

Practical No 12

Aim: To write a Python program that performs basic SQL operations such as **CREATE TABLE, INSERT, UPDATE, DELETE, and SELECT** using database connectivity.

Theory:

Committing Changes:

For any data modification operations (INSERT, UPDATE, DELETE), you must commit the changes to the database using connection.commit():

```
connection.commit()
```

cursor.execute() method runs the query, and cursor.fetchall() retrieves the result.

cursor.fetchall() is used to read all query results at once and store them in a Python list of tuples for easy iteration or processing

```
rows = cursor.fetchall()
```

Program:

```
import sqlite3

# Step 1: Connect to Database (or create one if it doesn't exist)
connection = sqlite3.connect("YCCE_college.db")
cursor = connection.cursor()
print("Connected to SQLite database successfully.")

# Step 2: Create Table
cursor.execute("""
CREATE TABLE IF NOT EXISTS students (
    roll_no INTEGER PRIMARY KEY,
    name TEXT NOT NULL,
    marks REAL
)
""")

# Step 3: Insert Records
cursor.execute("INSERT INTO students (roll_no, name, marks) VALUES (1, 'Anuja', 85.5)")
cursor.execute("INSERT INTO students (roll_no, name, marks) VALUES (2, 'Aman', 91.0)")
cursor.execute("INSERT INTO students (roll_no, name, marks) VALUES (3, 'Rahul', 78.0)")
```

```

connection.commit()
print("Records inserted successfully.")

cursor.execute("SELECT * FROM students")
rows = cursor.fetchall()
print("\nStudent Records:")
for row in rows:
    print(row)

# Step 4: Update Record
cursor.execute("UPDATE students SET marks = 88.0 WHERE roll_no = 3")
connection.commit()
print(" Record updated successfully.")

cursor.execute("SELECT * FROM students")
rows = cursor.fetchall()
print("\n Student Records:")
for row in rows:
    print(row)

# Step 5: Delete Record
cursor.execute("DELETE FROM students WHERE roll_no = 2")
connection.commit()
print("Record deleted successfully.")

cursor.execute("SELECT * FROM students")
rows = cursor.fetchall()
print("\nStudent Records:")
for row in rows:
    print(row)

# Step 7: Close the Connection
connection.close()
print("\n Database connection closed.")

```

Output:

```

PS C:\python> & C:\Users\STUDENT\AppData\Local\Programs\Python\Python
Connected to SQLite database successfully.
Records inserted successfully.

Student Records:
(1, 'Anuja', 85.5)
(2, 'Aman', 91.0)
(3, 'Rahul', 78.0)
record updated successfully

Student Records:
(1, 'Anuja', 85.5)
(2, 'Aman', 91.0)
(3, 'Rahul', 88.0)
Record deleted successfully.

Student Records:
(1, 'Anuja', 85.5)
(3, 'Rahul', 88.0)
Connection closed.
PS C:\python>

```