21 MySQL & Python

```
USE DEMO;

CREATE TABLE employees (
    emp_id INT AUTO_INCREMENT PRIMARY KEY,
    name VARCHAR(100),
    department VARCHAR(50),
    salary DECIMAL(10, 2)
);
```

MySQL & pymysql

- To connect MySQL with Python, you typically use a library `PyMySQL`

1. **Install the `PyMySQL`**

```
pip install pymysql
```

2. **Import the `PyMySQL` in Your Python Script**

```
import pymysql
```

3. **Establish a Connection to the MySQL Database**
    - Use the `connect` method of `pymysql` to connect to your MySQL server

```
connection = pymysql.connect(
    host="localhost",           # e.g., "localhost" or IP address
    user="root",                # MySQL username
    password="mysql",           # MySQL password
    database="DEMO"             # the database you want to use
)
```

4. **Create a Cursor Object**
    - The cursor is used to execute SQL queries

```
cursor = connection.cursor()
```

5. **Execute SQL Queries**
    - You can use the cursor to execute SQL commands

```
cursor.execute("SELECT * FROM employees")
results = cursor.fetchall()

for row in results:
   print(row)
```

- For inserting data

```
cursor.execute("INSERT INTO employees (name, department, salary) VALUES
(%s, %s, %s)", ('New Employee', 'IT', 60000))
connection.commit()
```

6. **Close the Connection**

```
cursor.close()
connection.close()
```

7. `pymsql` code

```
import pymysql

# Establish the connection
connection = pymysql.connect(
    host="localhost",
    user="root",
    password="mysql",
    database="DEMO"
)

# Create a cursor object
cursor = connection.cursor()

# Insert data into the table
name = str(input('Enter employee name : '))
department = str(input('Enter employee department : '))
salary = float(input('Enter employee salary : '))

# MySQL uses %s for all types of data, and PyMySQL handles the conversion
internally
cursor.execute("INSERT INTO employees (name, department, salary) VALUES
(%s, %s, %s)", (name, department, salary))

# Commit the changes
connection.commit()

# Retrieve and print data from the table
```

```
cursor.execute("SELECT * FROM employees")
results = cursor.fetchall()
for row in results:
    print(row)

# Close the cursor and connection
cursor.close()
connection.close()
```

```
deadpool@daredevil:~/Desktop/DBMS-MySQL-Solutions/08 PROJECT$ python3 mysql_py2.py
Enter employee name : Jishnu J S
Enter employee department : IT
Enter employee salary : 60000.00
(1, 'Jishnu J S', 'IT', Decimal('60000.00'))
```

8. **Verify the results**

```
SELECT * FROM employees;
```

```
mysql> select*from employees;
+--------+------------+------------+----------+
| emp_id | name       | department | salary   |
+--------+------------+------------+----------+
|      1 | Jishnu J S | IT         | 60000.00 |
+--------+------------+------------+----------+
1 row in set (0.00 sec)
```

MySQL & mysql-Connector-python

- To connect MySQL with Python, you typically use a library `mysql-connector-python`

```
pip install mysql-connector-python
```

- Here's a complete example

```
import mysql.connector

# Establish the connection
conn = mysql.connector.connect(
    host="localhost",
    user="root",
    password="mysql",
    database="DEMO"
)

# Create a cursor object
cursor = conn.cursor()
```

```
# Insert data into the table
cursor.execute("INSERT INTO employees (name, department, salary) VALUES
(%s, %s, %s)", ('John Doe', 'HR', 55000))
conn.commit()  # Commit the changes

# Retrieve and print data from the table
cursor.execute("SELECT * FROM employees")
results = cursor.fetchall()
for row in results:
    print(row)

# Close the cursor and connection
cursor.close()
conn.close()
```