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SQL using Python

In this article, database connection with the python program is discussed. Connecting a program with a database is considered a tough task in any programming language. It is used to connect the front-end of your application with the back-end database. Python with its native builtin modules made this thing easy too.
This needs the basic understanding of SQL.

Here, we are going to connect SQLite with Python. Python has a native library for SQLite. Let us explain how it works.

1. To use SQLite, we must import sqlite3.
2. Then create a connection using connect() method and pass the name of the database you want to ac-

cess if there is a file with that name, it will open that file. Otherwise, Python will create a file with the given name.

3. After this, a cursor object is called to be capable to send commands to the SQL. Cursor is a control structure used to traverse and fetch the records of the database. Cursor has a major role in working with Python. All the commands will be executed using cursor object only.
4. To create a table in the database, create an object and write the SQL command in it with being commented. Example:- sql_comm = ”SQL statement”
5. And executing the command is very easy. Call the cursor method execute and pass the name of the sql command as a parameter in it. Save a number of commands as the sql_comm and execute them. After you perform all your activities, save the changes in the file by committing those changes and then lose the connection.

```
# Python code to demonstrate table creation and
# insertions with SQL

# importing module
import sqlite3

# connecting to the database
connection = sqlite3.connect("myTable.db")

# cursor
crsr = connection.cursor()

# SQL command to create a table in the database
sql_command = """CREATE TABLE emp (
staff_number INTEGER PRIMARY KEY,
fname VARCHAR(20),
lname VARCHAR(30),
gender CHAR(1),
joining DATE);"""

# execute the statement
crsr.execute(sql_command)

# 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()
```

Run on IDE

In this section, we have discussed how to create a table and how to add new rows in the database.

Fetching the data from record is simple as the 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 fe in an object in the form of list of lists.

```
# Python code to demonstrate SQL to fetch data.
```

```
# importing the module
import sqlite3

# connect withe the myTable database
connection = sqlite3.connect("myTable.db")

# cursor object
crsr = connection.cursor()

# execute the command to fetch all the data from the table emp
crsr.execute("SELECT * FROM emp")

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

# loop to print all the data
for i in ans:
    print(i)
```

Run on IDE

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.

This article is contributed by **Rishabh Bansal**. If you like GeeksforGeeks and would like to contribute, you can also write an article using contribute.geeksforgeeks.org or mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

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Python SQL

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