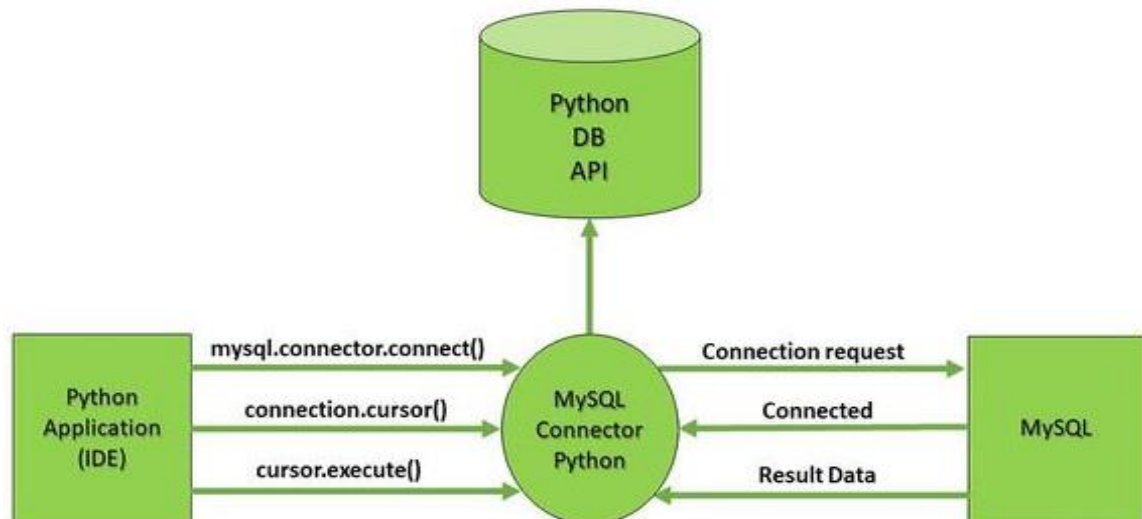


Connecting MySQL with Python

Python is a high-level, general-purpose, and very popular programming language. Python can be used in database applications. The most popular databases is MySQL.

To create a connection between the MySQL database and Python, the **connect()** method of **mysql.connector** module is used.



There are the following steps to connect a python application to our database.

- Import **mysql.connector** module
- Create the **connection object**.
- Create the **cursor object**
- Execute the query

Step to configure SQL and Python at your system:

Step1: Download any python version at your system and install it in your system.

<https://www.python.org/downloads/release/python-3120/>

Step2: Download MySQL server from the website as given i.e 8.0.34

<https://dev.mysql.com/downloads/installer/>

Step3: set the environment variable path for MySQL

Step4: After setting up the path in environment variable open **command prompt** and run follow command:

MySQL – - **version** for checking the version of MySQL server installed at system

Python – - **version** for checking the python version installed at system.

PIP - - **version** for checking the PIP installed at the system.

Now open your workbench **MySQL** and login to your connection: **local instance using password**.

Step5: Open your python editor and import your **mysql.connector**, it will generate error.

Step6: Open the window command prompt and instal the **mysql.connector** by using the command at window command prompt

```
pip install mysql-connector-python
```

Step7: connection creation

```
import mysql.connector  
conn = mysql.connector.connect(host='localhost',password='admin1234',user='root')  
if conn.is_connected():  
    print("Connection established")
```

A.Creating MySQL Database

By using following statement we can create the MySql Database

CREATE DATABASE database_name:

```
import mysql.connector  
mydb = mysql.connector.connect(  
    host = "localhost",  
    user = "yourusername",  
    password = "your_password"  
)  
# Creating an instance of 'cursor' class  
cursor = mydb.cursor()  
# Creating a database with a name  
cursor.execute("CREATE DATABASE Mydatabase")
```

If the database with the name 'Mydatabase' already exists then you will get an error, otherwise no error.

B.To check the databases that you created, use “SHOW DATABASES” – SQL statement i.e.
cursor.execute(“SHOW DATABASES”)

```
1. import mysql.connector
   #Create the connection object
2. myconn = mysql.connector.connect(host = "localhost", user = "root",passwd = "admin1234")
3. #creating the cursor object
4. cur = myconn.cursor()
5. try:
6.     dbs = cur.execute("show databases")
7. except:
8.     myconn.rollback()
9. for x in cur:
10.    print(x)
11. myconn.close()
```

C. Creating the table

We can create the new table by using the CREATE TABLE statement of SQL.

```
import mysql.connector
```

```
#Create the connection object
```

```
myconn = mysql.connector.connect(host = "localhost", user = "root",passwd = "admin1234",database = "pgdbda")
```

```
#creating the cursor object
```

```
cur = myconn.cursor()
```

```
try:
```

```
#Creating a table with name class Employee four columns i.e., name, id, salary, and department id
```

```
dbs = cur.execute("create table Employee(name varchar(20) not null, id int(20) not null primary key, salary float not null, Dept_id int not null)")
```

```
except:
```

```
    myconn.rollback()
```

```
    myconn.close()
```

```
print(dbs)
```

CRUD Operation in python

To perform CRUD (CREATE, READ, UPDATE and DELETE) operations in Python using MySQL.

Step 1: Create your database

```
import mysql.connector

db = mysql.connector.connect( host="localhost", user="root", passwd="password")

# cursor object c
cur = db.cursor()

# executing the create database statement
c.execute("CREATE DATABASE employee_db")

# fetching all the databases
cur.execute("SHOW DATABASES")

for i in cur:
    print(i)

cur = db.cursor()

# closing the database connection
db.close()
```

Step2: Creating Table

```
db = mysql.connector.connect( host="localhost", user="root", passwd="password",
database="employee_db")

# cursor object cur
cur = db.cursor()

# create statement for tblemployee
employeeetbl_create = """CREATE TABLE `employee_db`.`tblemployee` (
  `empid` INT NOT NULL AUTO_INCREMENT, `empname` VARCHAR(45) NULL,
  `department` VARCHAR(45) NULL, `salary` INT NULL, PRIMARY KEY (`empid`))"""

cur.execute(employeeetbl_create)

cur= db.cursor()

# fetch tblemployee details in the database
cur.execute("desc tblemployee")

# print the table details
```

```
for i in cur:
```

```
    print(i)
```

```
# finally closing the database connection
```

```
db.close()
```

Inserting Data into table:

```
INSERT INTO <TABLE_NAME> (column1, column2,...) VALUES (data1,data2,data3...);
```

```
import mysql.connector
```

```
# connecting to the mysql server
```

```
db = mysql.connector.connect( host="localhost", user="root", passwd="password",  
    database="employee_db")
```

```
# cursor object cur
```

```
cur = db.cursor()
```

```
# insert multirow for tblemployee
```

```
employeeetbl_insert = """INSERT INTO tblemployee (empname, department,salary)  
VALUES (%s, %s, %s)"""
```

```
# we save all the row data to be inserted in a data variable
```

```
data = [("Vani", "HR", "100000"), ("Krish", "Accounts", "60000"), ("Aishwarya", "Sales",  
"25000"), ("Govind", "Marketing", "40000")]
```

```
# execute the insert commands for all rows and commit to the database
```

```
cur.executemany(employeeetbl_insert, data)
```

```
db.commit()
```

```
db.close()
```

Reading / Selecting Data from a table

```
SELECT * FROM <TABLE_NAME>
```

```
import mysql.connector
```

```
db = mysql.connector.connect( host="localhost", user="root", passwd="password",  
database="employee_db")
```

```
# cursor object c
```

```
c = db.cursor()
```

```

# select statement for tblemployee which returns all columns
employeeetbl_select = """SELECT * FROM tblemployee"""

# execute the select query to fetch all rows
c.execute(employeeetbl_select)

# fetch all the data returned by the database
employee_data = c.fetchall()

# print all the data returned by the database
for e in employee_data:
    print(e)

# finally closing the database connection
db.close()

```

Updating Data in table:

UPDATE <TABLE_NAME> SET <COLUMN_NAME> = <VALUE> WHERE <PRIMARY KEY NAME> = <PRIMARY KEY VALUE>

```

import mysql.connector

# connecting to the mysql server

db = mysql.connector.connect( host="localhost", user="root", passwd="password",
database="employee_db"
)

# cursor object c
c = db.cursor()

# update statement for tblemployee
# which modifies the salary of Vani
employeeetbl_update = "UPDATE tblemployee\
SET salary = 115000 WHERE empid = 1"

# execute the update query to modify
# the salary of employee with
# employee id = 1 and commit to the database

```

```
c.execute(employeetbl_update)
```

```
db.commit()
```

```
# finally closing the database connection
```

```
db.close()
```

Deleting Data

```
DELETE FROM <TABLE_NAME> WHERE <PRIMARY KEY NAME> = <PRIMARY KEY VALUE>
```

```
import mysql.connector
```

```
# connecting to the mysql server
```

```
db = mysql.connector.connect(
```

```
    host="localhost",
```

```
    user="root",
```

```
    passwd="password",
```

```
    database="employee_db"
```

```
)
```

```
# cursor object c
```

```
c = db.cursor()
```

```
# delete statement for tblemployee
```

```
# which deletes employee Aishwarya having empid 3
```

```
employeetbl_delete = "DELETE FROM tblemployee WHERE empid=3"
```

```
# execute the delete statement and commit to the database
```

```
c.execute(employeetbl_delete)
```

```
db.commit()
```

```
# finally closing the database connection
```

```
db.close()
```