**Que 1 : Introduction to SQLite3 and PyMySQL for database connectivity.**

**1. SQLite3**

**What it is:**

* SQLite3 is a **built-in** Python library for working with **SQLite databases**.
* **SQLite** is a lightweight, file-based database — no separate server is needed.
* Database is stored in a single .db file on disk.

**When to use:**

* For **small to medium** applications.
* When you need a **simple local database** without installing anything extra.

**2. PyMySQL**

**What it is:**

* PyMySQL is a **third-party** Python library to connect Python with **MySQL databases**.
* MySQL is a **server-based** relational database — you must have MySQL installed and running.

**When to use:**

* For **medium to large** applications.
* When you need a **remote or multi-user database**.

Que 2 : Creating and executing SQL queries from Python using these connectors.

1. Using SQLite3 (Built-in Library)

import sqlite3

# 1. Connect to SQLite database (creates file if it doesn't exist)

conn = sqlite3.connect("mydatabase.db")

cursor = conn.cursor()

# 2. Create a table

cursor.execute("""

CREATE TABLE IF NOT EXISTS users (

id INTEGER PRIMARY KEY AUTOINCREMENT,

name TEXT,

age INTEGER

)

""")

# 3. Insert data

cursor.execute("INSERT INTO users (name, age) VALUES (?, ?)", ("Alice", 25))

cursor.execute("INSERT INTO users (name, age) VALUES (?, ?)", ("Bob", 30))

# 4. Select data

cursor.execute("SELECT \* FROM users")

rows = cursor.fetchall()

print("SQLite3 Data:", rows)

# 5. Update data

cursor.execute("UPDATE users SET age = ? WHERE name = ?", (26, "Alice"))

# 6. Delete data

cursor.execute("DELETE FROM users WHERE name = ?", ("Bob",))

# 7. Commit changes and close connection

conn.commit()

conn.close()

B. Using PyMySQL (Third-Party Library)

import pymysql

# 1. Connect to MySQL database

conn = pymysql.connect(

host="localhost",

user="root",

password="yourpassword",

database="testdb"

)

cursor = conn.cursor()

# 2. Create a table

cursor.execute("""

CREATE TABLE IF NOT EXISTS users (

id INT PRIMARY KEY AUTO\_INCREMENT,

name VARCHAR(50),

age INT

)

""")

# 3. Insert data

cursor.execute("INSERT INTO users (name, age) VALUES (%s, %s)", ("Charlie", 22))

cursor.execute("INSERT INTO users (name, age) VALUES (%s, %s)", ("David", 28))

# 4. Select data

cursor.execute("SELECT \* FROM users")

rows = cursor.fetchall()

print("MySQL Data:", rows)

# 5. Update data

cursor.execute("UPDATE users SET age = %s WHERE name = %s", (23, "Charlie"))

# 6. Delete data

cursor.execute("DELETE FROM users WHERE name = %s", ("David",))

# 7. Commit changes and close connection

conn.commit()

conn.close()