CS 486/586 Introduction to Databases Project - Part III

Installing libraries into Jupiter

```
In [1]: pip install psycopg2

        Collecting psycopg2
          Downloading psycopg2-2.9.5-cp39-cp39-win_amd64.whl (1.2 MB)
             ---------------------------------------- 1.2/1.2 MB 2.5 MB/s eta 0:00:00
        Installing collected packages: psycopg2
        Successfully installed psycopg2-2.9.5
        Note: you may need to restart the kernel to use updated packages.
```

Importing libraries and connecting python code to database

```
import psycopg2
import pandas as pd

def initialize():
    connection = psycopg2.connect(
        user = "postgres", #username that you use
        password = "[redacted]",
        host = "localhost",
        port = "5432",
        database = "postgres"
    )
    connection.autocommit = True
    return connection


def show_version(cursor):
    sql= "SELECT version();"
    cursor.execute(sql)
    records = cursor.fetchone()
    print("postgres running %s" % records[0])

def main():
    conn = initialize()
    cursor =conn.cursor()
    print("connected to postgres")

    show_version(cursor)


if __name__ == "__main__":
    main()

#sample_code.py
#Displaying sample_code.py.
```

```
connected to postgres
postgres running PostgreSQL 15.0, compiled by Visual C++ build 1914, 64-bit
```

Query 1

SELECT * from businessrules

```
In [2]: import psycopg2
        import pandas as pd

        def initialize():
            connection = psycopg2.connect(
                user = "postgres", #username that you use
                password = "[redacted]",
                host = "localhost",
                port = "5432",
                database = "postgres"
            )
            connection.autocommit = True
            return connection


        def runQuery(conn):
            select_Query = "select * from businessrules"
            businessrules_df = pd.DataFrame(columns = ['BusinessYear', 'StateCode','IssuerId','SourceName'])
            with conn.cursor() as cursor:
                cursor.execute(select_Query)
                records = cursor.fetchall()
                for row in records:
                    output_df = {'BusinessYear': row[0],'StateCode': row[1],'IssuerId': row[2],'SourceName': row[3]}
                    print(( row[0] , row[1] , row[2] , row[3]) )
         #           print("BusinessYear = ", row[4])
         #           print("StateCode = ", row[1])
         #           print("IssuerId  = ", row[2])
         #           print("SourceName = ", row[3])

                    businessrules_df = businessrules_df.append(output_df, ignore_index=True)

                print(businessrules_df)

        def main():
            conn = initialize()
            runQuery(conn)


        if __name__ == "__main__":
            main()
```

Output

```
#sample_code.py
#Displaying sample_code.py.
(2014, 'AL', 82285, 'HIOS')
(2014, 'AL', 82285, 'HIOS')
(2014, 'AL', 82285, 'HIOS')
(2014, 'AL', 82285, 'HIOS')
(2014, 'AL', 82285, 'HIOS')
(2014, 'AZ', 17100, 'HIOS')
(2014, 'AZ', 17100, 'HIOS')
(2014, 'AZ', 18156, 'HIOS')
(2014, 'AZ', 23307, 'HIOS')
(2014, 'AZ', 30045, 'HIOS')
```

Query 2

SELECT * from servicearea

```
In [2]: import psycopg2
        import pandas as pd

        def initialize():
            connection = psycopg2.connect(
                user = "postgres", #username that you use
                password = "[redacted]",
                host = "localhost",
                port = "5432",
                database = "postgres"
            )
            connection.autocommit = True
            return connection



        def runQuery(conn):
            select_Query = "select * from servicearea"
            servicearea_df = pd.DataFrame(columns = ['BusinessYear', 'StateCode','IssuerId','SourceName'])
            with conn.cursor() as cursor:
                cursor.execute(select_Query)
                records = cursor.fetchall()
                for row in records:
                    output_df = {'BusinessYear': row[0],'StateCode': row[1],'IssuerId': row[2],'SourceName': row[3]}
                    print(( row[0] , row[1] , row[2] , row[3]) )
         #           print("BusinessYear = ", row[4])
         #           print("StateCode = ", row[1])
         #           print("IssuerId  = ", row[2])
         #           print("SourceName = ", row[3])

                    servicearea_df = servicearea_df.append(output_df, ignore_index=True)

                print(servicearea_df)

        def main():
            conn = initialize()
            runQuery(conn)


        if __name__ == "__main__":
            main()
```

Output

```
#sample_code.py
#Displaying sample_code.py.
```

```
(2014, 'PA', 22444, 'HIOS')
(2014, 'PA', 22444, 'HIOS')
(2014, 'PA', 22444, 'HIOS')
(2014, 'PA', 22444, 'HIOS')
(2014, 'PA', 22444, 'HIOS')
(2014, 'PA', 22444, 'HIOS')
(2014, 'PA', 22444, 'HIOS')
(2014, 'PA', 22444, 'HIOS')
(2014, 'PA', 22444, 'HIOS')
(2014, 'PA', 22444, 'HIOS')
(2014, 'PA', 22444, 'HIOS')
(2014, 'PA', 22444, 'HIOS')
(2014, 'PA', 22444, 'HIOS')
(2014, 'PA', 22444, 'HIOS')
(2014, 'PA', 22444, 'HIOS')
(2014, 'PA', 22444, 'HIOS')
(2014, 'PA', 22444, 'HIOS')
(2014, 'PA', 22444, 'HIOS')
(2014, 'PA', 22444, 'HIOS')
```