Assignment 9.3

Name : Karthikeya Uthuri

Hall Ticket : 2303A51306

Task 1:

Prompt: Write a Python function that finds the sum of even and odd numbers in a list.
Add a manual Google-style docstring to the function.
Use an AI tool to generate a docstring for the same function.
Compare both docstrings based on clarity and correctness.

Code :

```
def sum_even_odd(numbers):
    """Calculates the sum of even and odd numbers from a list.

    Args:
        numbers (list): A list of numerical values to process.

    Returns:
        tuple: A tuple containing two integers: (sum_of_even_numbers, sum_of_odd_numbers).
    """
    sum_of_even_numbers = 0
    sum_of_odd_numbers = 0

    for num in numbers:
        if num % 2 == 0:
            sum_of_even_numbers += num
        else:
            sum_of_odd_numbers += num

    print("Function 'sum_even_odd' defined successfully.")
    return (sum_of_even_numbers, sum_of_odd_numbers)
```

Output :

```
print(ai_docstring)
```

```
Calculates the sum of even and odd numbers from a list.

Args:
    numbers (list): A list of numerical values to process.

Returns:
    tuple: A tuple containing two integers: (sum_of_even_numbers, sum_of_odd_numbers).
```

Task 2:

Prompt: Create a Python class sru_student with manual and AI-generated inline comments and include a comparison for lab submission.

Code :

```python
class sru_student:
    # Constructor to initialize student attributes
    def __init__(self, name, roll_no, hostel_status):
        self.name = name
        self.roll_no = roll_no
        self.hostel_status = hostel_status
        self.fee = 0

    # Method to update or display fee information
    def fee_update(self, amount):
        self.fee = amount
        print(f"Fee updated to: {self.fee}")

    # Method to display all student details
    def display_details(self):
        print("Student Details:")
        print(f"Name: {self.name}")
        print(f"Roll No: {self.roll_no}")
        print(f"Hostel Status: {self.hostel_status}")
        print(f"Fee: {self.fee}")


# ---- Store Your Given Data ----

# Create object with your details
student1 = sru_student("u.karthikeya", "2303A51306", "Yes")

# Update fee (example value)
student1.fee_update(95000)

# Print all details
student1.display_details()
```

Code :

```
student1.display_details()

Fee updated to: 95000
Student Details:
Name: u.karthikeya
Roll No: 2303A51306
Hostel Status: Yes
Fee: 95000
```

Task 3:

Prompt :

Create a Python calculator module with the following functions:

- add(a, b)

- subtract(a, b)

- multiply(a, b)

- divide(a, b)

Requirements:

1. Write the full Python script.

2. Add a proper module-level docstring at the top.

3. Manually write NumPy-style docstrings for each function

   (include Parameters, Returns, and Raises where needed).

4. Then generate AI-style module-level and function-level docstrings.

5. Clearly separate manual documentation and AI-generated documentation.

6. Make the output suitable for academic lab submission.

7. After the code, include a comparison between manual and AI documentation

   focusing on structure, accuracy, and readability.

Code :

```
calculator_code_manual_docstrings = '''
"""A simple calculator module for basic arithmetic operations.

This module provides functions to perform addition, subtraction, multiplication,
and division on two numbers.
"""

def add(a, b):
    """Adds two numbers.

    Parameters
    ----------
    a : int or float
        The first number.
    b : int or float
        The second number.

    Returns
    -------
    int or float
        The sum of `a` and `b`.
    """
    return a + b

def subtract(a, b):
    """Subtracts the second number from the first.

    Parameters
    ----------
    a : int or float
        The first number (minuend).
    b : int or float
        The second number (subtrahend).

    Returns
    -------
    int or float
        The difference between `a` and `b`.
    """
    return a - b

def multiply(a, b):
    """Multiplies two numbers.

    Parameters
    ----------
    a : int or float
```

```
        ----------
        a : int or float
            The first number.
        b : int or float
            The second number.

        Returns
        -------
        int or float
            The product of `a` and `b`.
        """
        return a * b

    def divide(a, b):
        """Divides the first number by the second.

        Parameters
        ----------
        a : int or float
            The numerator.
        b : int or float
            The denominator.

        Returns
        -------
        int or float
            The quotient of `a` divided by `b`.

        Raises
        ------
        ZeroDivisionError
            If `b` (the denominator) is zero.
        """
        if b == 0:
            raise ZeroDivisionError("Cannot divide by zero!")
        return a / b
    '''

    print(calculator_code_manual_docstrings)
```

```
    """A simple calculator module for basic arithmetic operations.

    This module provides functions to perform addition, subtraction, multiplication,
    and division on two numbers.
    """

    def add(a, b):
        """Adds two numbers.
```

Output :

```
    """A simple calculator module for basic arithmetic operations.

    This module provides functions to perform addition, subtraction, multiplication,
    and division on two numbers.
    """

    def add(a, b):
        """Adds two numbers.

        Parameters
        ----------
        a : int or float
            The first number.
        b : int or float
            The second number.

        Returns
        -------
        int or float
            The sum of `a` and `b`.
        """
        return a + b

    def subtract(a, b):
        """Subtracts the second number from the first.

        Parameters
        ----------
        a : int or float
            The first number (minuend).
        b : int or float
            The second number (subtrahend).

        Returns
        -------
        int or float
            The difference between `a` and `b`.
        """
        return a - b

    def multiply(a, b):
        """Multiplies two numbers.

        Parameters
        ----------
        a : int or float
            The first number.
        b : int or float
            The second number.

        Returns
```

```
        Returns
        -------
        int or float
            The product of `a` and `b`.
        """
        return a * b

    def divide(a, b):
        """Divides the first number by the second.

        Parameters
        ----------
        a : int or float
            The numerator.
        b : int or float
            The denominator.

        Returns
        -------
        int or float
            The quotient of `a` divided by `b`.

        Raises
        ------
        ZeroDivisionError
            If `b` (the denominator) is zero.
        """
        if b == 0:
            raise ZeroDivisionError("Cannot divide by zero!")
        return a / b
```