

Database in Python

CSCI3329 OOP in Python

MySQL connector

You have to install `mysql.connector` for Python.

We need `mysql.connector` to connect Python Script to the MySQL database.

You can download the `mysql.connector` from the link below and install it on your computer.

<https://www.mysql.com/products/connector/>

If you use Pycharm, simply you can add the package as shown in the following slides.

Python MySQL Connector Versions

Please refer to the following table of MySQL connector python versions.

You need to install a module that is compatible with your python version.

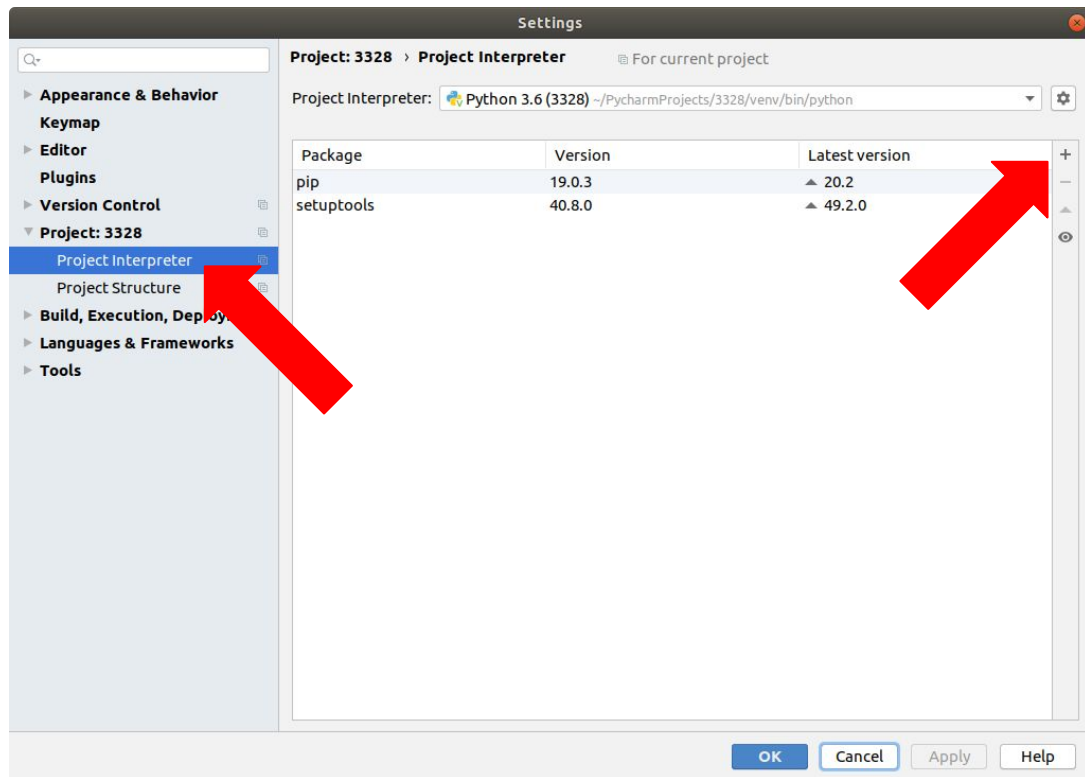
| Connector/Python Version | MySQL Server Versions | Supported Python Versions |
|--------------------------|-------------------------------|------------------------------|
| 8.0 | 8.0, 5.7, 5.6, 5.5 | 3.6, 3.5, 3.4, 2.7 |
| 2.2 | 5.7, 5.6, 5.5 | 3.5, 3.4, 2.7 |
| 2.1 | 5.7, 5.6, 5.5 | 3.5, 3.4, 2.7, 2.6 |
| 2.0 | 5.7, 5.6, 5.5 | 3.5, 3.4, 2.7, 2.6 |
| 1.2 | 5.7, 5.6, 5.5 (5.1, 5.0, 4.1) | 3.4, 3.3, 3.2, 3.1, 2.7, 2.6 |

Settings

Open your project in Pycharm and press Ctrl + Alt + s to open the setting window.

In the settings, expand "Project: your_project_name" on the left side, and then select "Project Interpreter".

Click "+" sign to add a package.



Available Packages

Q mysql-connector-python

mysql-connector-python

mysql-connector-python-dd

mysql-connector-python-rf

Description

MySQL driver written in Python

Version

8.0.21

Author

Oracle and/or its affiliates

<http://dev.mysql.com/doc/connector-python/en/index.html>

Specify version 8.0.21

Options

Install Package

Manage Repositories

mysql-connector-python
mysql-connector-python-dd
mysql-connector-python-rf



Description

MySQL driver written in Python

Version

8.0.21

Author

Oracle and/or its affiliates

<http://dev.mysql.com/doc/connector-python/en/index.html>

Specify version 8.0.21

Options

Package 'mysql-connector-python' installed successfully

Install Package

Manage Repositories

Test the mysql.connector package.

Now, check whether you have installed the mysql.connector correctly or not using the following code.

```
import mysql.connector
```

Or

```
import mysql.connector as mc
```

If the above code runs without any errors, then you have successfully installed mysql.connector, and it is ready to use.

We will connect to the database using username and password of MySQL.

```
db = mc.connect(  
    host = "your server's IP address", # copy and paste from the google cloud console.  
    user = "root",  
    passwd = "1234qwer"  
)  
print(db)
```

Now, connect to the database using your username and password.

It will print a connection object if everything is fine


```
1 import mysql.connector as mc
2
3 db = mc.connect(
4     host = "104.197.75.126",
5     user = "root",
6     passwd = "1234qwer"
7 )
8
9 print(db)
10
```

```
↑ /home/dkim/PycharmProjects/3328/venv/bin/python /home/dkim/PycharmProjects/3328/examp
↓ <mysql.connector.connection_cext.CMySQLConnection object at 0x7f301ffe3da0>
Process finished with exit code 0
```

Connection with database name (carmax)

You can also specify what database you will use through the connection.

```
db = mc.connect(  
    host = "34.66.141.173",  
    user = "root",  
    passwd = "1234qwer"  
    database = "carmax"  
)
```

```
1 import mysql.connector as mc  
2  
3 db = mc.connect(  
4     host="34.66.141.173",  
5     user="root",  
6     passwd="1234qwer",  
7     database="carmax"  
8 )
```

Cursor object

Cursor object represents a database cursor, which is used to manage the context of a fetch operation. Cursors created from the same connection are not isolated, i.e., any changes done to the database by a cursor are immediately visible by the other cursors.

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

Using the cursor object, you can pass/execute a SQL using execute function

```
cursor.execute(sql string)
```

select

```
1 import mysql.connector as mc
2
3 db = mc.connect(
4     host="34.66.141.173",
5     user="root",
6     passwd="1234qwer",
7     database="carmax"
8 )
9 cursor = db.cursor()
10 cursor.execute("select * from cars")
11
12 # fetching all records from the 'cursor' object
13 records = cursor.fetchall()
14
15 # Showing the data
16 for record in records:
17     print(record)
```

```
/home/dkim/PycharmProjects/CSCI3328/venv/bin/python /home/dkim
('3AE9K', 'Honda', 'Accord', 2019, 5847, 19000, 'Silver')
('6T123', 'Toyota', 'Camry', 2008, 70000, 8000, 'Black')
('AB382', 'Honda', 'Accord', 2014, 10000, 18000, 'White')
('Y3829', 'Hyundai', 'Sonata', 2013, 20000, 17000, 'Silver')
('4TX88', 'Ford', 'F150', 2017, 12, 38500, 'Red')
```

```
Process finished with exit code 0
```

insert

```
1 import mysql.connector as mc
2
3 db = mc.connect(
4     host="34.66.141.173",
5     user="root",
6     passwd="1234qwer",
7     database="carmax"
8 )
9 cursor = db.cursor()
10
11 # defining the Query
12 query = "INSERT INTO cars VALUES (%s, %s, %s, %s, %s, %s, %s)"
13 # storing values in a variable
14 values = ("ABCDE", "Ford", "F250", 2009, 34234, 5000, "Green")
15 # executing the query with values
16 cursor.execute(query, values)
17 # to make final output we have to run the 'commit()' method of the database object
18 db.commit()
19
20 print(cursor.rowcount, "record inserted")
```

insert multiple records

```
1 import mysql.connector as mc
2
3 db = mc.connect(
4     host="34.66.141.173",
5     user="root",
6     passwd="1234qwer",
7     database="carmax"
8 )
9 cursor = db.cursor()
10
11 # defining the Query
12 query = "INSERT INTO cars VALUES (%s, %s, %s, %s, %s, %s, %s)"
13 # storing values in a variable
14 values = [("A87DE", "Ford", "F350", 2019, 124, 45000, "White"),
15          ("DE5GC", "Honda", "Civic", 2020, 43, 21000, "Silver"),
16          ("ER23S", "Toyota", "Camry", 2020, 342, 25000, "Red")]
17 # executing the query with values
18 cursor.executemany(query, values)
19 # to make final output we have to run the 'commit()' method of the database object
20 db.commit()
21
22 print(cursor.rowcount, "record inserted")
```

delete

```
1 import mysql.connector as mc
2
3 db = mc.connect(
4     host="34.66.141.173",
5     user="root",
6     passwd="1234qwer",
7     database="carmax"
8 )
9 cursor = db.cursor()
10
11 # defining the Query
12 query = "DELETE FROM cars WHERE vin = '3AE9K'"
13 cursor.execute(query)
14 db.commit()
```

update

```
1 import mysql.connector as mc
2
3 db = mc.connect(
4     host="34.66.141.173",
5     user="root",
6     passwd="1234qwer",
7     database="carmax"
8 )
9 cursor = db.cursor()
10
11 # defining the Query
12 query = "UPDATE cars SET price = 20000 WHERE vin = 'GT123'"
13 cursor.execute(query)
14 db.commit()
```


Lab 21

Please install MySQL and make a new database as “carmax”.

Create a table to store cars

Use a SQL in MySQL Workbench.

Use any table name like “cars”, “inventory”, and so on.

Attributes are same as the example in the slide

Insert at least **five** cars.

Display all cars in the table using Python code.

Submit a captured image of output in your pycharm console or Google colab.