

# Database Code Document

This instruction document is for all the database related code, where we have codes for inserting data into the database, search the data from database based on ID or Name and, systems for update the details on the database. In this project, we are using PostgreSQL Database.

PostgreSQL is a powerful, open-source object-relational database system with over 30 years of active development that has earned a strong reputation for reliability, feature robustness, and performance. PostgreSQL is available in all Ubuntu versions by default. However, Ubuntu "snapshots" a specific version of PostgreSQL that is supported throughout the lifetime of that Ubuntu version. Other versions of PostgreSQL are available through the PostgreSQL apt repository. You can also download and install it on Windows 10.

**Note:** This project is developed on a Linux System (Ubuntu), so it is advisable to use Linux System.

## System Set-Up

There are a couple of Python packages that need to validate before running any above program in this folder. Please go to the [Installation Documents](#) folder and follow all the steps.

## Pre-Requisites

- A system running on Windows/Ubuntu APP/Ubuntu OS
- A user account with sudo/administration privileges
- Access to a terminal window/command-line

Before continuing with this tutorial, make sure you are logged in as root or a user with sudo or administration privileges and completed all the necessary steps from the [Installation Documents](#) folder.

In this tutorial, we will explain all the Database Codes that are written in Python3 on Ubuntu. We have some codes related to the database as follows:

1. Customer\_Insert.py
2. Customer\_Search\_Main.py
  - I. Customer\_Search\_ID.py
  - II. Customer\_Search\_Name.py
3. Customer\_Update.py

```
somak@VivoBook: ~/Robotic-Greeter/Development_Code/Database_Code$ ls -lrt
total 108
-rwxrwxr-x 1 somak somak 32642 Jun 27 18:22 Customer_Update.py
-rwxrwxr-x 1 somak somak 20001 Jun 27 18:40 Customer_Search_Name.py
-rwxrwxr-x 1 somak somak 15654 Jun 27 18:40 Customer_Search_ID.py
-rwxrwxr-x 1 somak somak 19201 Jun 27 18:57 Customer_Insert.py
-rw-rw-r-- 1 somak somak 4522 Jun 27 19:17 README.rst
-rwxrwxr-x 1 somak somak 8995 Jun 30 18:14 Customer_Search_Main.py
somak@VivoBook: ~/Robotic-Greeter/Development_Code/Database_Code$
somak@VivoBook: ~/Robotic-Greeter/Development_Code/Database_Code$
```

All the Python codes in the Database Code folder deals with main customer details tables, which contains all the information of the users. The main tables are in the following:

- Development (DEV) : carego\_customer\_dev
- Test (TEST) : carego\_customer\_test
- Production (PROD) : carego\_customer\_prod

Only, Customer\_Insert.py program uses the following sequence table. The sequence table is essential, which helps to create an auto-increment ID for the main table.

- carego\_customer\_dev\_ID\_seq

Most of the program uses database connection from Python as follow :

```
conn = psycopg2.connect(dbname="caregodb", user="postgres", password="postgres",
host="127.0.0.1", port="5432")
```

```
conn = psycopg2.connect(dbname="caregodb", user="postgres", password="postgres", host="127.0.0.1", port="5432")
cur = conn.cursor()
print("Connection success")
```

Currently, we only used the **carego\_customer\_dev** table since it is only in the development phase. Each of the codes in this folder has one function called **process\_parameter\_set()**, which contains the region value. Depending on the region value, the program will select the respective tables. Hence it is essential to validate this function before running any codes. Also, it is crucial to verify the table before running any programs. To check the table, please go through the [PostgreSQL pgAdmin4 Installation](#) document, which is present inside of [Installation Documents](#) folder.

```
def process_parameter_set():
    """
```

```
region = "DEV"
today = date.today()
creation_date = today.strftime("%d/%m/%Y")

return region, creation_date
```

## Database Code

Database related code is written in Python as follow:

### 1. Customer\_Insert.py

Customer\_Insert.py is use for inserting the data of the user into the table mentioned above. This program will be called from Main\_Process.py. If the user wants to save their details in the database, then Main\_Process.py will call this program, and this process will insert the data into the table mentioned above.

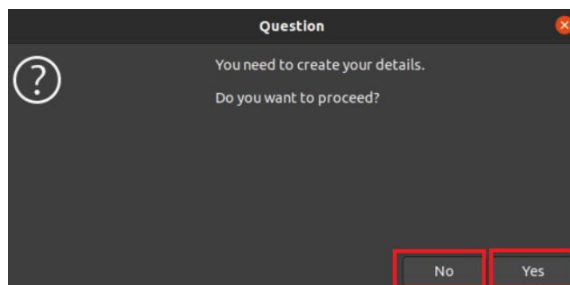
#### Execution:

- To run this program, run the below command from your command prompt.

```
$ python3 Customer_Insert.py
```

```
somak@VivoBook:~/Robotic-Greeter/Development_Code/Database_Code$ python3 Customer_Insert.py
Starting program : Customer_Insert.py - at : 19:52:44 on : 30/06/2020
['Somak', 'Mukherjee', 'abc@gmail.com', '123456789', 'XXXXX', 'YYYYY']
Connection success
Data inserted successfully - Query & Seq. : INSERT INTO carego_customer_dev ("First_Name", "Last_Name", "
Employer", "Role", "Creation_Date")
VALUES (%s, %s, %s, %s, %s, %s, %s); SELECT CURRVAL('"carego_customer_dev_ID_seq" '::regclass);
Unique_ID : 22
Ending program : Customer_Insert.py - at : 19:53:43 on : 30/06/2020
```

- Once you run the program, it will prompt a pop-up message as below. Click Yes to continue and No to exit.

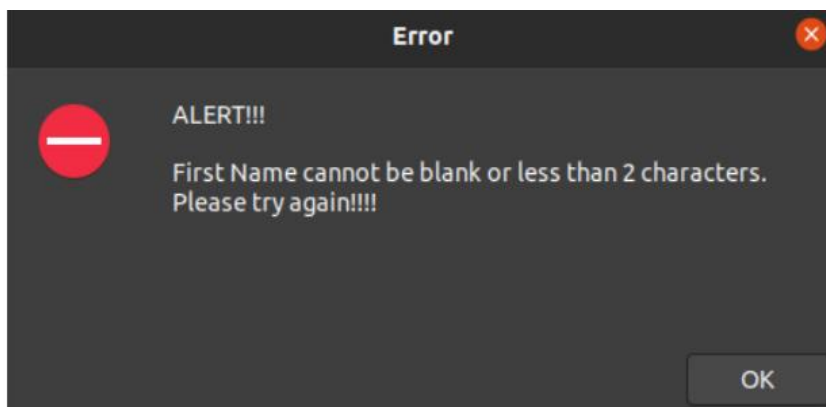


- After you click the Yes button, this program will pop-up a new create user message. In this pop-up screen, you need to fill your details as follows. Then click OK to continue.

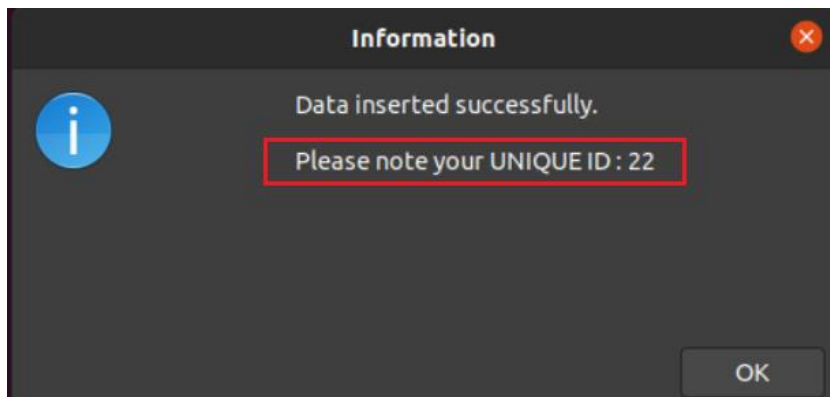
There are some validation present in the fields as below:

Fields	Description (Validation)
First Name	It cannot be less than two characters or numbers.
Last Name	It cannot be less than two characters or numbers.
Email ID	It cannot be less than seven characters and has to include @ and dot.
Phone No	It cannot be less than seven numbers and must be numeric.
Employer	NA
Role	NA

- If you do not fill the correct details as per validation, then this process will prompt an Alert pop-up with the description. Then, you can click OK to insert your details again.

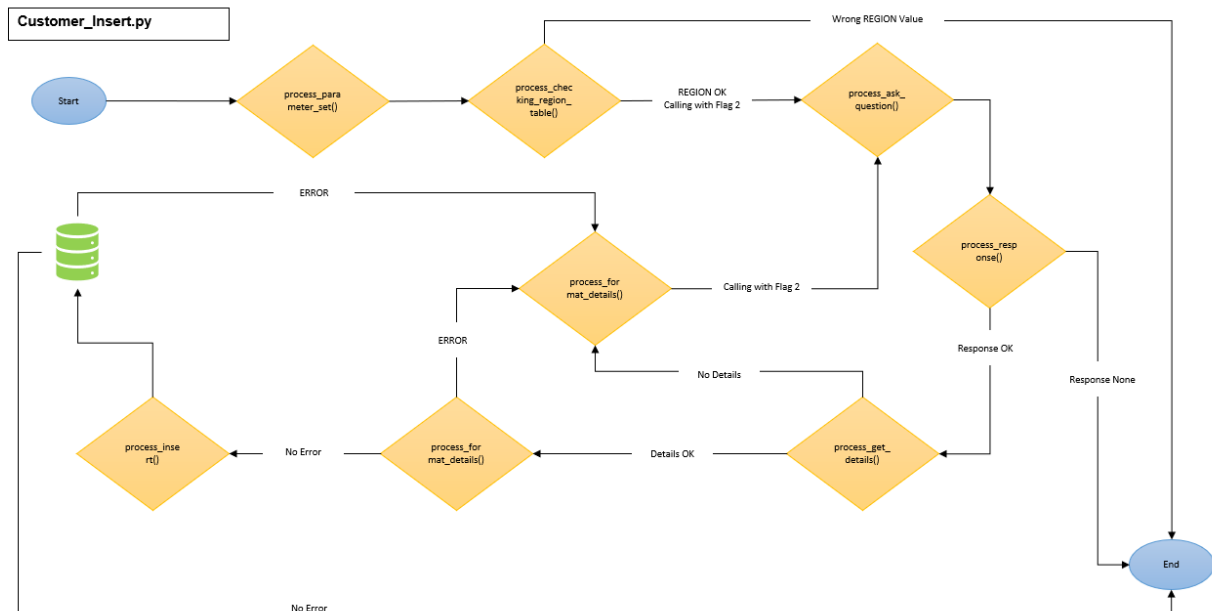


- If you fill-up the details correctly, upon clicking on the OK button, this process will insert your details into the table and later pop-up your UNIQUE ID.



## Flowchart

Following is the flowchart architecture of the Customer\_Insert.py program.



## 2. Customer\_Search\_Main.py

Customer\_Search\_Main.py is used to search the user's data, and it will be called from Main\_Process.py. If the user wants to explore the data, this process will ask if the user wants to search by ID or Name, and as per the selection, this program will call the below two programs:

### I) Customer\_Search\_ID.py

Customer\_Search\_ID.py is used to search the user's data from the table mentioned above by using an ID. This program will be called from Customer\_Search\_Main.py based on search criteria. If the user selects the ID option in Customer\_Search\_Main.py, then it will call Customer\_Search\_ID.py. And this program will ask the user to give the ID as input to search the data. Also, you can run this program as a stand-alone program.

### II) Customer\_Search\_Name.py

Customer\_Search\_Name.py is used to search the data of the user from the table mentioned above. This program will be called from Customer\_Search\_Main.py based on search criteria. If the user selects the Name option in Customer\_Search\_Main.py, then it will call Customer\_Search\_Name.py. And this program will ask the user to give the name as input to search the data. Also, you can run this program as a stand-alone program.

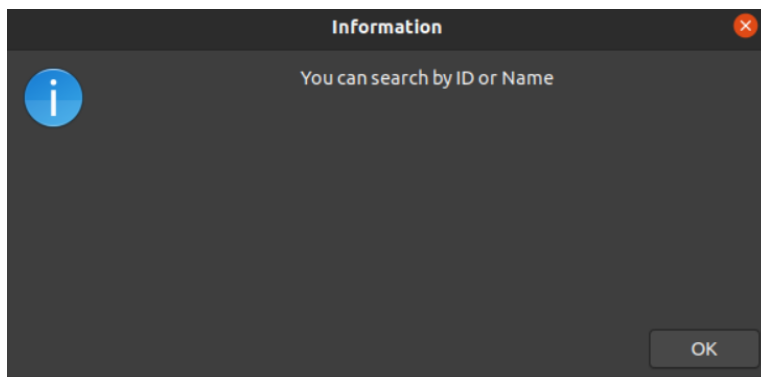
## Execution:

- To run this program, run the below command from your command prompt.

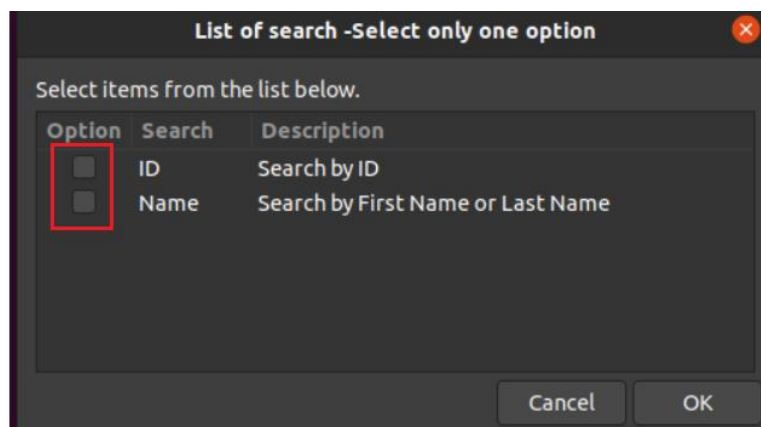
```
$ python3 Customer_Search_Main.py
```

```
somak@VlvoBook:~/Robotic-Greeter/Development_Code/Database_Code$ python3 Customer_Search_Main.py
Starting program : Customer_Search_Main.py - at : 19:54:22 on : 30/06/2020
Selected option : ID
Calling program : Customer_Search_ID.py.....
Starting program : Customer_Search_ID.py - at : 19:54:50 on : 30/06/2020
3
Connection success
Data searched successfully!!!!
3 SOMAKKUMAR      MUKHERJEE      kumar@gmail.com      123654789
Searched Details : ['SOMAKKUMAR', 'MUKHERJEE', 'kumar@gmail.com', '123654789']
Ending program : Customer_Search_ID.py - at : 19:55:34 on : 30/06/2020
Selected option : Name
Calling program : Customer_Search_Name.py.....
Starting Program : Customer_Search_Name.py - at : 19:55:50 on : 30/06/2020
```

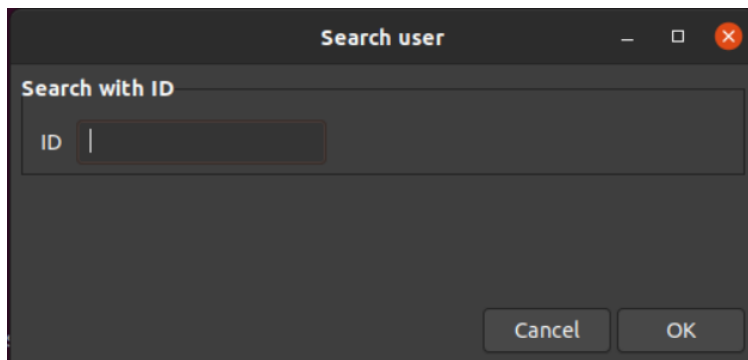
- Once you run the program, it will prompt a pop-up message as below. Click Yes to continue.



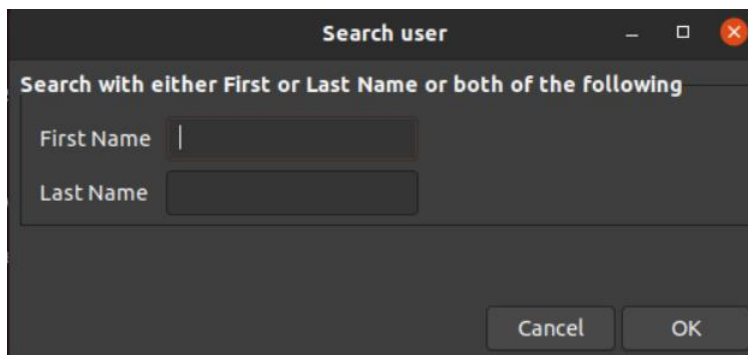
- In the next pop-up message, choose ID or Name and then click OK.



- If you know the person's ID or First Name or Last Name, then fill it and click OK.

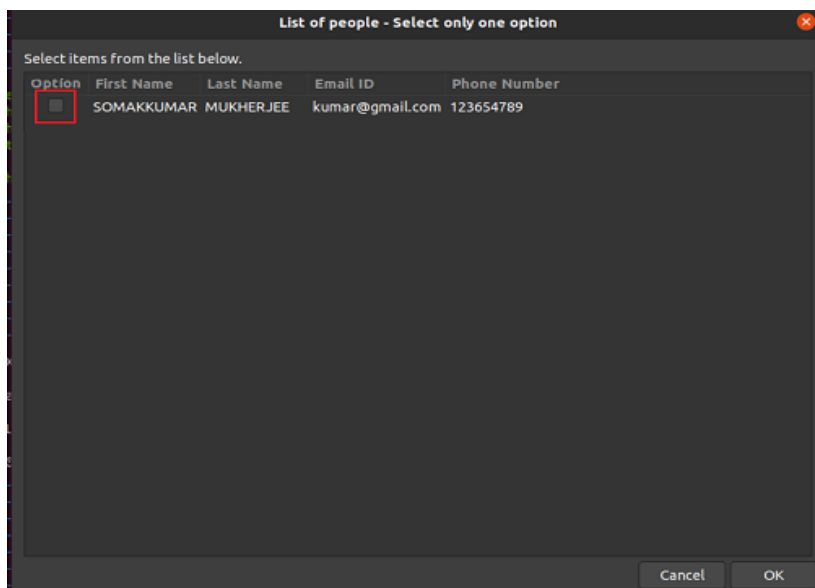


A dark-themed dialog box titled "Search user". It contains a section labeled "Search with ID" with a text input field labeled "ID". At the bottom right are "Cancel" and "OK" buttons.



A dark-themed dialog box titled "Search user". It contains a section labeled "Search with either First or Last Name or both of the following". Below this are two text input fields: "First Name" and "Last Name". At the bottom right are "Cancel" and "OK" buttons.

- After you pressed OK in the previous pop-up screen, this process will search the person in the database and pop-up the person's details, as shown below. If the details are not present in the database, this process will prompt as "Details are not present." Select the option box and click OK.

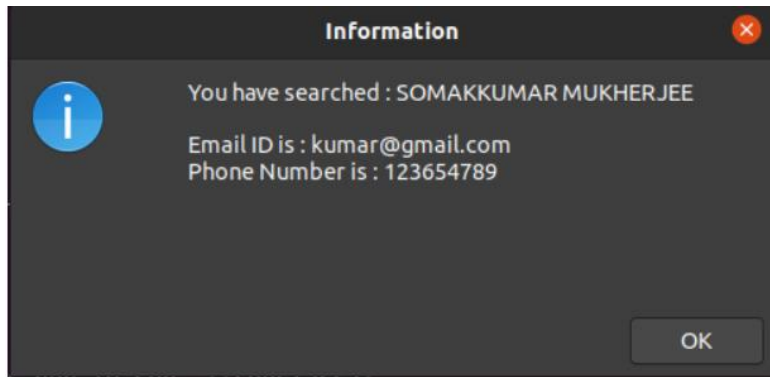


A dark-themed dialog box titled "List of people - Select only one option". It contains the text "Select items from the list below." and a table with the following data:

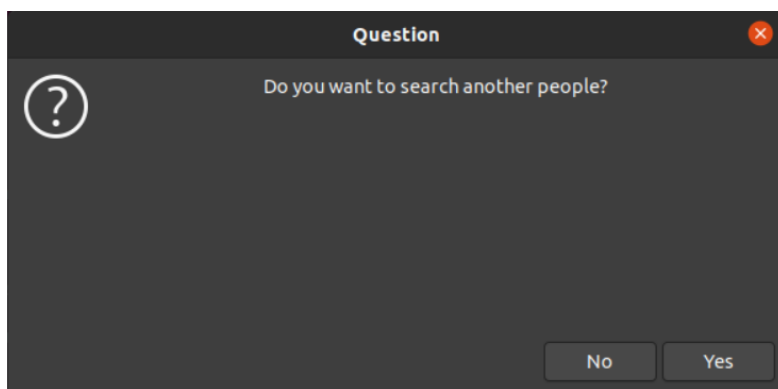
Option	First Name	Last Name	Email ID	Phone Number
<input type="checkbox"/>	SOMAKKUMAR	MUKHERJEE	kumar@gmail.com	123654789

At the bottom right are "Cancel" and "OK" buttons.

- After you pressed OK in the previous pop-up screen, it will show the information of the searched person as below.

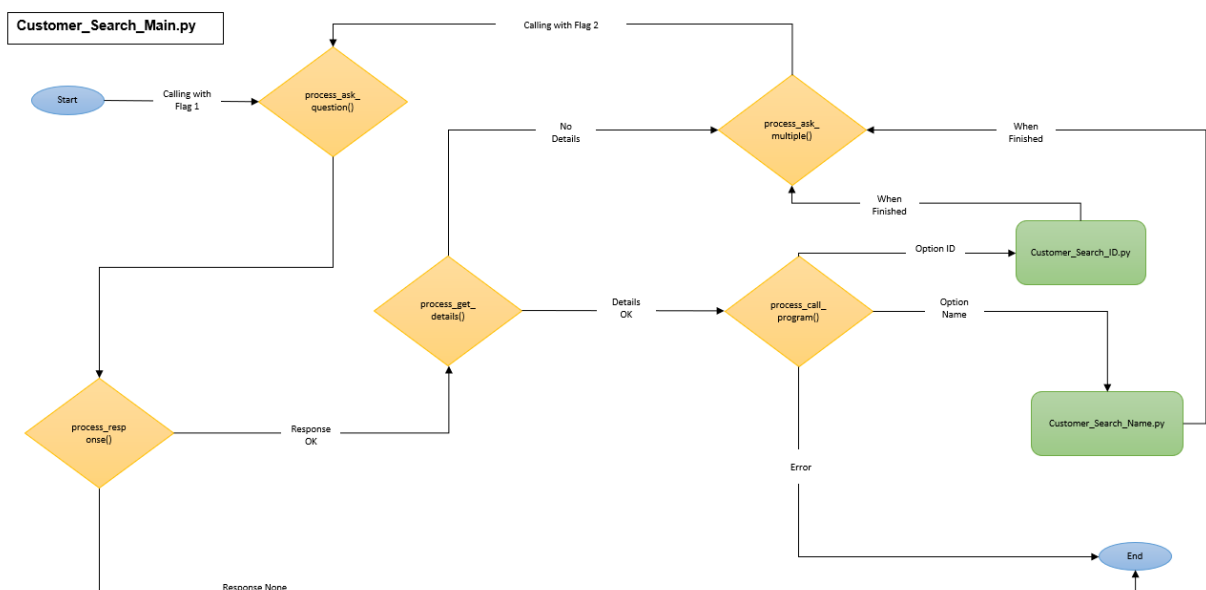


- At last, this process will ask if you want to search again. Click Yes to continue or No to exit.



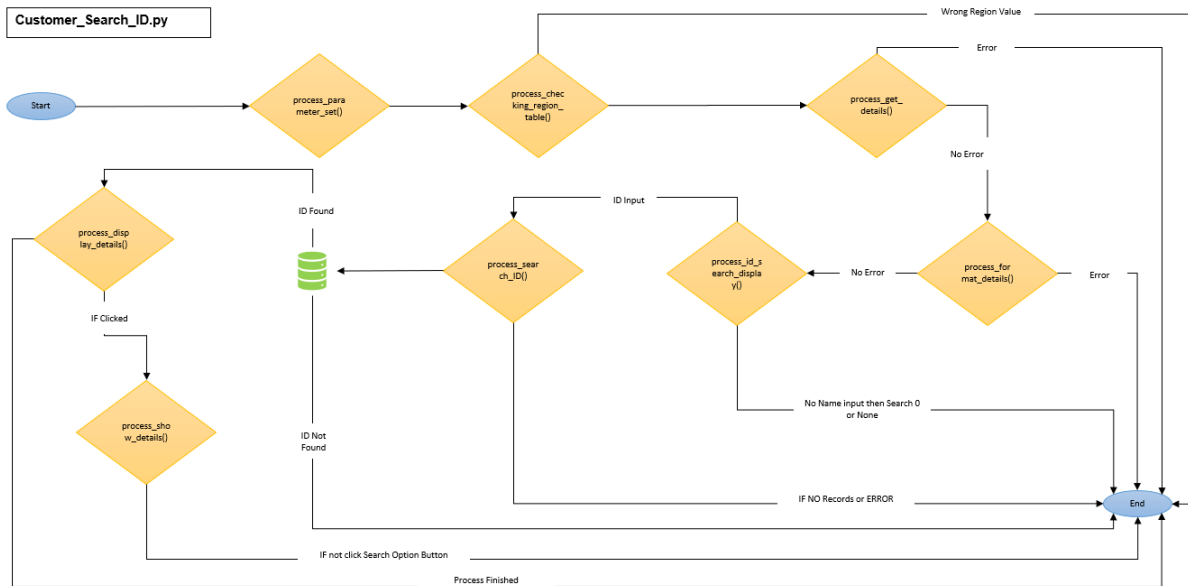
## Flowchart

Following is the flowchart architecture of the Customer\_Search\_Main.py program.

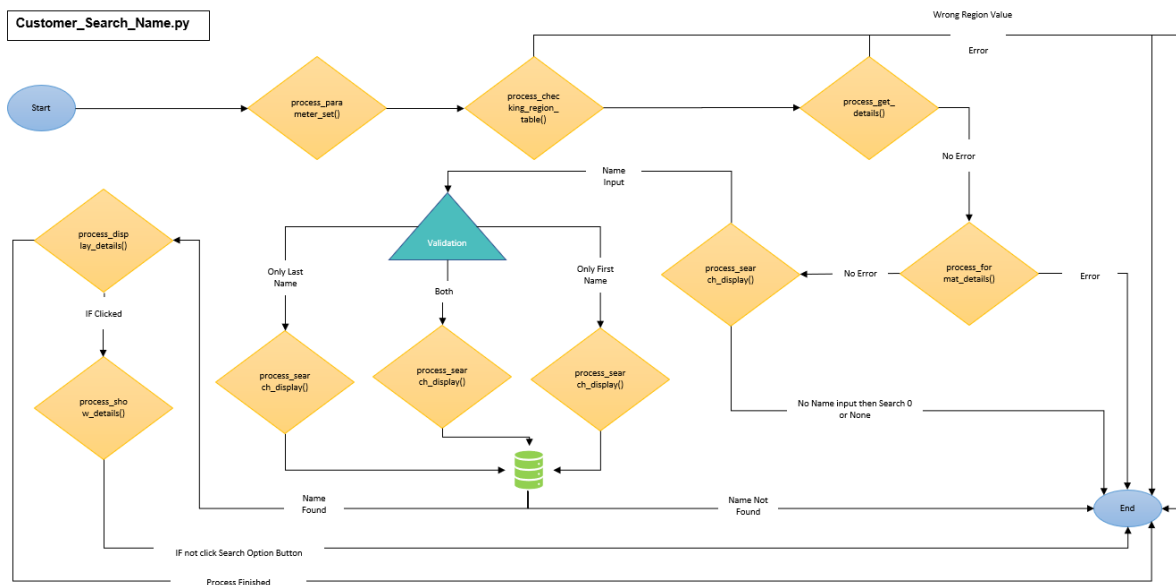




Following is the flowchart architecture of the Customer\_Search\_ID.py program.



Following is the flowchart architecture of the Customer\_Search\_Name.py program.



### 3. Customer\_Update.py

Customer\_Update.py is used to update the data of the user into the table mentioned above. This program will be called from Main\_Process.py if the user wants to update their details. To update the details, the user should know their unique ID, as this program will ask to confirm the ID before updating.

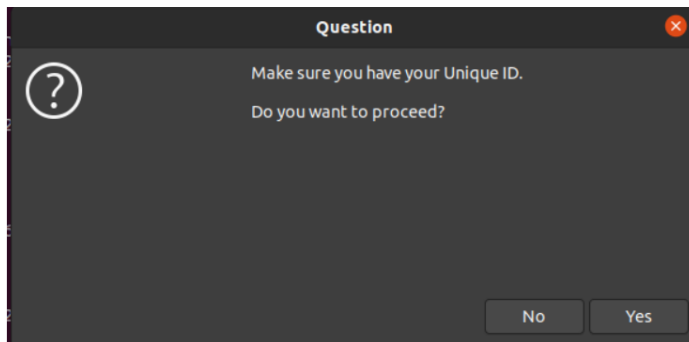
## Execution:

- To run this program, run the below command from your command prompt.

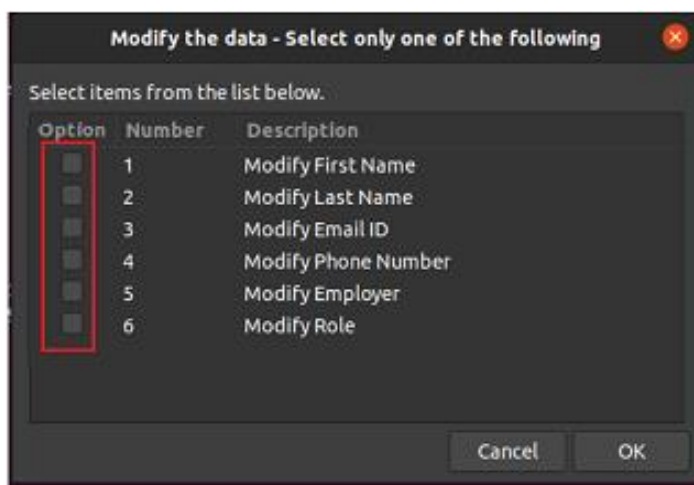
```
$ python3 Customer_Update.py
```

```
somak@VivoBook:~/Robotic-Greeter/Development_Code/Database_Code$ python3 Customer_Update.py
Starting program : Customer_Update.py - at : 19:56:42 on : 30/06/2020
Selected option : Modify First Name
Connection success
ID present in table : 1
Connection Success
First Name updated successfully
ERROR : subprocess.CalledProcessError - inside process_ask_question function.
Ending program : Customer_Update.py - at : 19:58:14 on : 30/06/2020
somak@VivoBook:~/Robotic-Greeter/Development_Code/Database_Code$
```

- Once you run the program, it will prompt a pop-up message as below. Click Yes to continue and No to exit.



- On this screen, choose the option field that you want to update. You cannot select multiple options at a single time. Then click OK to continue.



- Fill the new details that you want to modify and then click OK to continue. But all the fields have some validation.

Modify user

Please enter the new details in the following

First Name

Cancel OK

Fields	Description (Validation)
First Name	It cannot be less than two characters or numbers.
Last Name	It cannot be less than two characters or numbers.
Email ID	It cannot be less than seven characters and has to include @ and dot.
Phone No	It cannot be less than seven numbers and must be numeric.
Employer	It cannot be less than two characters or numbers.
Role	It cannot be less than two characters or numbers.

- Then this process will ask to confirm your UNIQUE ID because you can only modify your details. Fill your ID and click OK to alter the details.

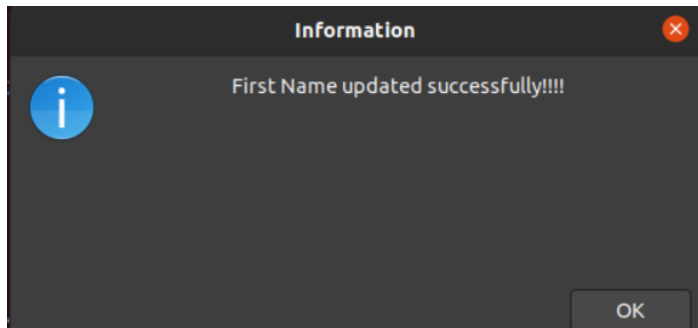
Confirmation

Confirm Your ID

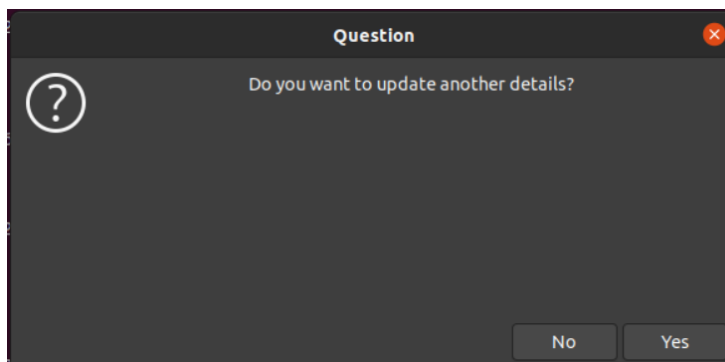
ID

Cancel OK

- Now, this program will validate your ID (present in the database or not) and will update your details. If this process can modify your details, it will prompt a pop-up message as below, but if it cannot be able to change, it will prompt an error message.



- At last, this process will ask if you want to update any details again. Click Yes to continue or No to exit.



## Flowchart

Following is the flowchart architecture of the Customer\_Search\_Main.py program.

