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Platform Engineering

Assignment-2

- Operating on database through DB clients- connectors.

Database used - mysql

Programming language used – python

Question:

To perform functions- create ,update ,select ,delete

1. Auto create query for insert ,update ,delete
2. Auto create query for bulk insertion
3. To run a procedure

Mysql db:

```
C:\Users\Adithya>mysql -u root -p
Enter password: *****
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 15
Server version: 8.0.34 MySQL Community Server - GPL

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Oracle is a registered trademark of Oracle Corporation and/or its
affiliates. Other names may be trademarks of their respective
owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql> |
```

mysql and python versions:

```
Microsoft Windows [Version 10.0.22621.1992]
(c) Microsoft Corporation. All rights reserved.

C:\Users\Adithya>mysql --version
mysql Ver 8.0.34 for Win64 on x86_64 (MySQL Community Server - GPL)

C:\Users\Adithya>python version
Starting Python ...
C:\Program Files\Simcenter\v1610_student\Amesim\sys\python\win64\Python.exe: can't open file 'version': [Errno 2] No such file or directory

C:\Users\Adithya>python --version
Starting Python ...
Python 2.7.12

C:\Users\Adithya>pip --version
pip 21.2.4 from C:\Users\Adithya\AppData\Local\Programs\Python\Python310\lib\site-packages\pip (python 3.10)

C:\Users\Adithya>
```

Downloading python connector in command prompt:

```
C:\Users\Adithya>pip install mysql-connector-python
Collecting mysql-connector-python
  Downloading mysql_connector_python-8.1.0-cp310-cp310-win_and64.whl (10.9 MB)
    |#####| 10.9 MB 6.4 MB/s
Collecting protobuf<=4.21.12,>=4.21.1
  Downloading protobuf-4.21.12-cp310-abi3-win_and64.whl (527 kB)
    |#####| 527 kB 6.4 MB/s
Installing collected packages: protobuf, mysql-connector-python
Successfully installed mysql-connector-python-8.1.0 protobuf-4.21.12
WARNING: You are using pip version 21.2.4; however, version 23.2 is available.
You should consider upgrading via the 'C:\Users\Adithya\AppData\Local\Programs\Python\Python310\python.exe -m pip install --upgrade pip' command.
C:\Users\Adithya>
```

Databases present in mysql:

```
Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

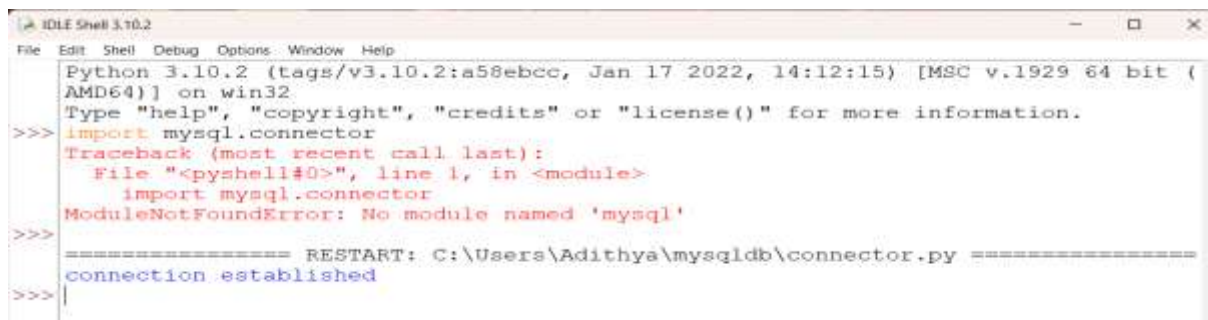
mysql> show databases;
+-----+
| Database |
+-----+
| adityadb |
| information_schema |
| mysql |
| performance_schema |
| sys |
+-----+
5 rows in set (0.00 sec)

mysql> |
```

Python code to establish connection between mysql and python to perform CRUD operations:

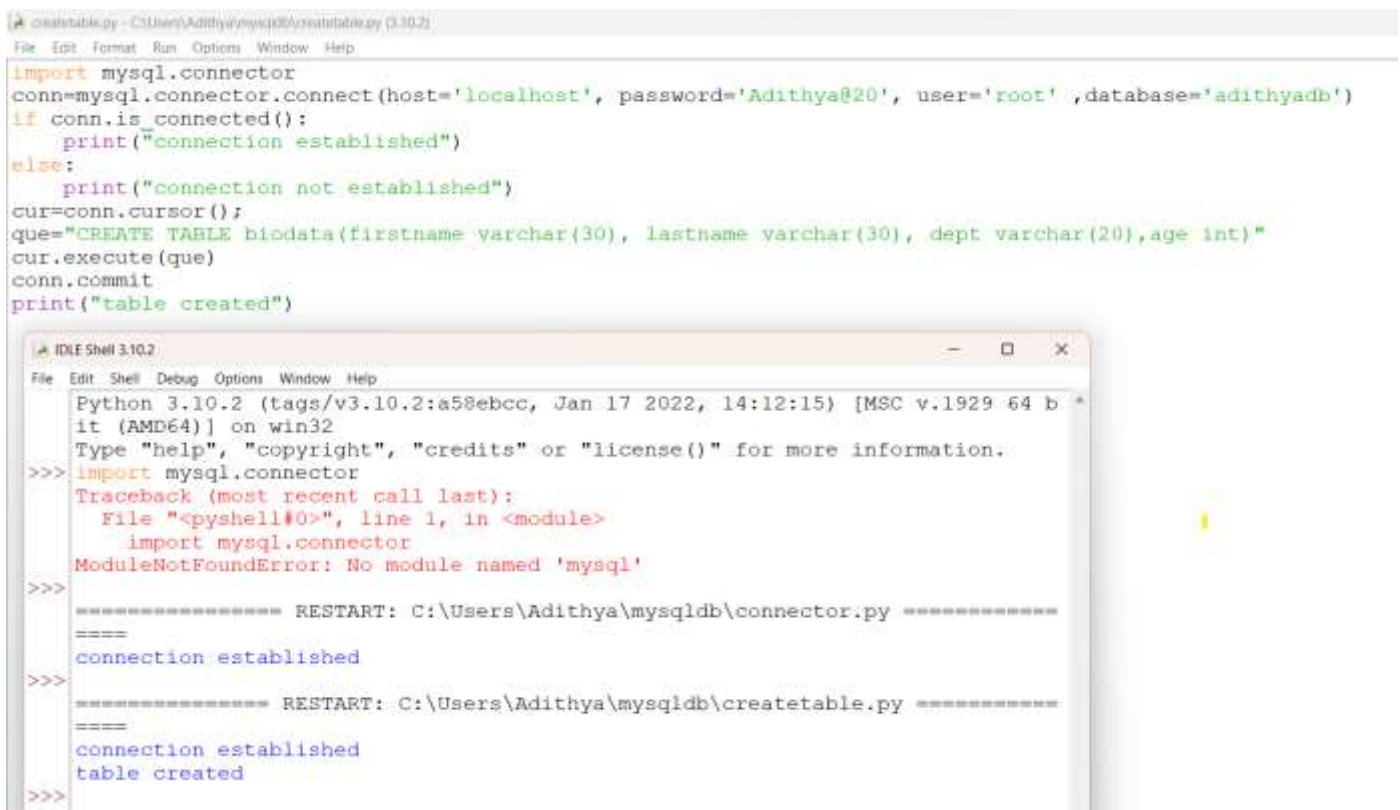
```
connector.py - C:\Users\Adithya\mysql\connector.py (3.10.2)
File Edit Format Run Options Window Help
import mysql.connector
conn= mysql.connector.connect(host='localhost', password='Adithya@20',user='root')
if conn.is_connected():
    print("connection established")
```

After connection:



```
Python 3.10.2 (tags/v3.10.2:a58ebcc, Jan 17 2022, 14:12:15) [MSC v.1929 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>> import mysql.connector
Traceback (most recent call last):
  File "<pyshell#0>", line 1, in <module>
    import mysql.connector
ModuleNotFoundError: No module named 'mysql'
>>>
===== RESTART: C:\Users\Adithya\mysqldb\connector.py =====
>>> connection established
>>>
```

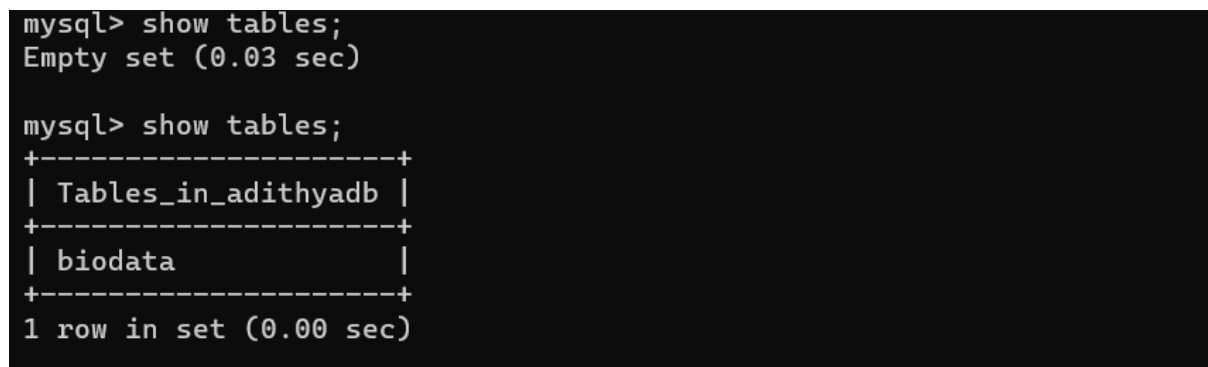
Creating table:



```
createtable.py - C:\Users\Adithya\mysqldb\createtable.py (3.10.2)
File Edit Format Run Options Window Help
import mysql.connector
conn=mysql.connector.connect(host='localhost', password='Adithya@20', user='root', database='adithyadb')
if conn.is_connected():
    print("connection established")
else:
    print("connection not established")
cur=conn.cursor();
que="CREATE TABLE biodata(firstname varchar(30), lastname varchar(30), dept varchar(20),age int)"
cur.execute(que)
conn.commit
print("table created")

Python 3.10.2 (tags/v3.10.2:a58ebcc, Jan 17 2022, 14:12:15) [MSC v.1929 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>> import mysql.connector
Traceback (most recent call last):
  File "<pyshell#0>", line 1, in <module>
    import mysql.connector
ModuleNotFoundError: No module named 'mysql'
>>>
===== RESTART: C:\Users\Adithya\mysqldb\connector.py =====
>>> connection established
>>>
===== RESTART: C:\Users\Adithya\mysqldb\createtable.py =====
>>> connection established
>>> table created
>>>
```

After creating table:



```
mysql> show tables;
Empty set (0.03 sec)

mysql> show tables;
+-----+
| Tables_in_adithyadb |
+-----+
| biodata              |
+-----+
1 row in set (0.00 sec)
```

Inserting data in the table:

py code:

```
insertdata.py - C:\Users\Adithya\mysqldb\insertdata.py (3.10.2)
File Edit Format Run Options Window Help

import mysql.connector
conn=mysql.connector.connect(host='localhost', password='Adithya@20', user='root', database='adithyadb')
if conn.is_connected():
    print("connection established")
else:
    print("connection not established")
cur=conn.cursor()
que='INSERT INTO biodata values("Adithya" ,"K" ,"IT" ,20)'
cur.execute(que)
conn.commit
print("data added")

===== RESTART: C:\Users\Adithya\mysqldb\insertdata.py
connection established
data added
>>>|
```

Database being updated:

```
mysql> select * from biodata;
+-----+-----+-----+-----+
| firstname | lastname | dept | age |
+-----+-----+-----+-----+
| Adithya   | k        | IT   | 20  |
+-----+-----+-----+-----+
1 row in set (0.01 sec)

mysql> |
```

Adding bulk values to table:

```
bulkinser.py - C:\Users\Adithya\bulkinser.py (3.10.2)
File Edit Format Run Options Window Help

import mysql.connector
conn=mysql.connector.connect(host='localhost', password='Adithya@20', user='root', database='adithyadb')
if conn.is_connected():
    print("connection established")
else:
    print("connection not established")

print("inserting bulk values")
for i in range(0,3,1):
    cur=conn.cursor()
    fname=input("Enter your first name:")
    lname=input("Enter your last name:")
    dept=input("Enter your department:")
    age=int(input("Enter your age:"))
    que='INSERT INTO biodata VALUES("{}","{}","{}","{}"'.format(fname,lname,dept,age)
    cur.execute(que)
    conn.commit
print("data inserted")
```

```

===== RESTART: C:/Users/Adithya/bulkininsert.py =
connection established
inserting bulk values
Enter your first name:akilesh
Enter your last name:m
Enter your department:it
Enter your age:23
Enter your first name:praveen
Enter your last name:v
Enter your department:mech
Enter your age:21
Enter your first name:abishek
Enter your last name:m
Enter your department:ece
Enter your age:22
data inserted
>>>

```

Database after inserting:

```

mysql> select * from biodata;
+-----+-----+-----+-----+
| firstname | lastname | dept | age |
+-----+-----+-----+-----+
| Adithya   | k        | IT   | 20  |
| akilesh   | m        | it   | 23  |
| praveen   | v        | mech | 21  |
| abishek   | m        | ece  | 22  |
+-----+-----+-----+-----+
4 rows in set (0.00 sec)

```

Updating values:

```

A updatedata.py - C:/Users/Adithya/mysqldb/updatedata.py (3.10.2)
File Edit Format Run Options Window Help

import mysql.connector
conn=mysql.connector.connect(host='localhost', password='Adithya@20', user='root', database='adithyadb')
if conn.is_connected():
    print("connection established")
else:
    print("connection not established")
cur=conn.cursor();
que="UPDATE biodata SET age=20 WHERE firstame='praveen'"
cur.execute(que)
conn.commit
print("data updated")

===== RESTART: C:/Users/Adithya/mysqldb/updatedata.py
connection established
data updated
>>>

```

Database after updation:

```
mysql> select * from biodata;
+-----+-----+-----+-----+
| firstname | lastname | dept | age |
+-----+-----+-----+-----+
| Adithya   | k        | IT   | 20  |
| akilesh   | m        | it   | 23  |
| praveen   | v        | mech | 20  |
| abishek   | m        | ece  | 22  |
+-----+-----+-----+-----+
4 rows in set (0.00 sec)
```

Deleting values:

```
deletedata.py · C:/Users/Adithya/mysql/db/deletedata.py (3.10.2)
File Edit Format Run Options Window Help

import mysql.connector
conn=mysql.connector.connect(host='localhost', password='Adithya@20', user='root', database='adithyadb')
if conn.is_connected():
    print("connection established")
else:
    print("connection not established")
cur=conn.cursor();
que='DELETE FROM biodata WHERE firstname="Adithya"'
cur.execute(que)
conn.commit
print("data deleted")

===== RESTART: C:/Users/Adithya/mysql/db/deletedata.py
connection established
data deleted
>>>
```

Database after deletion:

```
mysql> select * from biodata;
+-----+-----+-----+-----+
| firstname | lastname | dept | age |
+-----+-----+-----+-----+
| akilesh   | m        | it   | 23  |
| praveen   | v        | mech | 20  |
| abishek   | m        | ece  | 22  |
+-----+-----+-----+-----+
3 rows in set (0.00 sec)
```

PROCEDURE:

Procedure to retrieve student age above 20:

```
mysql> DELIMITER &&
mysql> CREATE PROCEDURE above_age()
  -> BEGIN
  -> SELECT * FROM biodata WHERE age>20;
  -> SELECT COUNT(firstname) AS no_student FROM biodata;
  -> END &&
Query OK, 0 rows affected (0.02 sec)
```

Calling the procedure:

```
mysql> CALL above_age();
  -> END &&
```

firstname	lastname	dept	age
akilesh	m	it	23
abishek	m	ece	22

```
2 rows in set (0.00 sec)
```

no_student
2