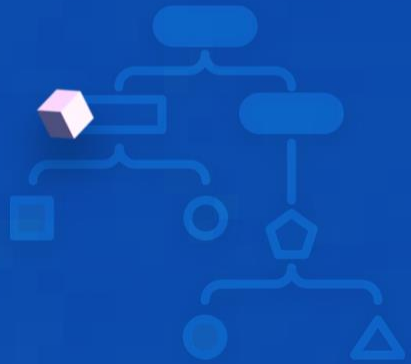
강원혁신플랫폼

리눅스프로그래밍

파이썬과 Maria 데이터베이스 연동



학습목표

학습 내용

1. PyMySQL 패키지, 컴파일
2. flask 웹서버

학습 목표

- PyMySQL 패키지, 컴파일에 대해 설명할 수 있다.
- flask 웹서버에 대해 설명할 수 있다.

PyMySQL 패키지, 컴파일

PyMySQL 패키지, 컴파일

환경 이동

```
$ source .venv/bin/activate
```

패키지 설치

```
(.venv) $ python3 -m pip install PyMySQL
```

코드 작성

```
(.venv) $ vi mysqltest.py
/* 소스코드 생략 */
```

PyMySQL 패키지, 컴파일

실행

(.venv) $ python mysqltest.py

{'id': 2, 'name': 'Sensor2', 'sensor_id': 2, 'reading': 30.2, 'timestamp': datetime.datetime(2023, 7, 14, 11, 47, 15), 'status': 'Inactive'}

mariadb에서 변경 확인

$ sudo mariadb -u scott -ptiger

MariaDB [(none)]> use mydb;

Database changed

PyMySQL 패키지, 컴파일


```
MariaDB [mydb]> select id, reading, timestamp from SensorData;
+----+---------+---------------------+
| id | reading | timestamp           |
+----+---------+---------------------+
|  1 |    25.5 | 2023-07-14 11:47:15 |
|  2 |    30.2 | 2023-07-14 11:47:15 |
|  3 |    26.8 | 2023-07-14 11:47:15 |
|  4 |    18.9 | 2023-07-14 11:47:15 |
|  5 |    30.5 | 2023-07-14 12:10:03 |
+----+---------+---------------------+
5 rows in set (0.000 sec)
```

mysqltest.py


```
(.venv) $ vi mysqltest.py
import pymysql.cursors

# Connect to the database
connection = pymysql.connect(host='localhost',
                             user='scott',
                             password='tiger',
                             database='mydb',
                             cursorclass=pymysql.cursors.DictCursor)
```

```
with connection:
    with connection.cursor() as cursor:
        # Create a new record
        sql = "INSERT INTO SensorData (sensor_id, reading, timestamp) VALUES (%s, %s, CURRENT_TIMESTAMP)"
        cursor.execute(sql, (2, 30.5))

    # connection is not autocommit by default. So you must commit to save
    # your changes.
    connection.commit()
```

```
with connection.cursor() as cursor:
        # Read a single record
        sql = "select b.id, a.name, b.sensor_id, b.reading, b.timestamp, c.status from Sensors as a, SensorData as b, SensorStatus as c WHERE a.id=b.sensor_id and a.id=c.sensor_id and a.name=%s"
        cursor.execute(sql, ('Sensor2',))
        result = cursor.fetchone()
        print(result)
```

flask 웹서버

flask 웹서버

https://flask.palletsprojects.com/en/2.3.x/

파이썬에서 웹 애플리케이션을 빠르고 간편하게 개발할 수 있는 마이크로 웹 프레임워크

Flask를 사용하면 다양한 기능을 간단하게 추가

HTML 템플릿을 사용하여 동적인 콘텐츠를 생성

Flask

출처 https://flask.palletsprojects.com/en/2.3.x/_images/flask-horizontal.png

flask 설치


```
(.venv) $ pip install Flask

(.venv) $ python -m flask --version
Python 3.10.6
Flask 2.3.2
Werkzeug 2.3.6
```

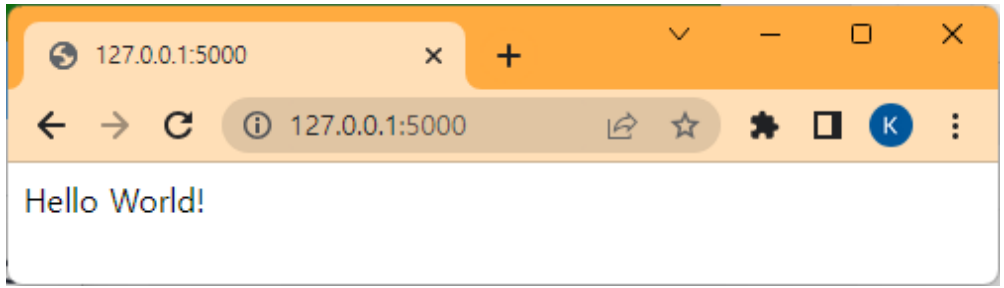
flask 테스트 코드


```
(.venv) $ vi helloflask.py
from flask import Flask

app = Flask(__name__)

@app.route('/')
def hello():
    return 'Hello, World!'

if __name__ == '__main__':
    app.run()
```

flask 테스트


```
(.venv) $ export FLASK_APP=helloflask.py
(.venv) $ flask run
 * Serving Flask app 'helloflask.py'
 * Debug mode: off
WARNING: This is a development server. Do not use it in a production deployment.
Use a production WSGI server instead.
 * Running on http://127.0.0.1:5000
Press CTRL+C to quit
127.0.0.1 - - [14/Jul/2023 12:36:04] "GET / HTTP/1.1" 200 -
127.0.0.1 - - [14/Jul/2023 12:36:04] "GET /favicon.ico HTTP/1.1" 404 -
```

flask 테스트



요약정리

01 • PyMySQL 패키지, 컴파일

02 • flask 웹서버