IoT - Python(Collection) Assignment - 05

1. Explore python math and os module. [upload your codes on git]

2. Create a module named calculator.py that contains the following functions:

    - add(a, b)
    - subtract(a, b)
    - multiply(a, b)
    - divide(a, b)

- Write another Python program that imports this module and performs all operations for two user-input numbers.

3. Create a module named geometry.py with functions to calculate:
    - Area of a circle
    - Area of a rectangle

- Write a Python program that imports only the required functions from the module and calculates areas based on user input.

4. Write a Python program that:

- Imports the datetime module
- Displays the current date and time
- Prints the day of the week for the current date

5. Create a package named operations with the following structure:

```
operations/
|— __init__.py
|— arithmetic.py
|— string_ops.py
```

- arithmetic.py should contain functions for addition and multiplication.
- string_ops.py should contain functions to reverse a string and count vowels.
- Write a Python program to import this package and demonstrate all functions.

6. Create MySQL database for an IoT application that reads temperature and humidity values from a sensor.

- Create a MySQL database named iot_data
- Create a table sensor_readings with fields:
    - id
    - temperature
    - humidity
    - timestamp
- Insert few readings.

- Retrieve and display all records where value is below a threshold value

7. Create a MySQL database for a Smart Agriculture IoT application that stores soil moisture.

- Store the following fields:
  - Sensor ID
  - Moisture level
  - Date and Time
- Insert few sensor readings.
- Retrieve and display all records where moisture level is below a threshold value