



Padalsalai's Telegram Groups!

(தலைப்பிற்கு கீழே உள்ள லிங்கை கிளிக் செய்து குழுவில் இணையவும்!)

- Padalsalai's NEWS - Group
https://t.me/joinchat/NIfCqVRBNj9hhV4wu6_NqA
- Padalsalai's Channel - Group
<https://t.me/padasalaichannel>
- Lesson Plan - Group
<https://t.me/joinchat/NIfCqVWwo5iL-21gpzrXLw>
- 12th Standard - Group
https://t.me/Padalsalai_12th
- 11th Standard - Group
https://t.me/Padalsalai_11th
- 10th Standard - Group
https://t.me/Padalsalai_10th
- 9th Standard - Group
https://t.me/Padalsalai_9th
- 6th to 8th Standard - Group
https://t.me/Padalsalai_6to8
- 1st to 5th Standard - Group
https://t.me/Padalsalai_1to5
- TET - Group
https://t.me/Padalsalai_TET
- PGTRB - Group
https://t.me/Padalsalai_PGTRB
- TNPSC - Group
https://t.me/Padalsalai_TNPSC

VIVEKANANDHA MATRICULATION HR SEC SCHOOL, THURPPALLAM

Elavur, Gummudipoondi – 601 201

15. Data manipulation through SQL

I. Answer the following questions.

[2 Marks]

1. Mention the users who uses the Database?

- ❖ Users of database can be human users, other programs or applications

2. Which method is used to connect a database? Give an example.

- ❖ connect() – used to passing the name of the database

Example: import sqlite3
 connection = sqlite3.connect ("saro.db")
 cursor = connection.cursor()

3. Which is the advantage of declaring a column as "INTEGER PRIMARY KEY"?

- ❖ If a column of a table is declared to be an INTEGER PRIMARY KEY
- ❖ Then whenever a NULL will be used as an input for this column, The NULL will be automatically **converted** into an integer
- ❖ For NULL, it stores 1

Example: Create Table Student (sno INTEGER PRIMARY KEY ,name varchar(20))

4. Write command to populate record in table? Give an example.

- ❖ To populate (add record) the table "INSERT" command is passed to SQLite.

Example:

```
cursor.execute (""""INSERT INTO Student (sno, name) VALUES ('101','saro')""")
```

5. Which method is used to fetch all rows from the database table?

- ❖ The **fetchall()** method is used to fetch all rows from the database table

```
import sqlite3  
connection = sqlite3.connect("saro.db")  
cursor = connection.cursor()  
cursor.execute("""SELECT * FROM student""")  
result = cursor.fetchall()  
for r in result:  
    print(r)
```

II. Answer the following questions.

[3 Marks]

1. What is SQLite? What is its advantage?

- ❖ SQLite is a simple relational database system,
- ❖ It saves data in files or in the internal memory of the computer.
- ❖ It is designed to be embedded in applications.

Advantage:

- ❖ SQLite is fast, rigorously tested, and flexible, making it easier to work.
- ❖ Python has a native library for SQLite.

2. Mention the difference between fetchone() and fetchmany().

fetchone()	fetchmany()
➤ The fetchone() method returns the next row of a query result set or None in case there is no row left	➤ The fetchmany() method returns the next number of rows (n) of the result set.
➤ Using while loop and fetchone() method we can display all the records from a table.	➤ Displaying specified number of records is done by using fetchmany() .

3. What is the use of Where Clause. Give a python statement Using the where clause?

- ❖ The **WHERE** clause is used to extract only those records that fulfill a specified condition

Example:

```
import sqlite3
connection = sqlite3.connect("saro.db")
cursor = connection.cursor()
cursor.execute("""SELECT DISTINCT (Grade) FROM student where gender='M'""")
result = cursor.fetchall()
print(*result, sep="\n")
```

saro.db (Input file)

Name	grade	gender
Saravanan	B	M
Kumar	A	M
Meenachi	A	F

Output:

'B'
'A'

Note: To print all elements in new lines or separated by space use **sep= "\n"** or **sep= ", "** respectively.

4. Read the following details. Based on that write a python script to display department wise records

database name : - organization.db
Table name : - Employee
Columns in the table : - Eno, EmpName, Esal, Dept

PYTHON SCRIPT:

```
import sqlite3
connection = sqlite3.connect("organization.db")
cursor = connection.cursor()
cursor.execute("""SELECT * FROM Employee GROUP BY Dept""")
result = cursor.fetchall()
for r in result:
    print(r)
```

5. Read the following details. Based on that write a python script to display records in descending order of (Eno)

database name : - organization.db
Table name : - Employee
Columns in the table : - Eno, EmpName, Esal, Dept

PYTHON SCRIPT:

```
import sqlite3
connection = sqlite3.connect("organization.db")
cursor = connection.cursor()
cursor.execute("""SELECT * FROM Employee ORDER BY Eno DESC""")
result = cursor.fetchall()
for r in result:
    print(r)
```

III. Answer the following questions.

[5 Marks]

1. Write in brief about SQLite and the steps used to use it?

- ❖ SQLite is a simple relational database system,
- ❖ It saves data in files or in the internal memory of the computer.
- ❖ It is designed to be embedded in applications.

Advantage:

- ❖ SQLite is fast, rigorously tested, and flexible, making it easier to work.
- ❖ Python has a native library for SQLite.

Steps To Use SQLite:**Step 1:** import sqlite3**Step 2:** create a connection using **connect ()** method and **pass the name** of the database File**Step 3:** Set the cursor object **cursor = connection.cursor ()**

The following example is used to create database file, student Table and enter and display data

```
import sqlite3
connection = sqlite3.connect("saro.db")
cursor=connection.cursor()
cursor.execute("""DROP TABLE student""")
cursor.execute("""CREATE TABLE student (sno INTEGER PRIMARY KEY ,name
                        varchar(20));""")
cursor.execute("""INSERT INTO student (sno, name) VALUES ("101","saro")""")
connection.commit()
cursor.execute("""SELECT * FROM student""")
result = cursor.fetchall()
for r in result:
    print(r)
```

Output: (101,'saro')

2. Write the Python script to display all the records of the following table using fetchmany()

Icode	ItemName	Rate
1003	Scanner	10500
1004	Speaker	3000
1005	Printer	8000
1008	Monitor	15000
1010	Mouse	700

Consider Table name is: **item**

Program:

```
import sqlite3
connection = sqlite3.connect("saro.db")
cursor=connection.cursor()
cursor.execute("""SELECT * FROM item""")
result = cursor.fetchmany(5)
for r in result:
    print(r)
```

Output:

```
(1003, 'Scanner', 10500)
(1004, 'Speaker', 3000)
(1005, 'Printer', 8000)
(1008, 'Monitor', 15000)
(1010, 'Mouse', 700)
```

3. What is the use of HAVING clause? Give an example python script?

- ❖ Having clause is used to filter data based on the group functions.
- ❖ This is similar to WHERE condition but can be used only with group functions.
- ❖ Group functions cannot be used in WHERE Clause but can be used in HAVING clause.

Example:

```
import sqlite3
connection = sqlite3.connect("saro.db")
cursor=connection.cursor()
cursor.execute("""SELECT GENDER, COUNT(GENDER) FROM Student GROUP BY
GENDER HAVING COUNT(GENDER)>3""")
result = cursor.fetchall()
for r in result:
    print(r)
```

OUTPUT: ['gender', 'COUNT(GENDER)']
[('M', 5)]

4. Write a Python script to create a table called ITEM with following specification.

Add one record to the table.

Name of the database : - ABC

Name of the table : - Item

Column name and specification: -

Icode	integer and act as primary key
Item Name	Character with length 25
Rate	Integer
Record to be added	1008, Monitor,15000

Program:

```
import sqlite3
connection = Sqlite3.connect("abc.db")
cursor=connection.cursor()
cursor.execute("""CREATE TABLE item (Icode INTEGER PRIMARY KEY, ItemName
varchar(25), Rate INTEGER);""")
cursor.execute("""INSERT INTO item (Icode, ItemName, Rate) VALUES
("1008","Monitor","15000")""")
connection.commit()
connection.close()
print("TABLE CREATED and Value Inserted Successfully")
```

Output:

TABLE CREATED and Value Inserted Successfully

5. Consider the following table Supplier and item. Write a python script for i to ii

Consider

Table Name: Supplier

SUPPLIER				
Suppno	Name	City	Icode	SuppQty
S001	Prasad	Delhi	1008	100
S002	Anu	Bangalore	1010	200
S003	Shahid	Bangalore	1008	175
S004	Akila	Hydrabad	1005	195
S005	Girish	Hydrabad	1003	25
S006	Shylaja	Chennai	1008	180
S007	Lavanya	Mumbai	1005	325

i) Display Name, City and Itemname of suppliers who do not reside in Delhi.

ii) Increment the SuppQty of Akila by 40

Consider

Table Name: **Item**

Icode	ItemName	Rate
1003	Scanner	10500
1004	Speaker	3000
1005	Printer	8000
1008	Monitor	15000
1010	Mouse	700

i) Display Name, City and Itemname of suppliers who do not reside in Delhi.

```
import sqlite3
connection = sqlite3.connect("saro.db")
cursor=connection.cursor()
cursor.execute("""SELECT Supplier.Name, Supplier.City,Item.ItemName FROM
Supplier,Item WHERE Supplier.Icode = Item.Icode AND supplier.city<>'Delhi' """)
result = cursor.fetchall()
for r in result:
    print (r)
```

OUTPUT:

```
('Anu', 'Bangalore', 'Mouse')
('Shahid', 'Bangalore', 'Monitor')
('Akila', 'Hydrabad', 'Printer')
('Girish', 'Hydrabad', 'Scanner')
('Shylaja', 'Mumbai', 'Monitor')
('Lavanya', 'Mumbai', 'Printer')
```

ii) Increment the SuppQty of Akila by 40

```
import sqlite3
connection = sqlite3.connect("saro.db")
cursor=connection.cursor()
cursor.execute("""UPDATE Supplier SET SuppQty = SuppQty +40 WHERE Name =
"Akila" """)
cursor.commit()
connection.close()
print ("Value Update successfully")
```

OUTPUT:

Value Update successfully