PES UNIVERSITY

(Established under Karnataka Act No. 16 of 2013)
100 Feet Ring Road, BSK III Stage, Bengaluru-560 085
Department of Computer Science and Engineering
Session: Aug – Dec, 2021
SEMESTER – 5

DBMS PROJECT ASSIGNMENT 4

BANK MANAGEMENT SYSTEM

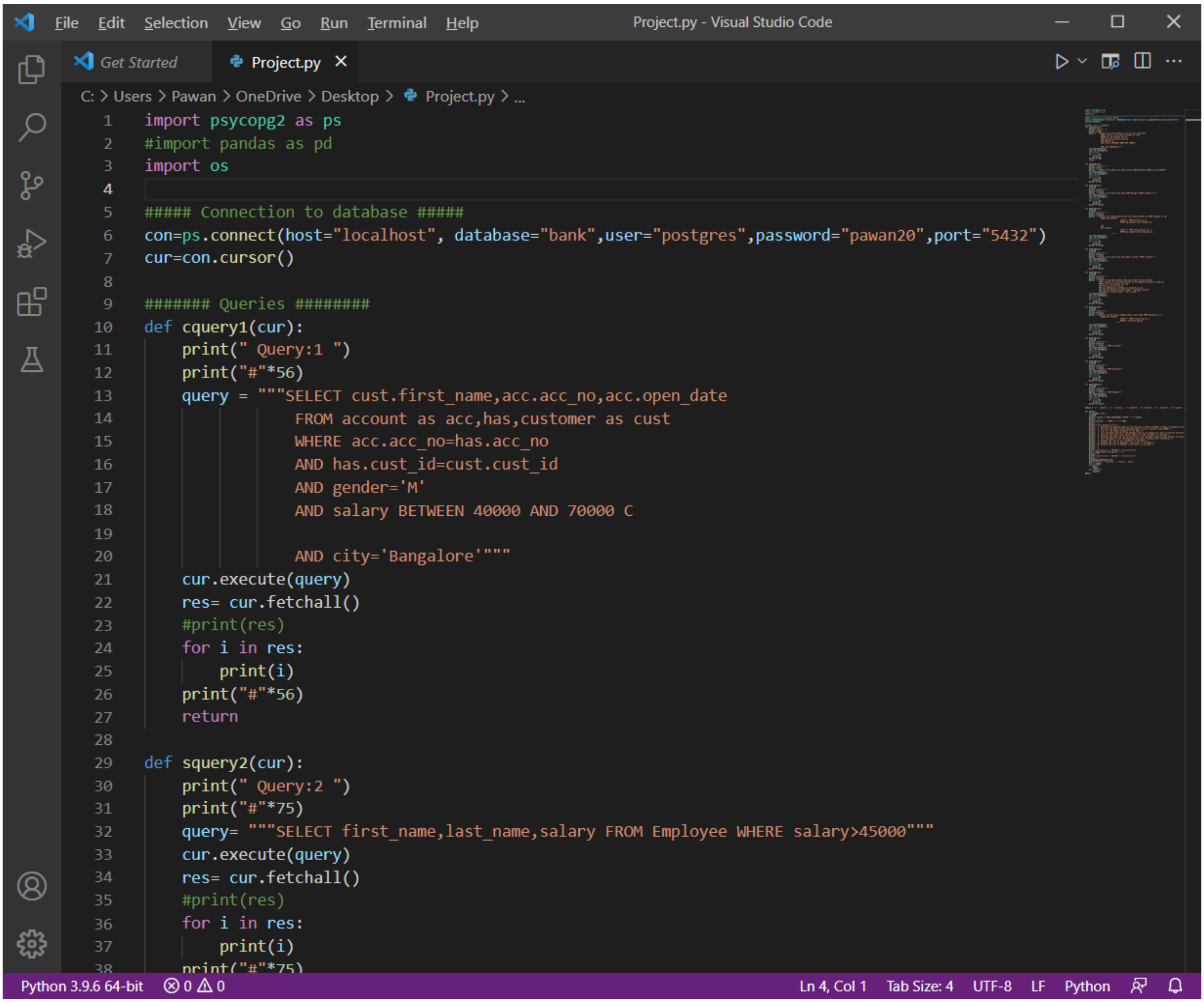
Simple User Interface Design for Front End

Language choice: Python

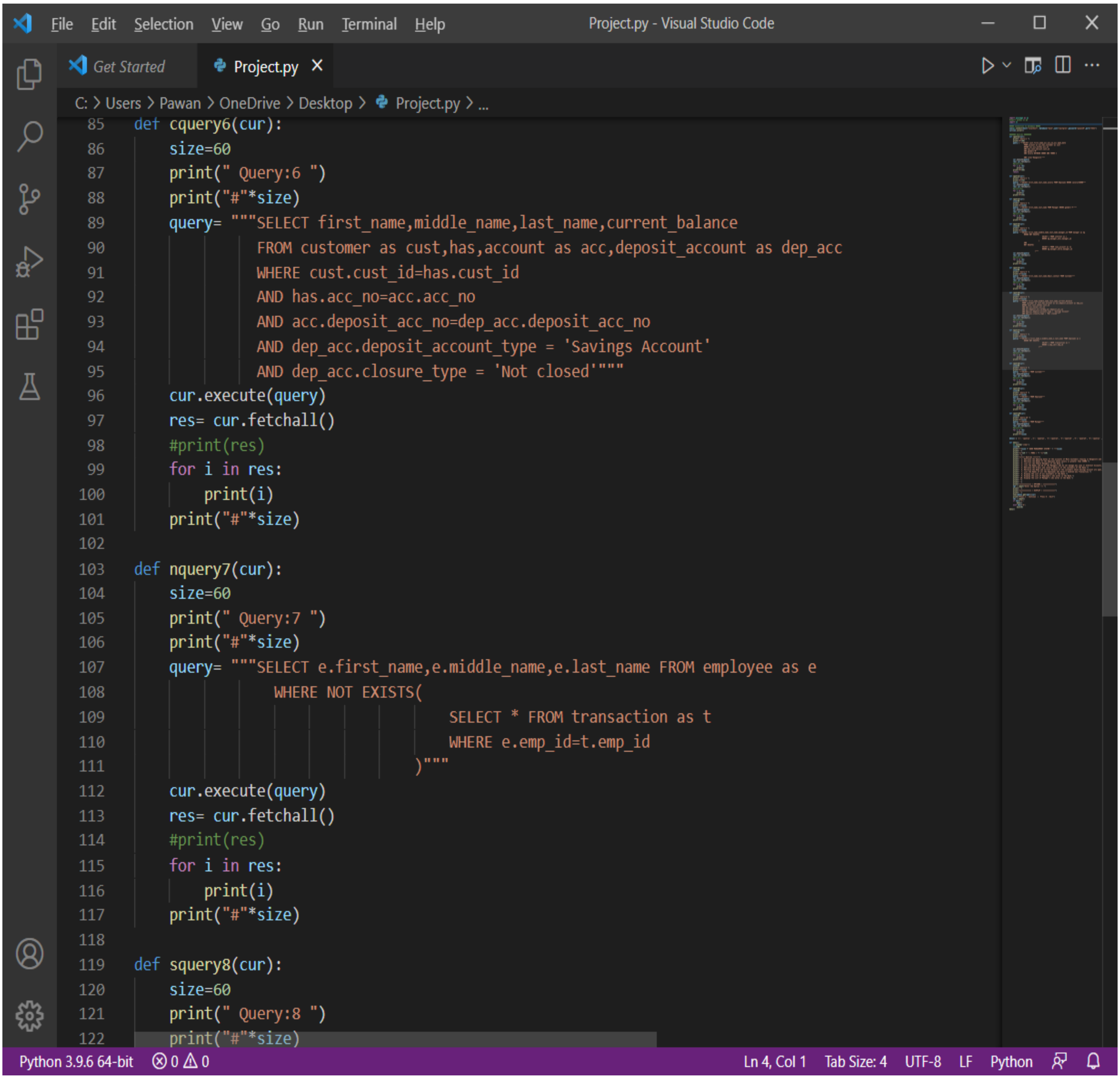
We have used Python Programming Language for designing the front end for our Project and backend as the PostgreSQL**. Psycopg2 is the most popular PostgreSQL database adapter for the Python programming language**. Its main features are the complete implementation of the Python DB API 2.0 specification and the thread safety (several threads can share the same connection). Psycopg2 is both Unicode and Python 3 friendly. We have used the Psycopg2 Library which is the most popular PostgreSQL database adapter for the Python programming language. Its main features are the complete implementation of the Python DB API 2.0 specification and the thread safety (several threads can share the same connection). We have used the Psycopg2 Library function to design the simple UI.

Screenshot of our Project Front End part and Execution:

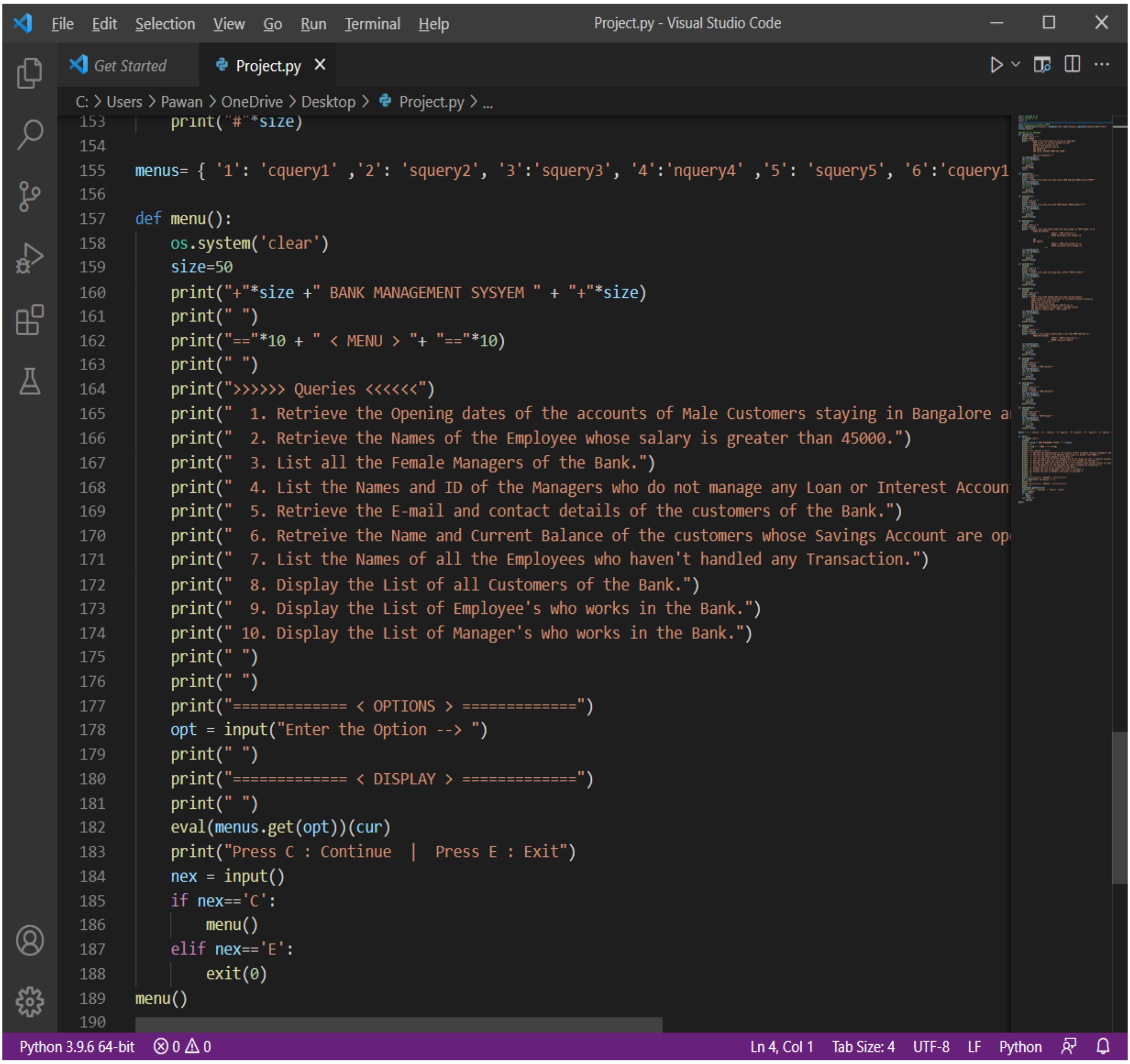
Code:



```
import psycopg2 as ps
#import pandas as pd
import os

##### Connection to database #####
con=ps.connect(host="localhost", database="bank",user="postgres",password="pawan20",port="5432")
cur=con.cursor()

####### Queries ########
def cquery1(cur):
    print(" Query:1 ")
    print("#"*56)
    query = """SELECT cust.first_name,acc.acc_no,acc.open_date
                FROM account as acc,has,customer as cust
                WHERE acc.acc_no=has.acc_no
                AND has.cust_id=cust.cust_id
                AND gender='M'
                AND salary BETWEEN 40000 AND 70000 C

                AND city='Bangalore'"""
    cur.execute(query)
    res= cur.fetchall()
    #print(res)
    for i in res:
        print(i)
    print("#"*56)
    return

def squery2(cur):
    print(" Query:2 ")
    print("#"*75)
    query= """SELECT first_name,last_name,salary FROM Employee WHERE salary>45000"""
    cur.execute(query)
    res= cur.fetchall()
    #print(res)
    for i in res:
        print(i)
    print("#"*75)
```

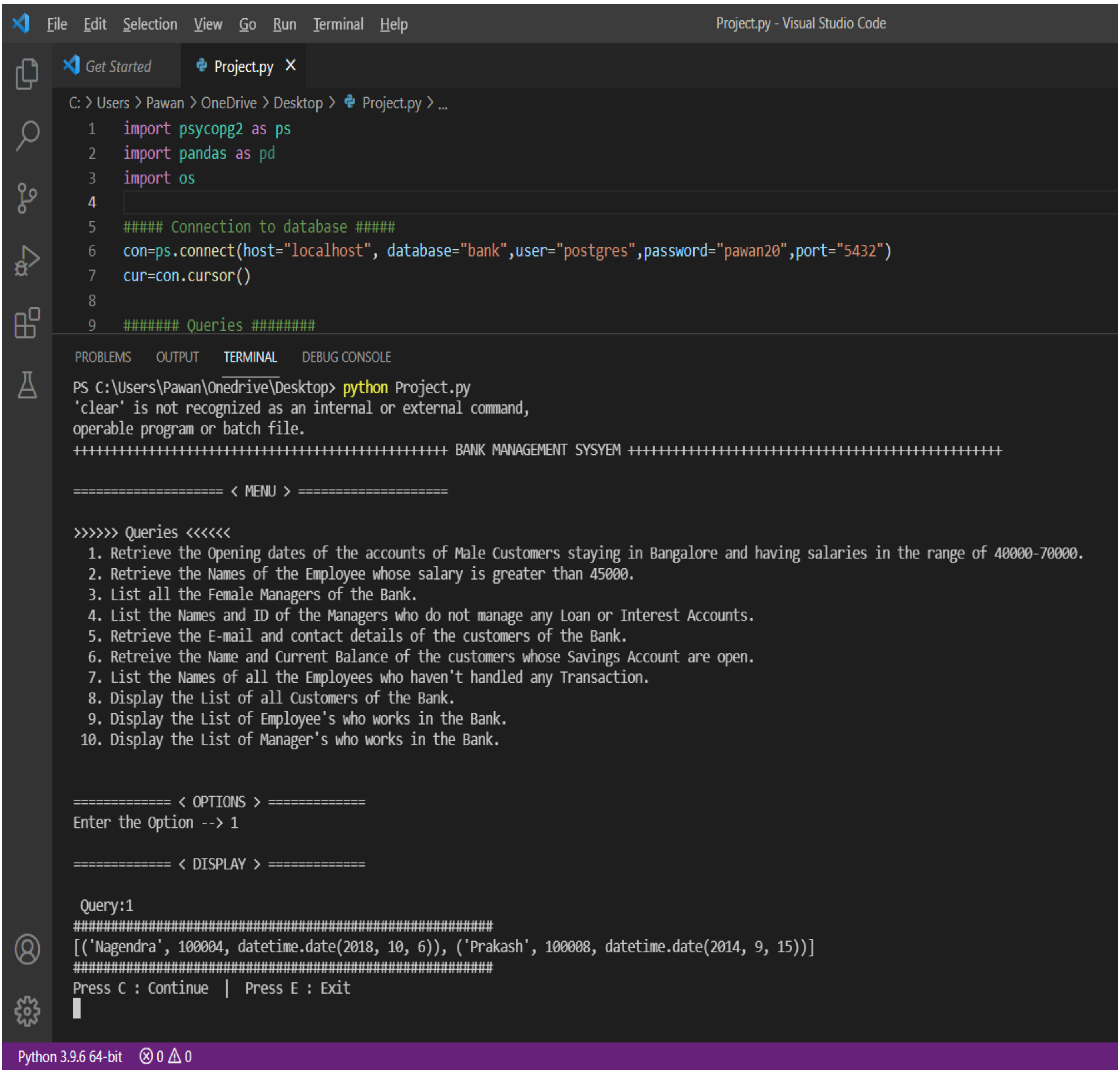


```python
def cquery6(cur):
    size=60
    print(" Query:6 ")
    print("#"*size)
    query= """SELECT first_name,middle_name,last_name,current_balance
              FROM customer as cust,has,account as acc,deposit_account as dep_acc
              WHERE cust.cust_id=has.cust_id
              AND has.acc_no=acc.acc_no
              AND acc.deposit_acc_no=dep_acc.deposit_acc_no
              AND dep_acc.deposit_account_type = 'Savings Account'
              AND dep_acc.closure_type = 'Not closed'"""
    cur.execute(query)
    res= cur.fetchall()
    #print(res)
    for i in res:
        print(i)
    print("#"*size)

def nquery7(cur):
    size=60
    print(" Query:7 ")
    print("#"*size)
    query= """SELECT e.first_name,e.middle_name,e.last_name FROM employee as e
                WHERE NOT EXISTS(
                                    SELECT * FROM transaction as t
                                    WHERE e.emp_id=t.emp_id
                                )"""
    cur.execute(query)
    res= cur.fetchall()
    #print(res)
    for i in res:
        print(i)
    print("#"*size)

def squery8(cur):
    size=60
    print(" Query:8 ")
    print("#"*size)
```



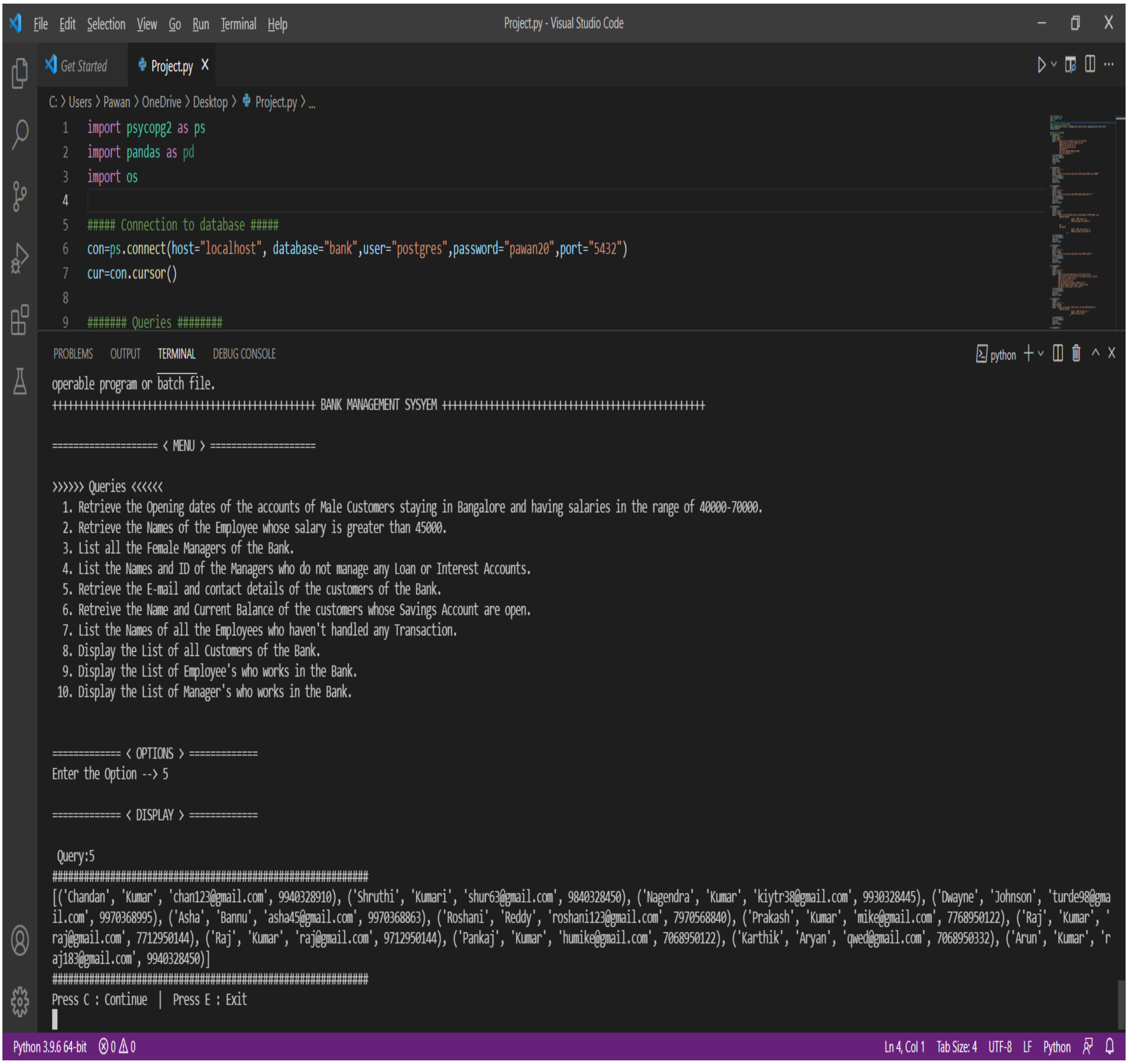
```python
    print("#"*size)

menus= { '1': 'cquery1' ,'2': 'squery2', '3':'squery3', '4':'nquery4' ,'5': 'squery5', '6':'cquery1

def menu():
    os.system('clear')
    size=50
    print("+"*size +" BANK MANAGEMENT SYSYEM " + "+"*size)
    print(" ")
    print("=="*10 + " < MENU > "+ "=="*10)
    print(" ")
    print(">>>>>> Queries <<<<<<")
    print("  1. Retrieve the Opening dates of the accounts of Male Customers staying in Bangalore a
    print("  2. Retrieve the Names of the Employee whose salary is greater than 45000.")
    print("  3. List all the Female Managers of the Bank.")
    print("  4. List the Names and ID of the Managers who do not manage any Loan or Interest Accoun
    print("  5. Retrieve the E-mail and contact details of the customers of the Bank.")
    print("  6. Retreive the Name and Current Balance of the customers whose Savings Account are op
    print("  7. List the Names of all the Employees who haven't handled any Transaction.")
    print("  8. Display the List of all Customers of the Bank.")
    print("  9. Display the List of Employee's who works in the Bank.")
    print(" 10. Display the List of Manager's who works in the Bank.")
    print(" ")
    print(" ")
    print("============ < OPTIONS > ============")
    opt = input("Enter the Option --> ")
    print(" ")
    print("============ < DISPLAY > ============")
    print(" ")
    eval(menus.get(opt))(cur)
    print("Press C : Continue  |  Press E : Exit")
    nex = input()
    if nex=='C':
        menu()
    elif nex=='E':
        exit(0)
menu()
```

Queries Execution:


File Edit Selection View Go Run Terminal Help
Project.py - Visual Studio Code
Get Started
Project.py
C: > Users > Pawan > OneDrive > Desktop > Project.py > ...
PROBLEMS
OUTPUT
TERMINAL
DEBUG CONSOLE
Python 3.9.6 64-bit
⊗ 0 ⚠ 0

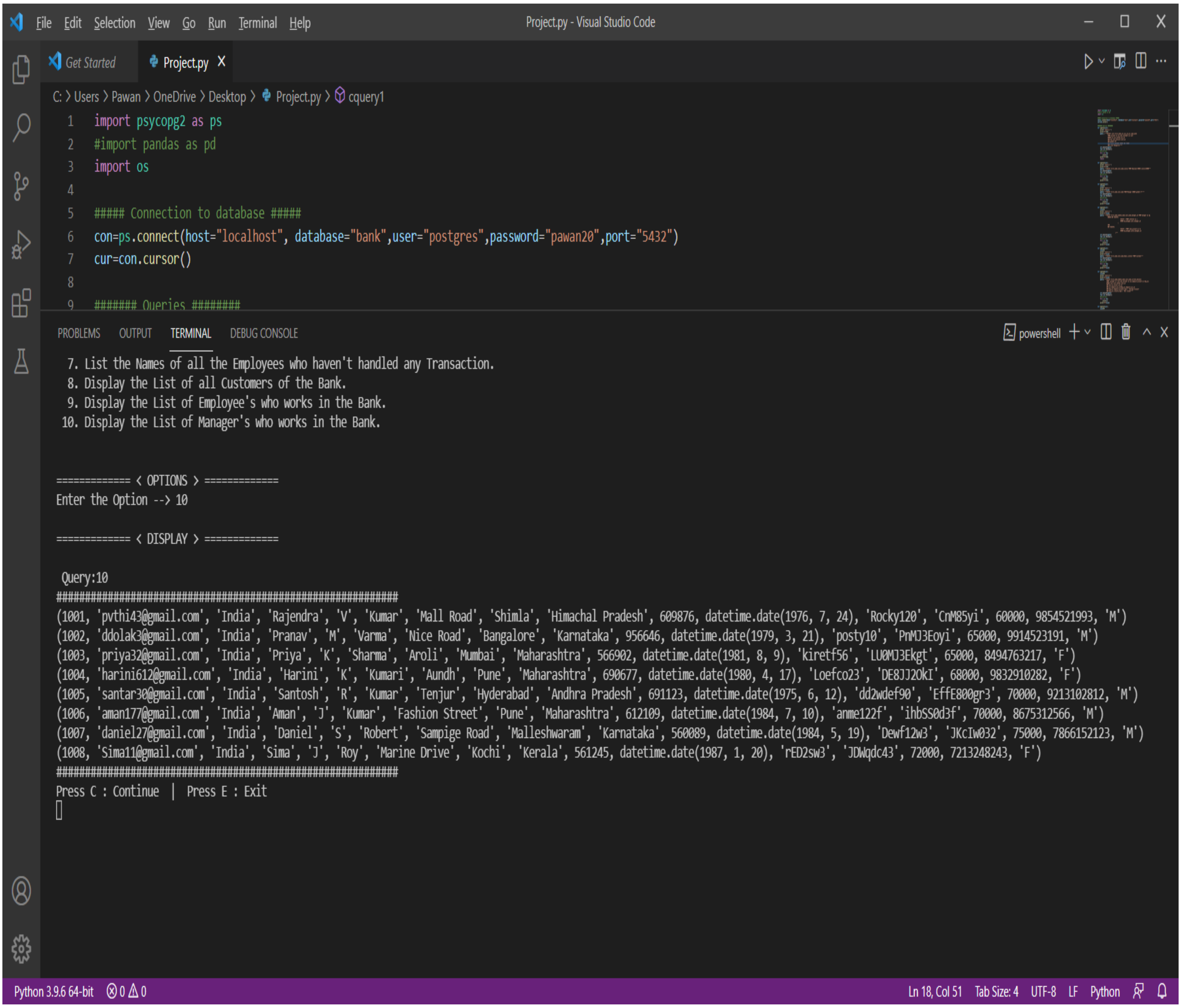
```python
import psycopg2 as ps
import pandas as pd
import os

##### Connection to database #####
con=ps.connect(host="localhost", database="bank",user="postgres",password="pawan20",port="5432")
cur=con.cursor()

####### Queries ########
```

```
PS C:\Users\Pawan\Onedrive\Desktop> python Project.py
'clear' is not recognized as an internal or external command,
operable program or batch file.
++++++++++++++++++++++++++++++++++++++++++++++++ BANK MANAGEMENT SYSYEM +++++++++++++++++++++++++++++++++++++++++++++++++

=================== < MENU > ===================

>>>>>> Queries <<<<<<
  1. Retrieve the Opening dates of the accounts of Male Customers staying in Bangalore and having salaries in the range of 40000-70000.
  2. Retrieve the Names of the Employee whose salary is greater than 45000.
  3. List all the Female Managers of the Bank.
  4. List the Names and ID of the Managers who do not manage any Loan or Interest Accounts.
  5. Retrieve the E-mail and contact details of the customers of the Bank.
  6. Retreive the Name and Current Balance of the customers whose Savings Account are open.
  7. List the Names of all the Employees who haven't handled any Transaction.
  8. Display the List of all Customers of the Bank.
  9. Display the List of Employee's who works in the Bank.
 10. Display the List of Manager's who works in the Bank.


============ < OPTIONS > ============
Enter the Option --> 1

============ < DISPLAY > ============

 Query:1
######################################################
[('Nagendra', 100004, datetime.date(2018, 10, 6)), ('Prakash', 100008, datetime.date(2014, 9, 15))]
######################################################
Press C : Continue  |  Press E : Exit
█
```


File Edit Selection View Go Run Terminal Help
Project.py - Visual Studio Code
Get Started
Project.py
C: > Users > Pawan > OneDrive > Desktop > Project.py > ...
PROBLEMS
OUTPUT
TERMINAL
DEBUG CONSOLE
python
Python 3.9.6 64-bit ⊗ 0 ⚠ 0
Ln 4, Col 1 Tab Size: 4 UTF-8 LF Python

```python
import psycopg2 as ps
import pandas as pd
import os

##### Connection to database #####
con=ps.connect(host="localhost", database="bank",user="postgres",password="pawan20",port="5432")
cur=con.cursor()

####### Queries #######
```

```
operable program or batch file.
++++++++++++++++++++++++++++++++++++++++++++++++++ BANK MANAGEMENT SYSYEM ++++++++++++++++++++++++++++++++++++++++++++++++++

==================== < MENU > ====================

>>>>>> Queries <<<<<<
 1. Retrieve the Opening dates of the accounts of Male Customers staying in Bangalore and having salaries in the range of 40000-70000.
 2. Retrieve the Names of the Employee whose salary is greater than 45000.
 3. List all the Female Managers of the Bank.
 4. List the Names and ID of the Managers who do not manage any Loan or Interest Accounts.
 5. Retrieve the E-mail and contact details of the customers of the Bank.
 6. Retreive the Name and Current Balance of the customers whose Savings Account are open.
 7. List the Names of all the Employees who haven't handled any Transaction.
 8. Display the List of all Customers of the Bank.
 9. Display the List of Employee's who works in the Bank.
10. Display the List of Manager's who works in the Bank.


============ < OPTIONS > ============
Enter the Option --> 5

============ < DISPLAY > ============

 Query:5
############################################################
[('Chandan', 'Kumar', 'chan123@gmail.com', 9940328910), ('Shruthi', 'Kumari', 'shur63@gmail.com', 9840328450), ('Nagendra', 'Kumar', 'kiytr38@gmail.com', 9930328445), ('Dwayne', 'Johnson', 'turde98@gma
il.com', 9970368995), ('Asha', 'Bannu', 'asha45@gmail.com', 9970368863), ('Roshani', 'Reddy', 'roshani123@gmail.com', 7970568840), ('Prakash', 'Kumar', 'mike@gmail.com', 7768950122), ('Raj', 'Kumar', '
raj@gmail.com', 7712950144), ('Raj', 'Kumar', 'raj@gmail.com', 9712950144), ('Pankaj', 'Kumar', 'humike@gmail.com', 7068950122), ('Karthik', 'Aryan', 'qwed@gmail.com', 7068950332), ('Arun', 'Kumar', 'r
aj183@gmail.com', 9940328450)]
############################################################
Press C : Continue  |  Press E : Exit
```


File Edit Selection View Go Run Terminal Help
Project.py - Visual Studio Code
Get Started
Project.py
C: > Users > Pawan > OneDrive > Desktop > Project.py > cquery1
PROBLEMS
OUTPUT
TERMINAL
DEBUG CONSOLE
powershell
Python 3.9.6 64-bit
⊗ 0 ⚠ 0
Ln 18, Col 51
Tab Size: 4
UTF-8
LF
Python

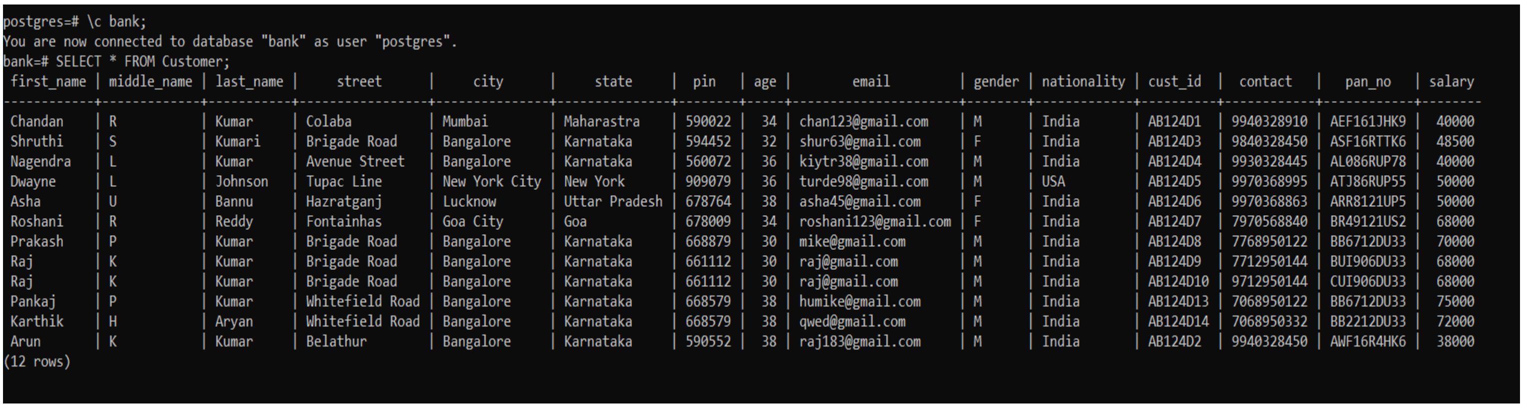
```python
import psycopg2 as ps
#import pandas as pd
import os

##### Connection to database #####
con=ps.connect(host="localhost", database="bank",user="postgres",password="pawan20",port="5432")
cur=con.cursor()

###### Queries #######
```

```
 7. List the Names of all the Employees who haven't handled any Transaction.
 8. Display the List of all Customers of the Bank.
 9. Display the List of Employee's who works in the Bank.
10. Display the List of Manager's who works in the Bank.


============ < OPTIONS > ============
Enter the Option --> 10

============ < DISPLAY > ============


 Query:10
############################################################
(1001, 'pvthi43@gmail.com', 'India', 'Rajendra', 'V', 'Kumar', 'Mall Road', 'Shimla', 'Himachal Pradesh', 609876, datetime.date(1976, 7, 24), 'Rocky120', 'CnM85yi', 60000, 9854521993, 'M')
(1002, 'ddolak3@gmail.com', 'India', 'Pranav', 'M', 'Varma', 'Nice Road', 'Bangalore', 'Karnataka', 956646, datetime.date(1979, 3, 21), 'posty10', 'PnMJ3Eoyi', 65000, 9914523191, 'M')
(1003, 'priya32@gmail.com', 'India', 'Priya', 'K', 'Sharma', 'Aroli', 'Mumbai', 'Maharashtra', 566902, datetime.date(1981, 8, 9), 'kiretf56', 'LU0MJ3Ekgt', 65000, 8494763217, 'F')
(1004, 'harini612@gmail.com', 'India', 'Harini', 'K', 'Kumari', 'Aundh', 'Pune', 'Maharashtra', 690677, datetime.date(1980, 4, 17), 'Loefco23', 'DE8JJ2OkI', 68000, 9832910282, 'F')
(1005, 'santar30@gmail.com', 'India', 'Santosh', 'R', 'Kumar', 'Tenjur', 'Hyderabad', 'Andhra Pradesh', 691123, datetime.date(1975, 6, 12), 'dd2wdef90', 'EffE800gr3', 70000, 9213102812, 'M')
(1006, 'aman177@gmail.com', 'India', 'Aman', 'J', 'Kumar', 'Fashion Street', 'Pune', 'Maharashtra', 612109, datetime.date(1984, 7, 10), 'anme122f', 'ihbSS0d3f', 70000, 8675312566, 'M')
(1007, 'daniel27@gmail.com', 'India', 'Daniel', 'S', 'Robert', 'Sampige Road', 'Malleshwaram', 'Karnataka', 560089, datetime.date(1984, 5, 19), 'Dewf12w3', 'JKcIw032', 75000, 7866152123, 'M')
(1008, 'Sima11@gmail.com', 'India', 'Sima', 'J', 'Roy', 'Marine Drive', 'Kochi', 'Kerala', 561245, datetime.date(1987, 1, 20), 'rED2sw3', 'JDWqdc43', 72000, 7213248243, 'F')
############################################################
Press C : Continue  |  Press E : Exit
```

List changes in constraints and database schema

There is no change in constraints and but we had changed the schema. we have tried to add column to the Customer Table of Bank Database using ALTER Command to change the schema structure. But it is not good to change the schema horizontally by adding new column.

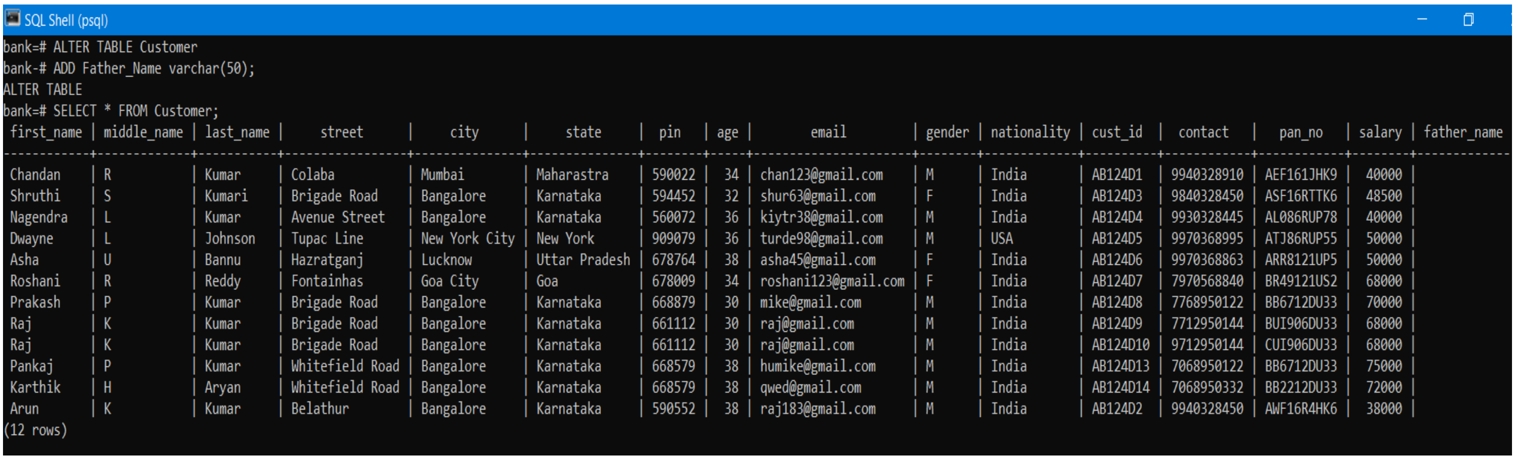
Before ALTER Command the Customer Table:



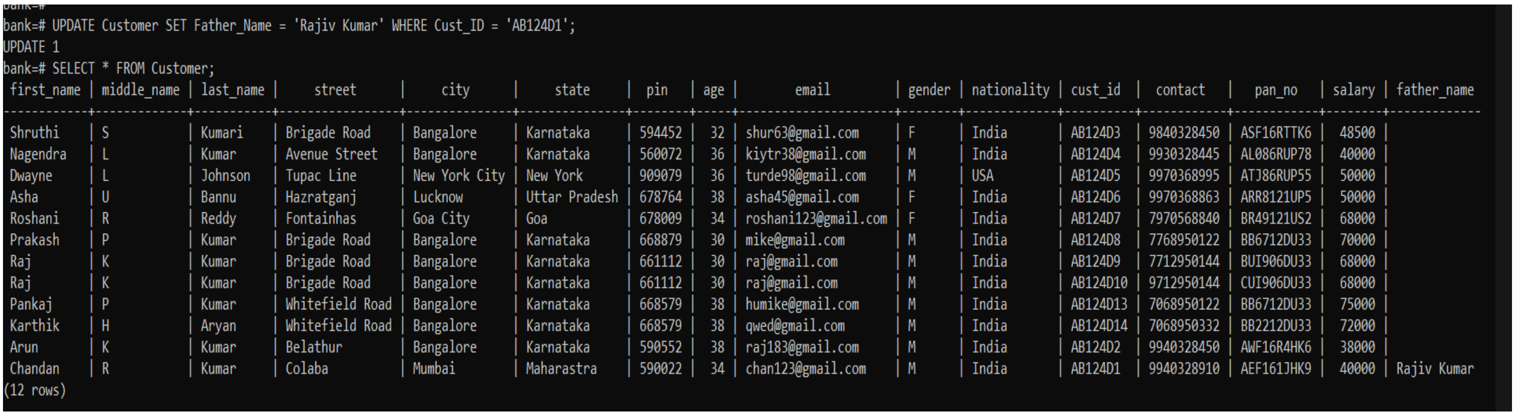
```
postgres=# \c bank;
You are now connected to database "bank" as user "postgres".
bank=# SELECT * FROM Customer;
 first_name | middle_name | last_name |     street      |     city      |     state     |  pin   | age |        email         | gender | nationality | cust_id  |  contact   |   pan_no   | salary
------------+-------------+-----------+-----------------+---------------+---------------+--------+-----+----------------------+--------+-------------+----------+------------+------------+--------
 Chandan    | R           | Kumar     | Colaba          | Mumbai        | Maharastra    | 590022 |  34 | chan123@gmail.com    | M      | India       | AB124D1  | 9940328910 | AEF161JHK9 |  40000
 Shruthi    | S           | Kumari    | Brigade Road    | Bangalore     | Karnataka     | 594452 |  32 | shur63@gmail.com     | F      | India       | AB124D3  | 9840328450 | ASF16RTTK6 |  48500
 Nagendra   | L           | Kumar     | Avenue Street   | Bangalore     | Karnataka     | 560072 |  36 | kiytr38@gmail.com    | M      | India       | AB124D4  | 9930328445 | AL086RUP78 |  40000
 Dwayne     | L           | Johnson   | Tupac Line      | New York City | New York      | 909079 |  36 | turde98@gmail.com    | M      | USA         | AB124D5  | 9970368995 | ATJ86RUP55 |  50000
 Asha       | U           | Bannu     | Hazratganj      | Lucknow       | Uttar Pradesh | 678764 |  38 | asha45@gmail.com     | F      | India       | AB124D6  | 9970368863 | ARR8121UP5 |  50000
 Roshani    | R           | Reddy     | Fontainhas      | Goa City      | Goa           | 678009 |  34 | roshani123@gmail.com | F      | India       | AB124D7  | 7970568840 | BR49121US2 |  68000
 Prakash    | P           | Kumar     | Brigade Road    | Bangalore     | Karnataka     | 668879 |  30 | mike@gmail.com       | M      | India       | AB124D8  | 7768950122 | BB6712DU33 |  70000
 Raj        | K           | Kumar     | Brigade Road    | Bangalore     | Karnataka     | 661112 |  30 | raj@gmail.com        | M      | India       | AB124D9  | 7712950144 | BUI906DU33 |  68000
 Raj        | K           | Kumar     | Brigade Road    | Bangalore     | Karnataka     | 661112 |  30 | raj@gmail.com        | M      | India       | AB124D10 | 9712950144 | CUI906DU33 |  68000
 Pankaj     | P           | Kumar     | Whitefield Road | Bangalore     | Karnataka     | 668579 |  38 | humike@gmail.com     | M      | India       | AB124D13 | 7068950122 | BB6712DU33 |  75000
 Karthik    | H           | Aryan     | Whitefield Road | Bangalore     | Karnataka     | 668579 |  38 | qwed@gmail.com       | M      | India       | AB124D14 | 7068950332 | BB2212DU33 |  72000
 Arun       | K           | Kumar     | Belathur        | Bangalore     | Karnataka     | 590552 |  38 | raj183@gmail.com     | M      | India       | AB124D2  | 9940328450 | AWF16R4HK6 |  38000
(12 rows)
```

After ALTER Command the Customer Table:

Added the column Father_Name to the Customer Table.



```
bank=# ALTER TABLE Customer
bank-# ADD Father_Name varchar(50);
ALTER TABLE
bank=# SELECT * FROM Customer;
 first_name | middle_name | last_name |     street      |     city      |     state     |  pin   | age |        email         | gender | nationality | cust_id  |  contact   |   pan_no   | salary | father_name
------------+-------------+-----------+-----------------+---------------+---------------+--------+-----+----------------------+--------+-------------+----------+------------+------------+--------+-------------
 Chandan    | R           | Kumar     | Colaba          | Mumbai        | Maharastra    | 590022 |  34 | chan123@gmail.com    | M      | India       | AB124D1  | 9940328910 | AEF161JHK9 |  40000 |
 Shruthi    | S           | Kumari    | Brigade Road    | Bangalore     | Karnataka     | 594452 |  32 | shur63@gmail.com     | F      | India       | AB124D3  | 9840328450 | ASF16RTTK6 |  48500 |
 Nagendra   | L           | Kumar     | Avenue Street   | Bangalore     | Karnataka     | 560072 |  36 | kiytr38@gmail.com    | M      | India       | AB124D4  | 9930328445 | AL086RUP78 |  40000 |
 Dwayne     | L           | Johnson   | Tupac Line      | New York City | New York      | 909079 |  36 | turde98@gmail.com    | M      | USA         | AB124D5  | 9970368995 | ATJ86RUP55 |  50000 |
 Asha       | U           | Bannu     | Hazratganj      | Lucknow       | Uttar Pradesh | 678764 |  38 | asha45@gmail.com     | F      | India       | AB124D6  | 9970368863 | ARR8121UP5 |  50000 |
 Roshani    | R           | Reddy     | Fontainhas      | Goa City      | Goa           | 678009 |  34 | roshani123@gmail.com | F      | India       | AB124D7  | 7970568840 | BR49121US2 |  68000 |
 Prakash    | P           | Kumar     | Brigade Road    | Bangalore     | Karnataka     | 668879 |  30 | mike@gmail.com       | M      | India       | AB124D8  | 7768950122 | BB6712DU33 |  70000 |
 Raj        | K           | Kumar     | Brigade Road    | Bangalore     | Karnataka     | 661112 |  30 | raj@gmail.com        | M      | India       | AB124D9  | 7712950144 | BUI906DU33 |  68000 |
 Raj        | K           | Kumar     | Brigade Road    | Bangalore     | Karnataka     | 661112 |  30 | raj@gmail.com        | M      | India       | AB124D10 | 9712950144 | CUI906DU33 |  68000 |
 Pankaj     | P           | Kumar     | Whitefield Road | Bangalore     | Karnataka     | 668579 |  38 | humike@gmail.com     | M      | India       | AB124D13 | 7068950122 | BB6712DU33 |  75000 |
 Karthik    | H           | Aryan     | Whitefield Road | Bangalore     | Karnataka     | 668579 |  38 | qwed@gmail.com       | M      | India       | AB124D14 | 7068950332 | BB2212DU33 |  72000 |
 Arun       | K           | Kumar     | Belathur        | Bangalore     | Karnataka     | 590552 |  38 | raj183@gmail.com     | M      | India       | AB124D2  | 9940328450 | AWF16R4HK6 |  38000 |
(12 rows)
```



```
bank=#
bank=# UPDATE Customer SET Father_Name = 'Rajiv Kumar' WHERE Cust_ID = 'AB124D1';
UPDATE 1
bank=# SELECT * FROM Customer;
 first_name | middle_name | last_name |     street      |     city      |     state     |  pin   | age |        email         | gender | nationality | cust_id  |  contact   |   pan_no   | salary | father_name
------------+-------------+-----------+-----------------+---------------+---------------+--------+-----+----------------------+--------+-------------+----------+------------+------------+--------+-------------
 Shruthi    | S           | Kumari    | Brigade Road    | Bangalore     | Karnataka     | 594452 |  32 | shur63@gmail.com     | F      | India       | AB124D3  | 9840328450 | ASF16RTTK6 |  48500 |
 Nagendra   | L           | Kumar     | Avenue Street   | Bangalore     | Karnataka     | 560072 |  36 | kiytr38@gmail.com    | M      | India       | AB124D4  | 9930328445 | AL086RUP78 |  40000 |
 Dwayne     | L           | Johnson   | Tupac Line      | New York City | New York      | 909079 |  36 | turde98@gmail.com    | M      | USA         | AB124D5  | 9970368995 | ATJ86RUP55 |  50000 |
 Asha       | U           | Bannu     | Hazratganj      | Lucknow       | Uttar Pradesh | 678764 |  38 | asha45@gmail.com     | F      | India       | AB124D6  | 9970368863 | ARR8121UP5 |  50000 |
 Roshani    | R           | Reddy     | Fontainhas      | Goa City      | Goa           | 678009 |  34 | roshani123@gmail.com | F      | India       | AB124D7  | 7970568840 | BR49121US2 |  68000 |
 Prakash    | P           | Kumar     | Brigade Road    | Bangalore     | Karnataka     | 668879 |  30 | mike@gmail.com       | M      | India       | AB124D8  | 7768950122 | BB6712DU33 |  70000 |
 Raj        | K           | Kumar     | Brigade Road    | Bangalore     | Karnataka     | 661112 |  30 | raj@gmail.com        | M      | India       | AB124D9  | 7712950144 | BUI906DU33 |  68000 |
 Raj        | K           | Kumar     | Brigade Road    | Bangalore     | Karnataka     | 661112 |  30 | raj@gmail.com        | M      | India       | AB124D10 | 9712950144 | CUI906DU33 |  68000 |
 Pankaj     | P           | Kumar     | Whitefield Road | Bangalore     | Karnataka     | 668579 |  38 | humike@gmail.com     | M      | India       | AB124D13 | 7068950122 | BB6712DU33 |  75000 |
 Karthik    | H           | Aryan     | Whitefield Road | Bangalore     | Karnataka     | 668579 |  38 | qwed@gmail.com       | M      | India       | AB124D14 | 7068950332 | BB2212DU33 |  72000 |
 Arun       | K           | Kumar     | Belathur        | Bangalore     | Karnataka     | 590552 |  38 | raj183@gmail.com     | M      | India       | AB124D2  | 9940328450 | AWF16R4HK6 |  38000 |
 Chandan    | R           | Kumar     | Colaba          | Mumbai        | Maharastra    | 590022 |  34 | chan123@gmail.com    | M      | India       | AB124D1  | 9940328910 | AEF161JHK9 |  40000 | Rajiv Kumar
(12 rows)
```

DATABASE MIGRATION STEPS (from Postgres to MySQL)

Tool: ESF Database Migration Toolkit

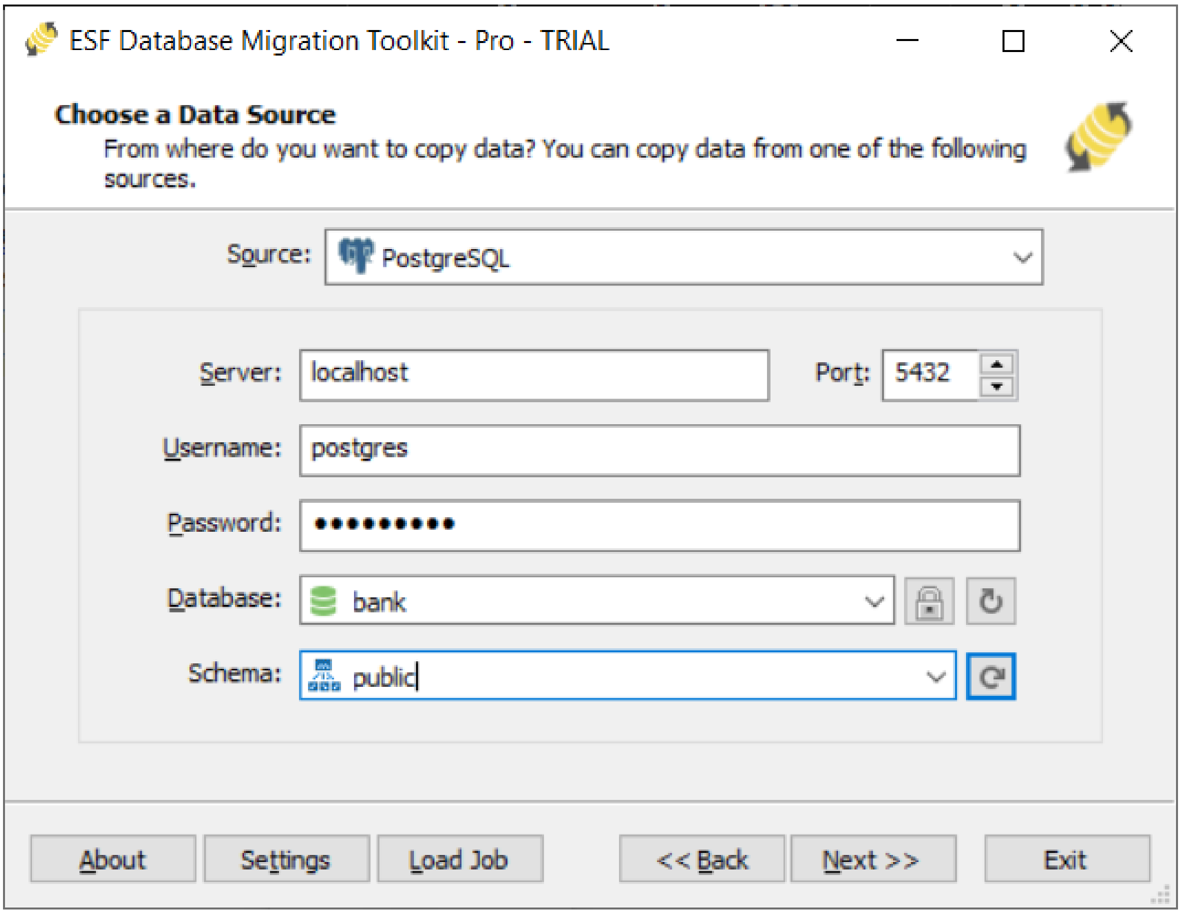
Reasons:

- MySQL gives faster execution speed and better performance than the PostgreSQL.
- Postgres is built with extensibility, standards compliance, scalability, and data integrity in mind - sometimes at the expense of speed. Therefore, for simple, read-heavy workflows, Postgres might be a worse choice than MySQL.
- Postgres is still less popular than MySQL (despite catching up in recent years), so there's a smaller number of 3rd party tools, or developers/database administrators available.

Steps:

1. In "Choose a Data Source" dialog, choose "PostgreSQL";

- Input the server name (default: localhost) and port (default: 5432).
- Input the username (default is "postgres") and its password.
- Press "Refresh Database" button to list all databases, then choose an existing database.
- Press "Refresh" button to list all schemas, then choose an existing schema (default is "public").



ESF Database Migration Toolkit - Pro - TRIAL

Choose a Data Source

From where do you want to copy data? You can copy data from one of the following sources.

Source: PostgreSQL

Server: localhost

Port: 5432

Username: postgres

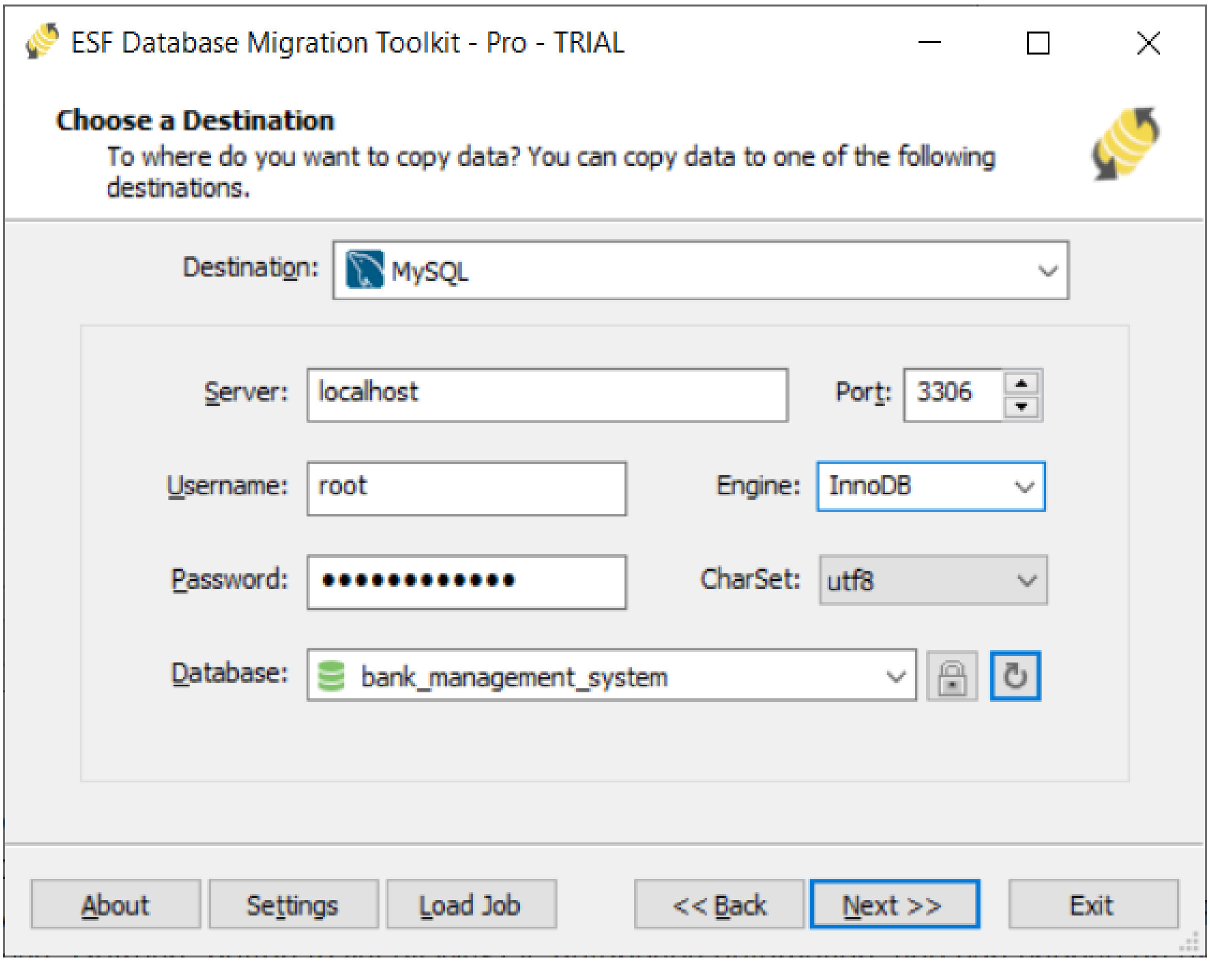
Password: ••••••••••

Database: bank

Schema: public

2. In "Choose a Destination" dialog, choose "MySQL";

- Input the server name (default: localhost), port (default: 3306), username, password.
- MySQL supporting some different Storage Engines, Choose a character-set, e.g.: UTF-8.
- Press "Refresh" button to list all MySQL databases automation.
  you can choose an existing database or enter a new database name, this toolkit automatically create the new database during the migration process



ESF Database Migration Toolkit - Pro - TRIAL

Choose a Destination

To where do you want to copy data? You can copy data to one of the following destinations.

Destination: MySQL

Server: localhost

Port: 3306

Username: root

Engine: InnoDB

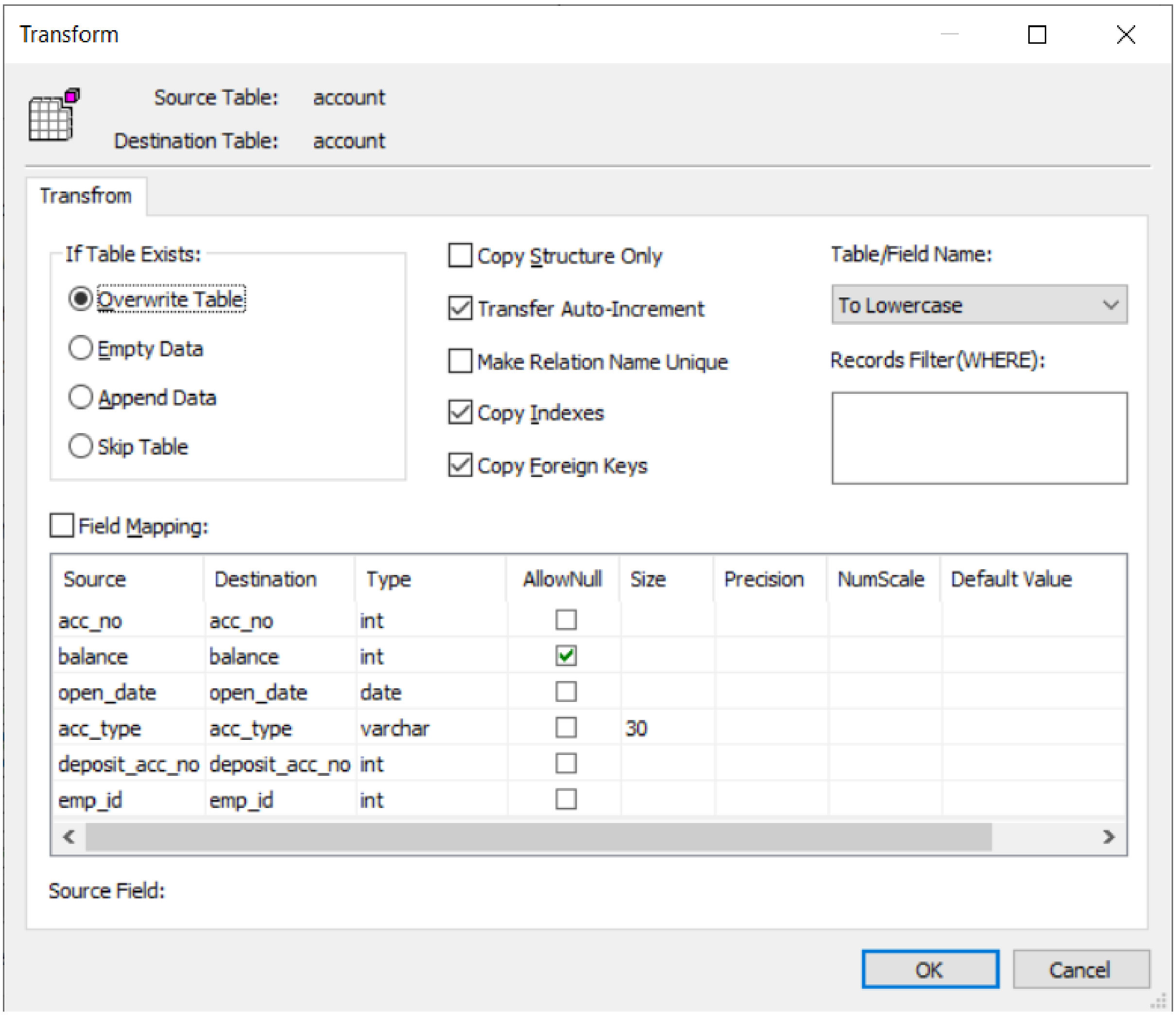
Password: ••••••••••••

CharSet: utf8

Database: bank_management_system

3. In "Select source Tables(s) & View(s)" dialog;

- Select the tables/views which will be migrated.
- Click "..." to set the table options or remap the table structure.
- You can set the data transfer method (Overwrite Table/Empty Data/Append Data/Skip Table) or filter the data before transferring.
- Choose "Field Mapping" option, you can redefine the fields in the destination table, e.g.: field name, data type, default value, comment and also.
- Apply the same transforms to the remaining tables in the database as well.



Source Table: account

Destination Table: account

If Table Exists:

- ● Overwrite Table
- ○ Empty Data
- ○ Append Data
- ○ Skip Table

☐ Copy Structure Only

☑ Transfer Auto-Increment

☐ Make Relation Name Unique

☑ Copy Indexes

☑ Copy Foreign Keys

Table/Field Name: To Lowercase

Records Filter(WHERE):

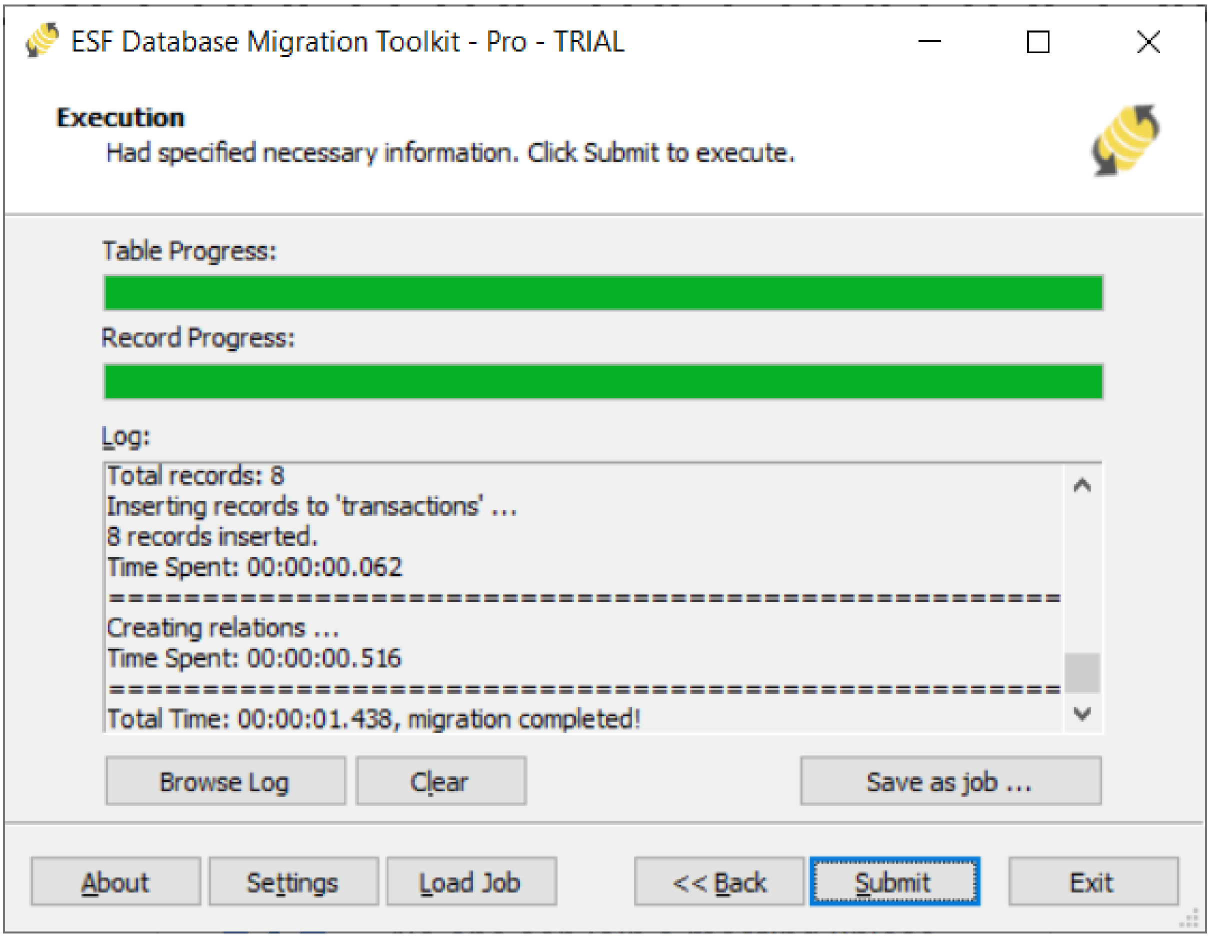
☐ Field Mapping:

Source	Destination	Type	AllowNull	Size	Precision	NumScale	Default Value
acc_no	acc_no	int	☐				
balance	balance	int	☑				
open_date	open_date	date	☐				
acc_type	acc_type	varchar	☐	30			
deposit_acc_no	deposit_acc_no	int	☐				
emp_id	emp_id	int	☐				

Source Field:

4. In "Execution" Dialog;

- Click "Submit" to begin the migration, this toolkit will help you quickly migrate data from PostgreSQL to MySQL without intervention.
- Click "Browse Log" to visit the full migration log.
- Click "Save as job" to save the migration settings to a job file, so you can "Load Job" to quickly reload the migration job in the future or run the migration job via command-prompt. Run "esf-cmd --help" in command-prompt to get the full command parameters.



```
Total records: 8
Inserting records to 'transactions' ...
8 records inserted.
Time Spent: 00:00:00.062
===========================================================
Creating relations ...
Time Spent: 00:00:00.516
===========================================================
Total Time: 00:00:01.438, migration completed!
```

- Finally, migration of the **bank_management_system** database from PostgreSQL to MySQL completed!!!

CONTRIBUTIONS:

NAME	SRN	CONTRIBUTION	TIME SPENT
Pawan Prasad P	PES2UG19CS280	Front end and Report	90 min
Phani Kumar Vedurumudi	PES2UG19CS281	Database Migration	90 min
Rahul S Bhat	PES2UG19CS315	Front end and change in schema	90 min