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Creating General Query Action

Connecting to SQLite Database

- To use SQLite, we must import sqlite3 import sqlite3
- Then create a connection using <u>connect()</u> method and pass the name of the database you want to access if there is a file with that name, it will open that file. Otherwise, Python will create a file with the given name.

```
sqliteConnection = sqlite3.connect('gfg.db')
```

 After this, a cursor object is called to be capable to send commands to the SQL.

cursor = sqliteConnection.cursor()

Python code to demonstrate table creation and

insertions with SQL

importing module

import sqlite3

connecting to the database connection

= sqlite3.connect("gfg.db"

```
# cursor
crsr = connection.cursor()
# SQL command to insert the data in the table
sql_command = """INSERT INTO emp VALUES (23,
"Rishabh",\
"Bansal", "M", "2014-03-28");"""
crsr.execute(sql_command)
# another SQL command to insert the data in the table
sql_command = """INSERT INTO emp VALUES (1, "Bill",
"Gates",\
"M", "1980-10-28");"""
crsr.execute(sql_command)
# To save the changes in the files. Never skip this.
# If we skip this, nothing will be saved in the database.
```

```
connection.commit()

# close the connection
connection.close()
```

Output:

```
sqlite> SELECT * from emp;
1|Bill|Gates|M|1980-10-28
23|Rishabh|Bansal|M|2014-03-28
sqlite>
```

Example 2: Inserting data input by the user

```
# importing module

=
gender = ['M', 'F', 'M', 'M', 'F']

# Enter their joining data respectively

date = ['2019-08-24', '2020-01-01', '2018-05-14', '2015-02-02', '2018-05-14']
```

```
for i in range(5):
# close the conne This is the q-mark style:
  crsr.execute('INSERT INTO emp VALUES ({pk[i]}, "{f name[i]}", "{l name[i]}",
"{gender[i]}", "{date[i]}")')
# To save the changes in the files. Never skip this.
# If we skip this, nothing will be saved in the
database. connection. #commit() ction
connection.close(
)
```

Output:

```
sqlite> SELECT * from emp;

1|Bill|Gates|M|1980-10-28

2|Nikhil|Aggarwal|M|2019-08-24

3|Nisha|Rawat|F|2020-01-01

4|Abhinav|Tomar|M|2018-05-14

5|Raju|Kumar|M|2015-02-02

6|Anshul|Aggarwal|F|2018-05-14

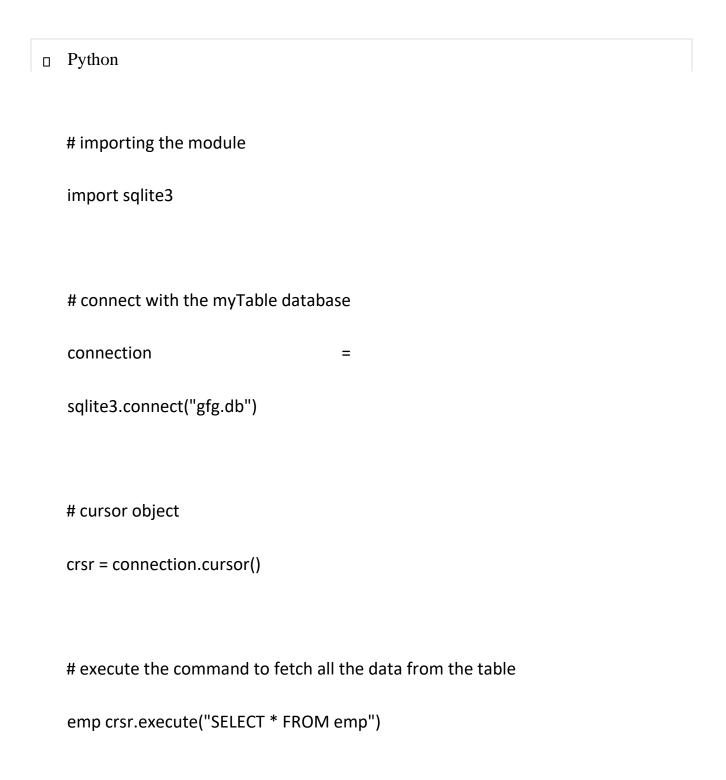
23|Rishabh|Bansal|M|2014-03-28

sqlite>
```

Fetching Data

In this section, we have discussed how to create a table and how to add new rows in the database. Fetching the data from records is simple as inserting them. The execute method uses the SQL command of getting all the data from the table using "Select * from table_name" and all the table data can be fetched in an object in the form of a list of lists.

Example: Reading Data from sqlite3 table using Python



```
# store all the fetched data in the ans variable ans = crsr.fetchall()
```

Since we have already selected all the data entries

using the "SELECT *" SQL command and stored them in

the ans variable, all we need to do now is to print

out the ans variable

for i in ans:

print(i)

Output:

```
(1, 'Bill', 'Gates', 'M', '1980-10-28')
(2, 'Nikhil', 'Aggarwal', 'M', '2019-08-24')
(3, 'Nisha', 'Rawat', 'F', '2020-01-01')
(4, 'Abhinav', 'Tomar', 'M', '2018-05-14')
(5, 'Raju', 'Kumar', 'M', '2015-02-02')
(6, 'Anshul', 'Aggarwal', 'F', '2018-05-14')
(23, 'Rishabh', 'Bansal', 'M', '2014-03-28')
```

Note: It should be noted that the database file that will be created will be in the same folder as that of the python file. If we wish to change the path of the file, change the path while opening the file.

Updating Data

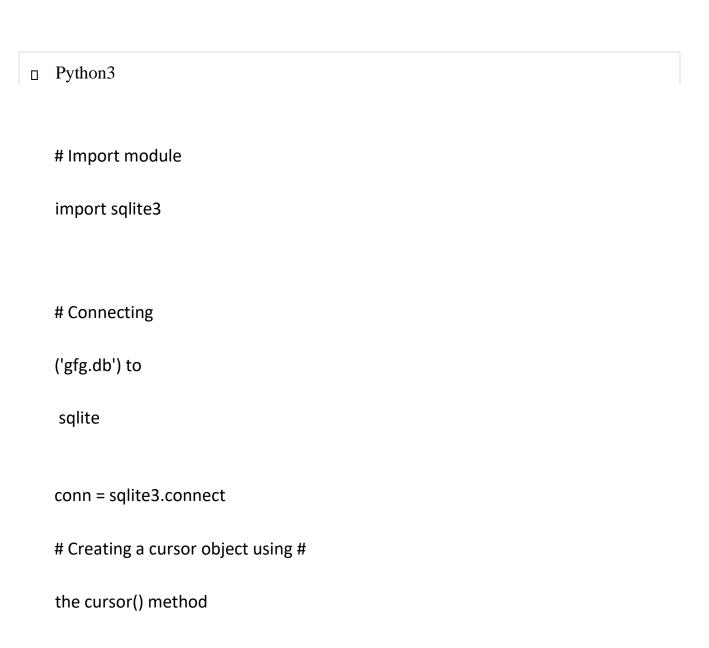
For <u>updating the data</u> in the SQLite3 table we will use the UPDATE statement. We can update single columns as well as multiple columns using the UPDATE statement as per our requirement.

UPDATE table name SET column1 = value1, column2 = value2,...

WHERE condition;

In the above syntax, the SET statement is used to set new values to the particular column, and the WHERE clause is used to select the rows for which the columns are needed to be updated.

Example: Updating SQLite3 table using Python



```
cursor = conn.cursor()
# Updating
     cursor.execute("'UPDATE emp SET Iname = "Jyoti"
     WHERE fname="Rishabh";"")
     # Commit your changes in the
     database conn.commit()
      # Closing the
     connection
     conn.close()
     Output:
```

```
sqlite> SELECT * from emp;
1|Bill|Gates|M|1980-10-28
2|Nikhil|Aggarwal|M|2019-08-24
3|Nisha|Rawat|F|2020-01-01
4|Abhinav|Tomar|M|2018-05-14
5|Raju|Kumar|M|2015-02-02
6|Anshul|Aggarwal|F|2018-05-14
23|Rishabh|Jyoti|M|2014-03-28
sqlite>
```