Week 1: Introduction to Python Programming

Objective

Understand Python basics including variables, data types, loops, and conditional statements.
Develop simple Python programs for basic computations.
Implement a data processing script.

Tasks Completed

Basic Python Programs:
- Temperature Converter (Celsius to Fahrenheit)
- Simple Calculator

Client Project:
- Created a script to calculate the average temperature from user inputs.

Python Scripts

1. Temperature Converter

```
python
def celsius_to_fahrenheit(celsius):
    return (celsius * 9/5) + 32
temp = float(input('Enter temperature in Celsius: '))
print(f'{temp}°C is equal to {celsius_to_fahrenheit(temp)}°F')
```

OUTPUT:

```
Python 3.10.11 (v3.10.11:7d4cc5aa85, Apr  4 2023, 19:05:19) [Clang 13.0.0 (clang-1300.0.29.30)
] on darwin
Type "help", "copyright", "credits" or "license()" for more information.
>>>
========== RESTART: /Users
/achu/Documents/week1_1.py ==========
==========
Enter temperature in Celsius: 30
30.0°C is equal to 86.0°F
>>>
```

2. Simple Calculator

```
python
def calculator(a, b, operation):
    if operation == '+': return a + b
    elif operation == '-': return a - b
    elif operation == '*': return a * b
    elif operation == '/': return a / b if b != 0 else 'Cannot divide by zero'
    else: return 'Invalid operation'
a = float(input('Enter first number: '))
b = float(input('Enter second number: '))
operation = input('Enter operation (+, -, *, /): ')
print(f'Result: {calculator(a, b, operation)}')
```

OUTPUT:

```
========== RESTART: /Users/achu/Documents/week1_1.py ==========
Enter first number: 78
Enter second number: 98
Enter operation (+, -, *, /): +
Result: 176.0
>>>
```

3.Average Temperature Calculation

```
python
def average_temperature(temps):
    return sum(temps) / len(temps)
temperatures = list(map(float, input('Enter temperatures separated by space: ').split()))
print(f'Average Temperature: {average_temperature(temperatures)}°C')
```

OUTPUT:

```
========== RESTART: /Users/achu/Documents/week1_1.py ==========
Enter temperatures separated by space: 7
Average Temperature: 7.0°C
>>>
```

Key Learnings

Gained proficiency in Python syntax, variables, loops, and conditionals.
Learned to implement basic mathematical functions.
Understood how to process user inputs and perform calculations dynamically.

Conclusion

Week 1 introduced fundamental Python concepts and enabled hands-on practice with simple programs.
The client project reinforced data processing through a temperature calculation script.