Welcome to the Summary of my Coding Portfolio:

Coding Certifications:

1. HackerRank Python (Basic) Certificate-
   Link: HackerRank

2. Introduction to Python (Data Camp)
   Link: Anisha Adhikari's Statement of Accomplishment | DataCamp
   (Click on "Download Statement of Accomplishment" to view the certificate)

3. Intermediate Python (Data Camp)
   Link: Anisha Adhikari's Statement of Accomplishment | DataCamp

Data Science and Data Analysis Certifications:

4. Data Manipulation with Pandas (Data Camp)
   Link: Anisha Adhikari's Statement of Accomplishment | DataCamp

5. A Crash Course on Data Science-
   Link: https://coursera.org/share/f950919793533eb77a7d752e55a48ebe

6. Managing Data Analysis-
   Link: https://coursera.org/share/2bae6718f01a22929fce2dc52613be99

Other Certifications:

7. AI for Everyone-
   Link: https://coursera.org/share/e5f71eb870e42b22f0e8a90b39dffc68

8. Learning How to Learn: Powerful mental tools to help you master tough subjects
   Link: https://coursera.org/share/ec3af4f5bad72f9e93793df3f7ed4bf7

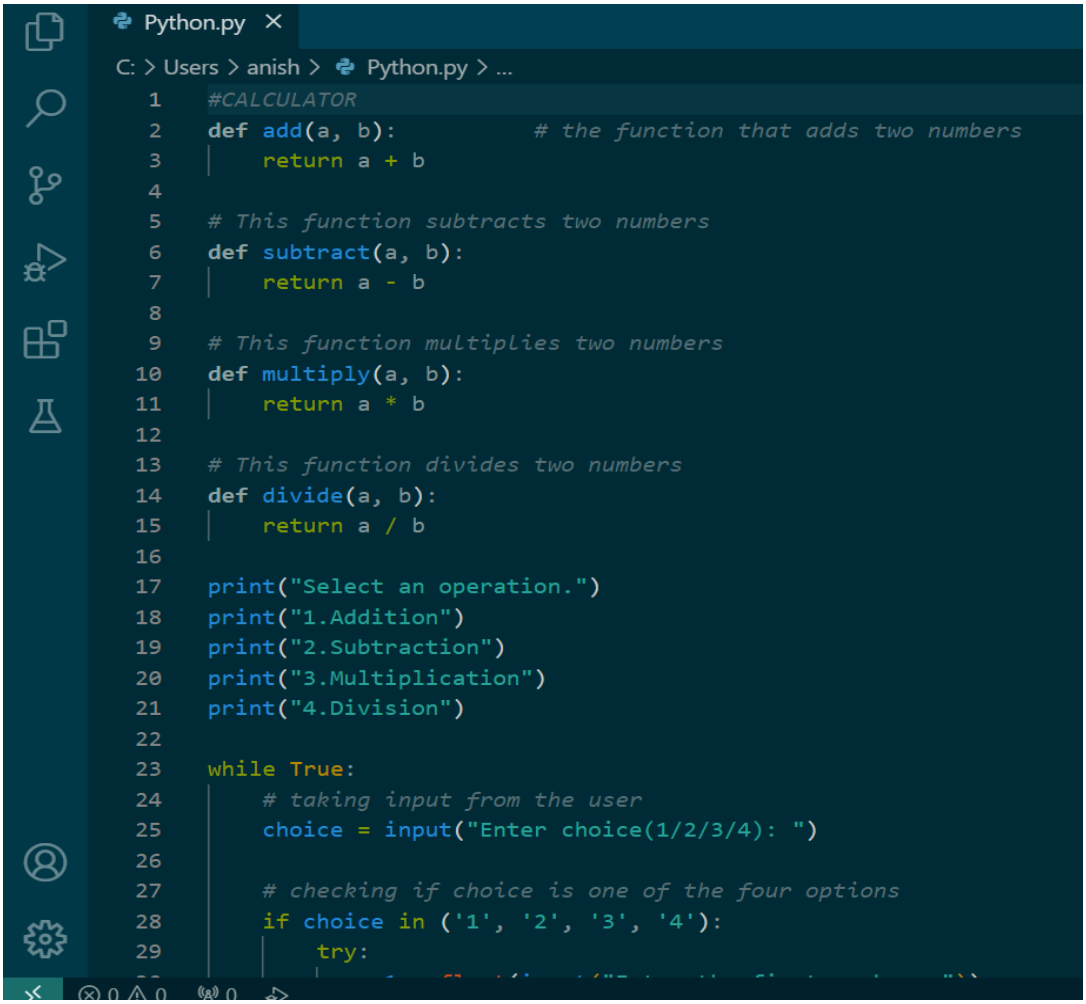
Coding Sample:

- **Calculator using Python:**

I have written a python program to make a simple calculator. There are four basic arithmetic functions: addition, subtraction, multiplication, and division. I have used the concepts of functions, function arguments, and user-defined functions.

First, we make the user choose an operation among the valid options 1, 2, 3, and 4. Except for these inputs, Invalid Input is displayed and the loop continues till a valid option is selected.

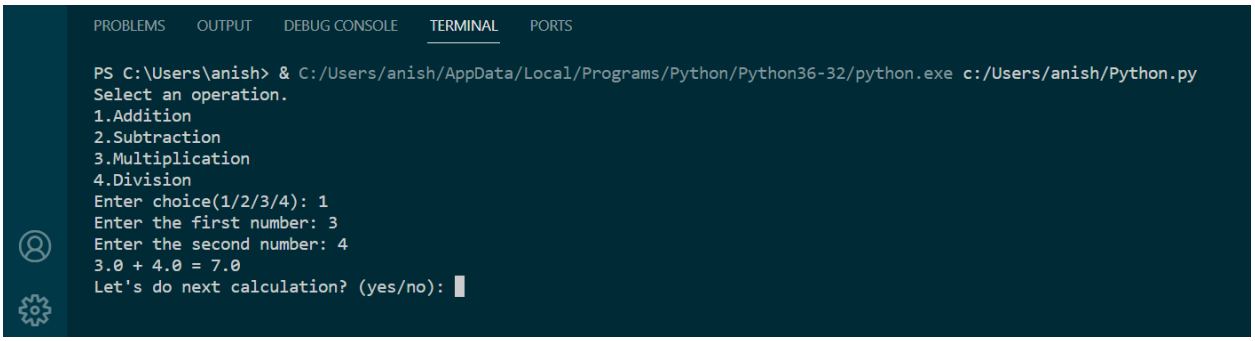
Two numbers are taken as an input and an if…elif…else branching is used to execute a particular section. User-defined functions like add(), subtract(), multiply(), and divide() were created to perform the corresponding mathematical operations and show the results.




```python
#CALCULATOR
def add(a, b):           # the function that adds two numbers
    return a + b

# This function subtracts two numbers
def subtract(a, b):
    return a - b

# This function multiplies two numbers
def multiply(a, b):
    return a * b

# This function divides two numbers
def divide(a, b):
    return a / b

print("Select an operation.")
print("1.Addition")
print("2.Subtraction")
print("3.Multiplication")
print("4.Division")

while True:
    # taking input from the user
    choice = input("Enter choice(1/2/3/4): ")

    # checking if choice is one of the four options
    if choice in ('1', '2', '3', '4'):
        try:
            try:
                n1 = float(input("Enter the first number: "))
                n2 = float(input("Enter the second number: "))
            except ValueError:
                print("The input is invalid. Please enter a number.")
                continue

            if choice == '1':
                print(n1, "+", n2, "=", add(n1, n2))

            elif choice == '2':
                print(n1, "-", n2, "=", subtract(n1, n2))

            elif choice == '3':
                print(n1, "*", n2, "=", multiply(n1, n2))

            elif choice == '4':
                print(n1, "/", n2, "=", divide(n1, n2))

            next_calculation = input("Let's do next calculation? (yes/no): ")
            if next_calculation == "no":
              break
        else:
            print("Invalid Input")
```

Output:

I opted for option 1, which involves addition. I inputted two numbers: 3 and 4 were added, yielding an output of 7



Projects:

a) **EARTHQUAKE EARLY WARNING SYSTEM**
This is a collaborative research project of Duke University & IOE Pulchowk Campus. This system notices ground movement as soon as an earthquake starts, sends alerts that a tremor is approaching, and gives critical seconds to prepare. My contribution to this project was data collection by IOT devices (ESP-32 and Gyrometer) and visualization using Matplotlib.
For Details: https://github.com/anisha-adh/Earthquake-Early-Warning-System

b) **IOT CONTROLLED ENERGY HARVESTING FROM KERATIN WASTE**
Achievement: This project was funded by Nepal Academy of Science and Technology in 2020.
This endeavor is a major project and it required extensive study, experimentation in a chemical lab, and the integration of multiple technologies like Industrial IoT, mechatronics, and Robotics. The main objectives of this research-intensive project are:
- Build a machine following the planned simulation to automate the entire chemical processes using the mechanical 3D model
-To use modern automation and robotics to the entire plant and verify the output of the plant in real-field chemical analysis.
My role was to spearhead the project, plan, research, analyze, manage funding, test (chemically and technically), build a website, and build the plant system from the base.

c) **ISLAND SIMULATION**
The main objective of this project is to create an infinite terrain and make it user-friendly by the use of keyboard shortcuts and mouse using OpenGL and C++. The terrain was created using Perlin noise and height map algorithms. Textures for sands and rocks were loaded from shaders and mapped to vertex using suitable height conditions to make the terrain look more realistic. The water in the landscape possessed transparency and hence reflection and refraction phenomenon was observed. The sun set and rise showed the different lights at the horizon due to the atmosphere scattering.
View the project here: https://github.com/anisha-adh/Island-Simulation

d) **ACQUISITION AND FILTERING OF ECG DATA AND DETECTING ARRHYTHMIA USING CONVOLUTIONAL NEURAL NETWORK**

A third-year minor project that detects possible arrhythmia of a person measuring their heartbeat through sensors. It's objective is to filter the measured data using hardware and software filters and to train a CNN and optimize it using various deep learning techniques to detect arrhythmia and classify the type of arrhythmia.

e) **MAGIC MIRROR**

This project is an interactive AVS integrated mirror with the latest news headlines, weather, quotes, time, date using Raspberry Pi, AVS, electron. It is an instrumentation course project. It was showcased at LOCUS 2019. View the project here: https://github.com/anisha-adh/Mirror

Apart of these projects, I have been an experience of working as a Quality Analyst and a **Full Stack Software Engineer** for more than a year using Python, C#, .NET framework, SQL, Telerik, SaopUI, etc.

GitHub: https://github.com/anisha-adh