.

5.4.3 Total:

- This part has been done through buttons and labels. By clicking on the "Total" button user can able to find the total of items in the menu frame.

- Total of dishes includes in the cost of dishes likewise drinks store into the cost of drinks. At last, this both values are added with service charge and stored into the total.

- Then after by giving command of total to the "Total" button and user can get the final billing.

5.4.4 Reset:

- This part of programming is not very tough but just reset the values of all entry boxes as '0'.

- This method is calling by below coding.
  field.reset()

Chapter 6 Database Connectivity:-

6.1 Flow diagram:

The flowchart for database connectivity in python is shown below.

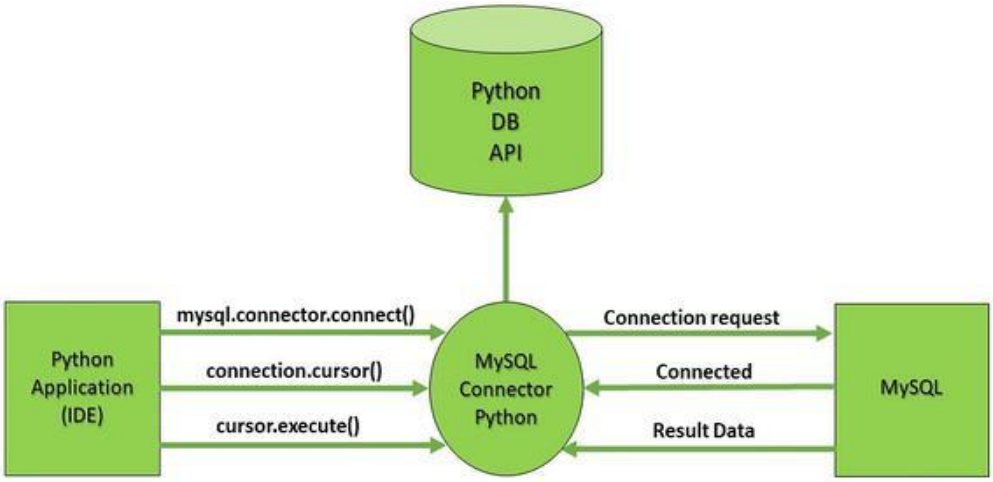


Fig. 6.1 Flow Diagram

6.2 Operations in Database:

- While, insert and delete buttons are present in the software. When user clicks on the insert button it adds the billing details with bill number into the database.

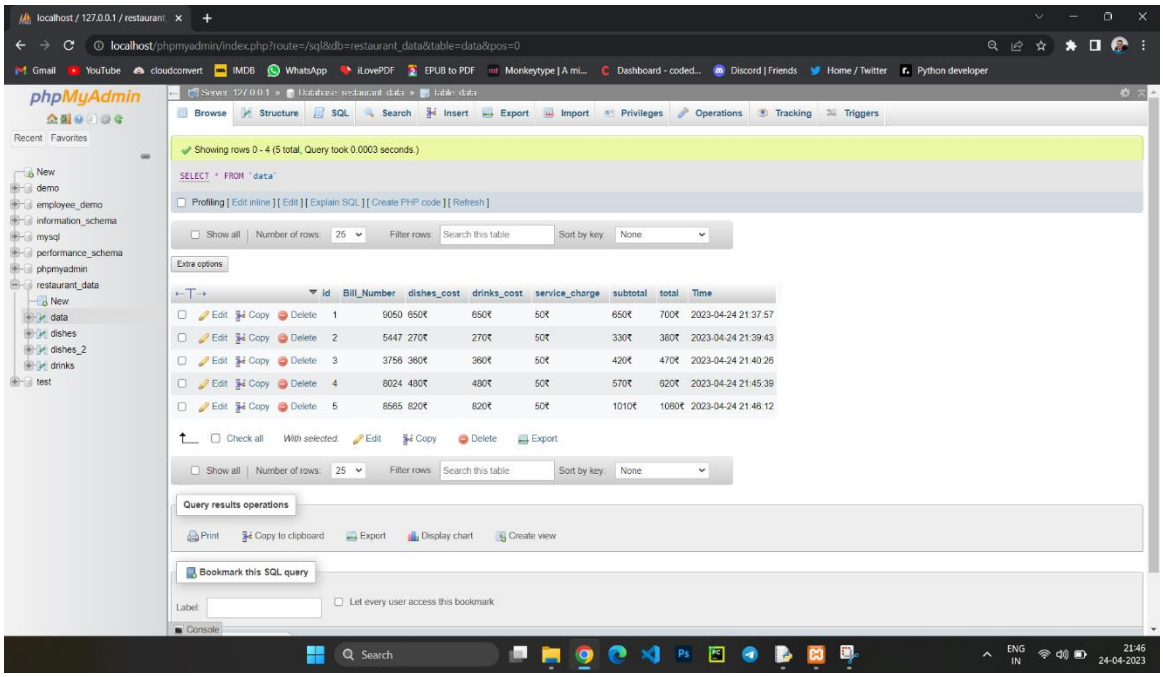


Fig. 6.2 Entries in Database

6.3 CONNECTING MySQL WITH PYTHON:

- To create a connection between the MySQL database and Python, the **connect()** method of **mysql.connector** module is used. We pass the database details like HostName, username, and the password in the method call, and then the method returns the connection object.
  The following steps are required to connect SQL with Python:

Step 1: Download and Install the free MySQL database

Step 2: After installing the MySQL database, open your Command prompt.

Step 3: Navigate your Command prompt to the location of PIP.

Step 4: Now run the commands given below to download and install "MySQL Connector". Here, mysql.connector statement will help you to communicate with the MySQL database.

```
Pip install mysql-connector-python
```

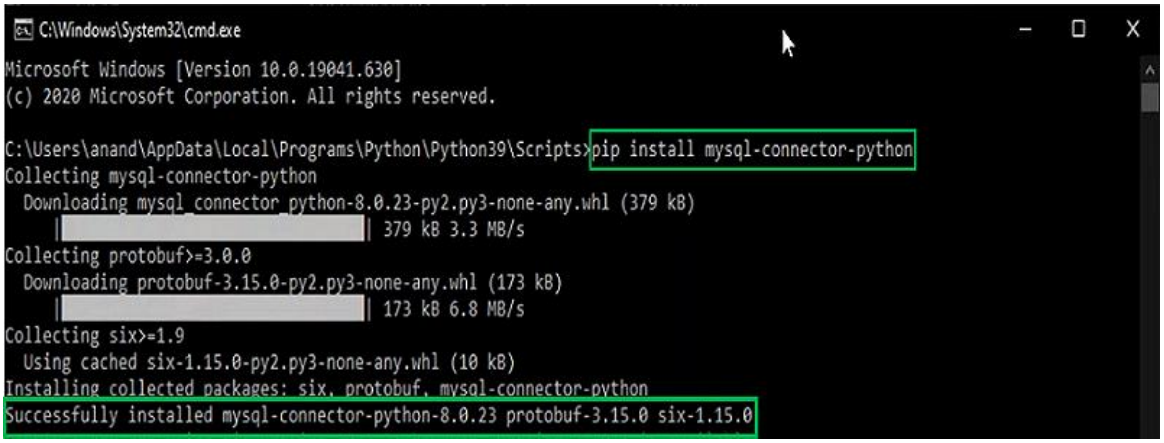


Fig. 6.3 PIP Installation

6.4 ACTIVITY DIAGRAM

Activity diagrams are diagrams that illustrate the sequence of activities in a system. They demonstrate the flow of events from a starting point to an ending point, including various decision paths that may exist within the activities. These diagrams

are utilized to depict situations where multiple activities are executed simultaneously. Activity diagrams are particularly useful in business modeling, as they effectively illustrate the processes involved in various business activities.

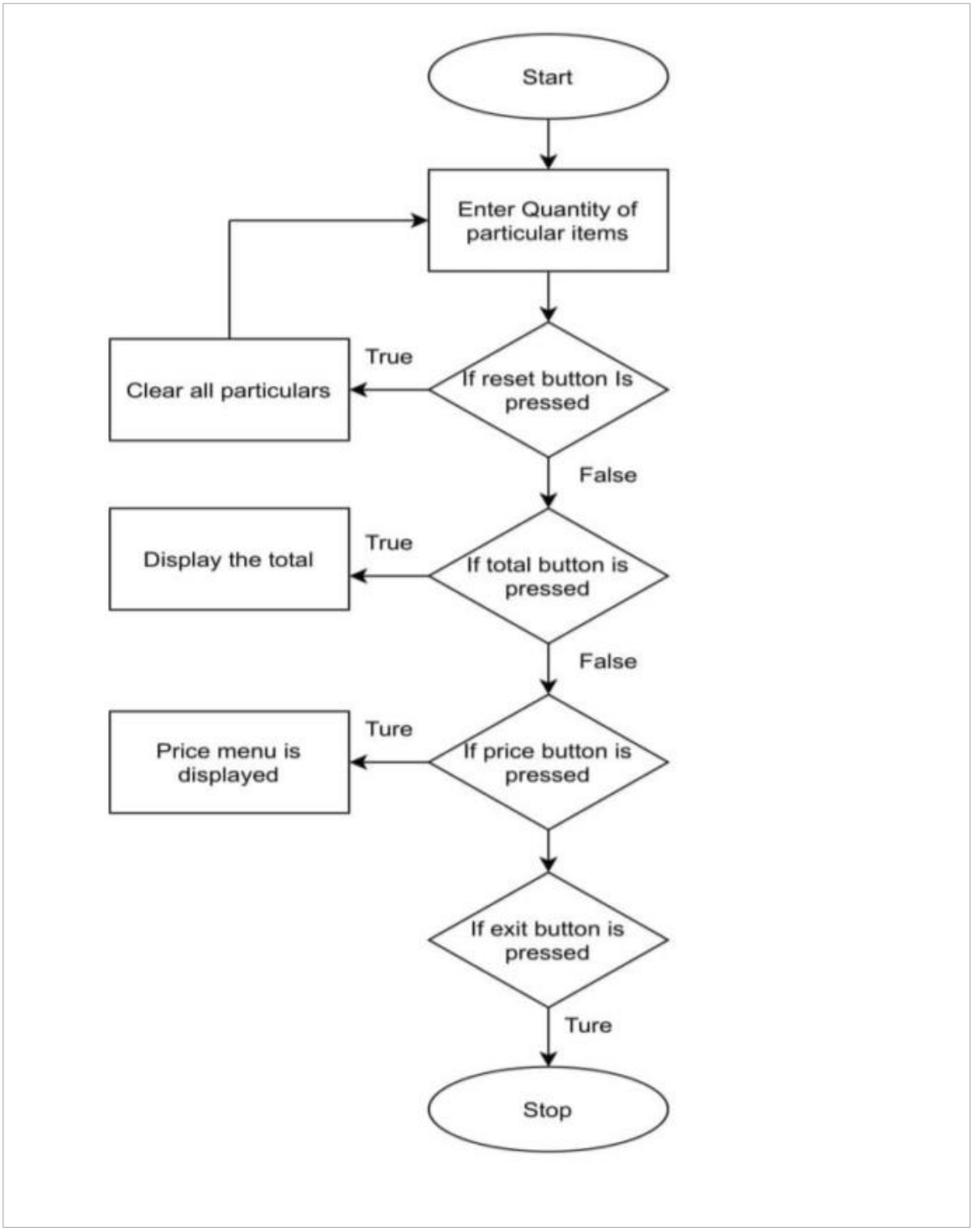


Fig. 6.4 Activity Diagram

CHAPTER 7: PROTOTYPE:-

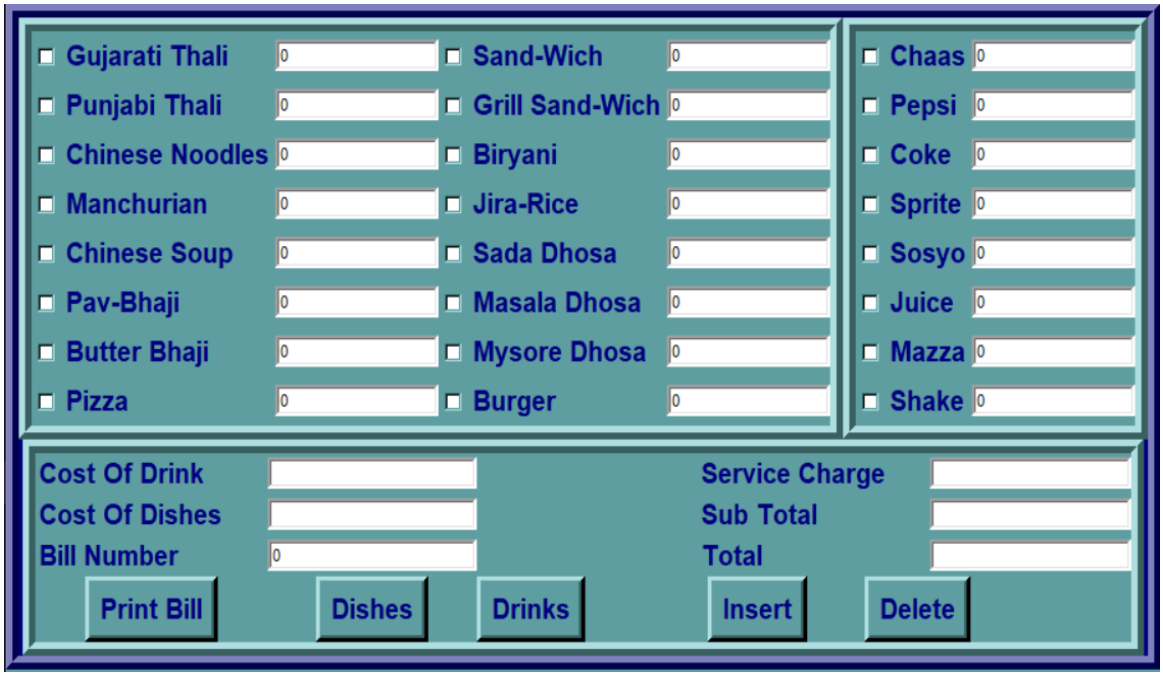


Fig. 7.1 Prototype

7.1 Testing:

A test plan is the cornerstone of a successful testing implementation. The testing plan represents the overall approach to the test. In many ways, the test plan serves as a summary of the test activities that will be performed. It shows how the tests will be organized, and outlines all of the tester's needs that must be met in order to properly carry out the test. The goal of test planning is to establish the list of tasks that, if performed, will identify all of the requirements that have not been met in the software. There are many standards that can be used for developing test plans. Early in the deployment planning phase, the testing effort, and identifies the methodology that your team will use to conduct tests.

It also identifies the hardware, software, and tools required for testing and the features and functions that will be tested. A well-rounded test plan notes any risk factors that jeopardize testing and includes a testing schedule. So, we can say that Test Planning details the activities, dependencies and effort required to conducting the system test.

7.2 Test Result and Analysis:

Test analysis involves execution and implementation of the software with test data and examining the outputs of the software and its operational behavior to check that it is performing as required. Defect Testing is intended to find inconsistencies between a program and its specification. These inconsistencies are usually due to program faults or defects.

7.2.1 Test Cases:

A test case is a document, which has a set of test data, preconditions, expected results and post conditions, developed for a particular test scenario in order to verify compliance against a specific requirement.
Test Case acts as the starting point for the test execution, and after applying a set of input values; the application has a definitive outcome and leaves the system at some end point or also known as execution post condition.

Testing was done by us under the guidance of our mentors. If an error occurred, we were supposed to note it down and make changes that would reflect positively on the website.

7.3 User Case Diagram

A use case diagram is used to illustrate the dynamic nature of a system and capture its requirements, both internal and external. It shows the actors and elements responsible for implementing the use cases, as well as the interactions between them. This diagram depicts how an external entity interacts with a specific part of the system.

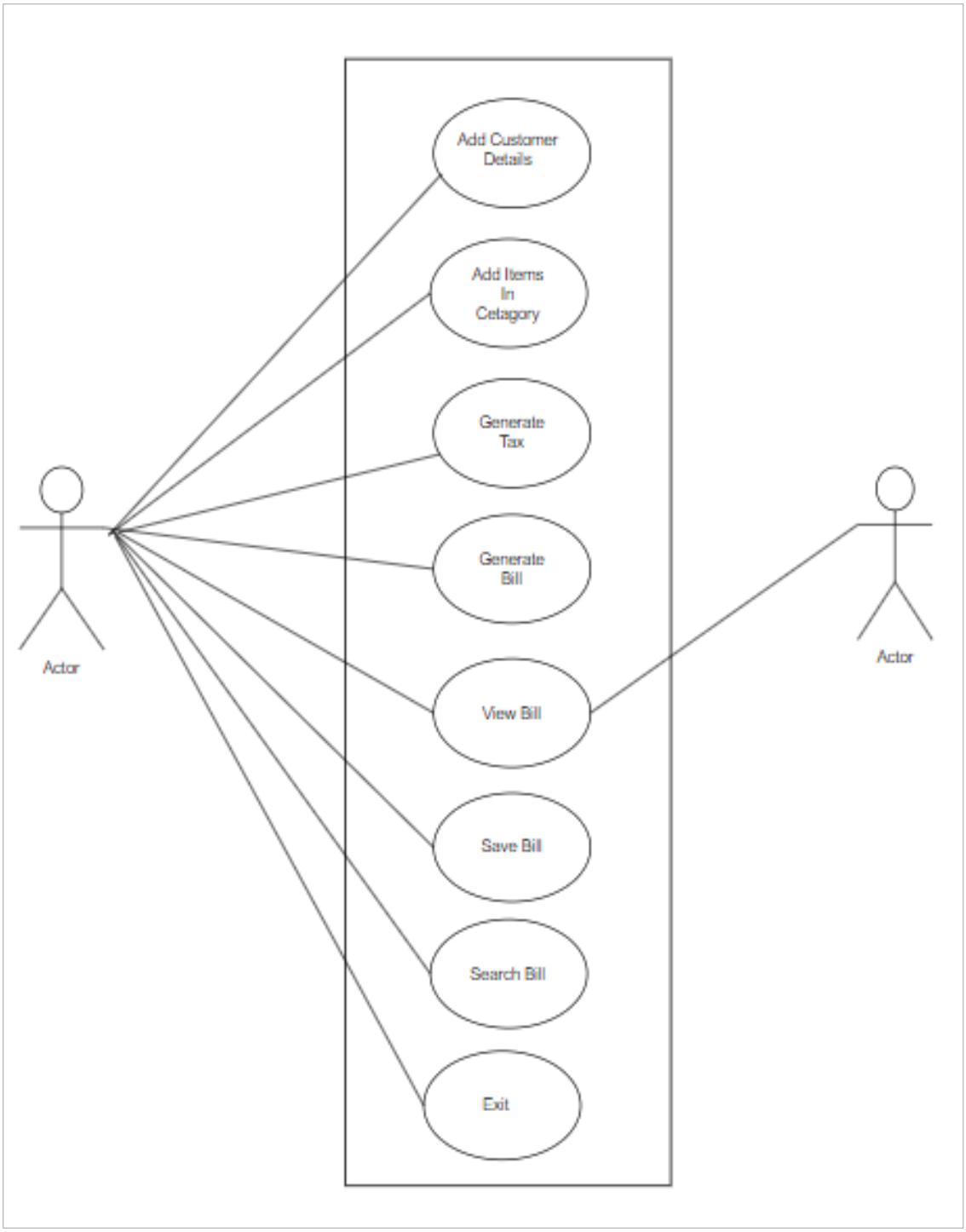


Fig. 7.2 User Case

Chapter 8: Conclusion & Discussion:-

8.1 Overall Analysis of Internship Viabilites:

During the course of the internship, I successfully implemented the concepts that I learnt in Python, MySQL and data science. Under the guidance and suggestions of our external and internal guide, I implemented the modules assigned to me (back-end development, database connection, research work, data visualization using Pandas and plotly library). The working model of the project/web application will undergo some changes.

8.2 Problems Encountered and Possible Solutions:

During the development and testing phase, some problems were encountered that included error in code, technical difficulties, inaccuracy of data, inaccurate redirection, problem while connecting IDLE to SQLite database, problem during implementing Matplotlib and Pandas library.

The solutions were given soon by our mentors who guided us throughout this project and enabled us to create a fully working model of a web application.

8.3 Limitations:

- Infrastructural Barriers
- Currently, the system can only perform assessment based on the research data that has been gathered.
- The project is currently accessible in web application form only.
- Appropriate internet connection is required to access the web application.

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