AI Assisted Coding

Assignment – 9.5

Ht.no : 2303A510H4

Batch : 23

Problem 1: String Utilities Function

Consider the following Python function: def

reverse_string(text):

return text[::-1]

Task:

1. Write documentation in:

o (a) Docstring o (b) Inline

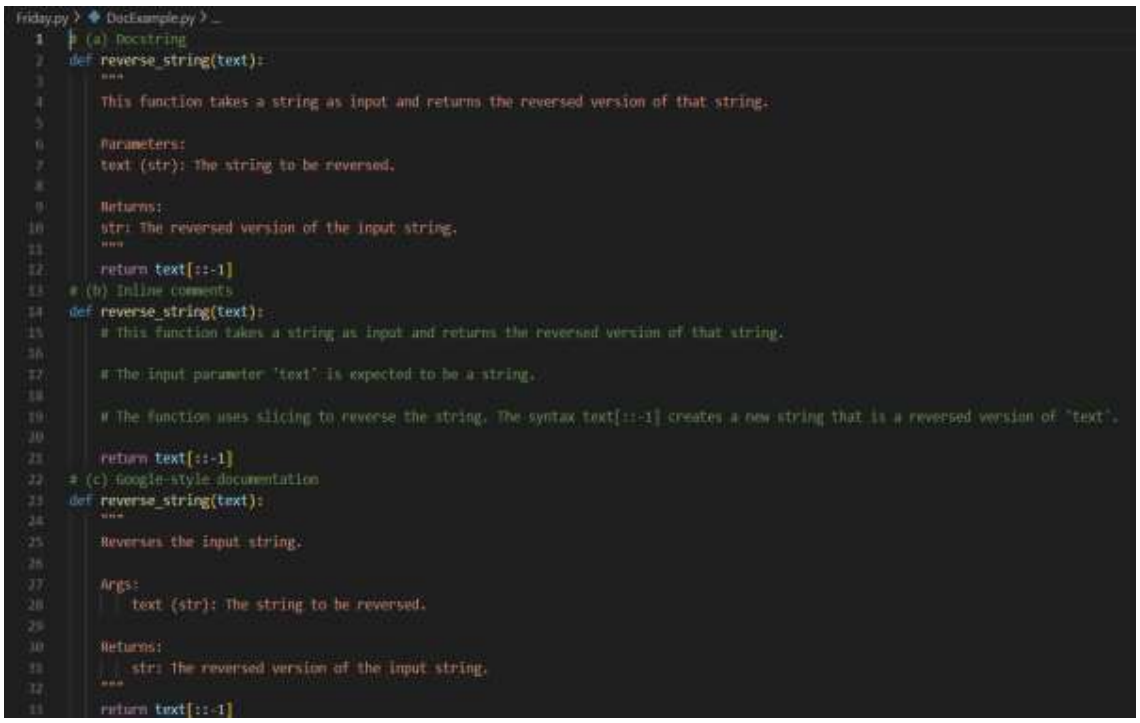
comments o (c) Google-style

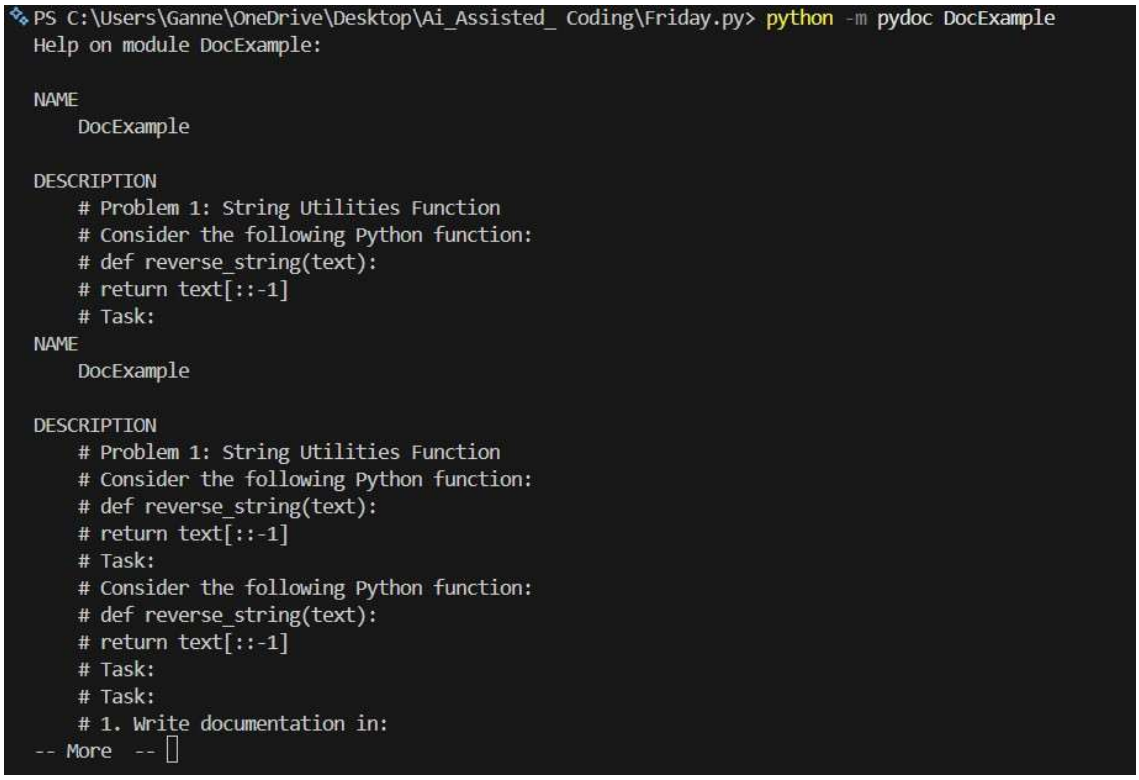
documentation

2. Compare the three documentation styles.

3. Recommend the most suitable style for a utility-based string

library.





Problem 2: Password Strength Checker

Consider the function: def

check_strength(password):

return len(password) >= 8

Task:

1. Document the function using docstring, inline comments, and

Google style.

2. Compare documentation styles for security-related code.

3. Recommend the most appropriate style.

```python
# (a) Docstring
def check_strength(password):
    """
    This function checks the strength of a password by verifying if it is at least 8 characters long.

    Parameters:
    password (str): The password to be checked.

    Returns:
    bool: True if the password is strong (at least 8 characters), False otherwise.
    """
    return len(password) >= 8
# (b) Inline comments
def check_strength(password):
    # This function checks the strength of a password by verifying if it is at least 8 characters long.

    # The input parameter 'password' is expected to be a string.

    # The function returns True if the length of the password is greater than or equal to 8, indicating that it is strong. Otherwise, it returns
    False.

    return len(password) >= 8
# (c) Google-style documentation
def check_strength(password):
    """
    Checks the strength of a password.

    Args:
        password (str): The password to be checked.

    Returns:
        bool: True if the password is strong (at least 8 characters), False otherwise.
    """
    return len(password) >= 8
```

```
PROBLEMS  DEBUG CONSOLE  OUTPUT  TERMINAL  PORTS

PS C:\Users\Ganne\OneDrive\Desktop\Ai_Assisted_ Coding\Friday.py> python -m pydoc DocExample
Help on module DocExample:

NAME
    DocExample

DESCRIPTION
    # # (a) Docstring
    # def reverse_string(text):
-- More  --
```

Problem 3: Math Utilities Module

Task:

1. Create a module math_utils.py with functions:

o square(n) o cube(n)

o factorial(n)

2. Generate docstrings automatically using AI tools.

3. Export documentation as an HTML file.

Friday.py > math_util.py > ...

```python
def square(n) :
    """Returns the square of a number.
    demonstrates how to use docstrings in Python.
    Parameters:
    n (int): The number to be squared.
    Returns:int: The square of n.
    """
    return n * n
def cube(n) :
    """Returns the cube of a number.
    demonstrates how to use docstrings in Python.
    Parameters:
    n (int): The number to be cubed.
    Returns:int: The cube of n.
    """
    return n * n * n
def factorial(n) :
    """Returns the factorial of a number.
    demonstrates how to use docstrings in Python.
    Parameters:
    n (int): The number to calculate the factorial of.
    Returns:int: The factorial of n.
    """
    if n == 0:    # check if n is 0 and return 1 if it is because factorial of 0 is 1
      return 1    # Factorial of 0 is defined to be 1
    else:
      return n * factorial(n - 1)  # Recursive call to calculate factorial of n
print(square.__doc__)
print(cube.__doc__)
print(factorial.__doc__)

```

```
PS C:\Users\Ganne\OneDrive\Desktop\Ai_Assisted_ Coding> cd Friday.py
PS C:\Users\Ganne\OneDrive\Desktop\Ai_Assisted_ Coding\Friday.py> python -m pydoc Math_util
No Python documentation found for 'Math_util'.
Use help() to get the interactive help utility.
Use help(str) for help on the str class.
PS C:\Users\Ganne\OneDrive\Desktop\Ai_Assisted_ Coding\Friday.py> python -m pydoc math_util
Help on module math_util:

NAME
    math_util

DESCRIPTION
    # def square(n) :
    #   """Returns the square of a number.
    #   demonstrates how to use docstrings in Python.
    #   Parameters:
    #   n (int): The number to be squared.
    #   Returns:int: The square of n.
    #   """
    #   return n * n
    # def cube(n) :
    #   """Returns the cube of a number.
    #   demonstrates how to use docstrings in Python.
    #   Parameters:
    #   n (int): The number to be cubed.
    #   Returns:int: The cube of n.
    #   """
    #   return n * n * n
    # def factorial(n) :
    #   """Returns the factorial of a number.
    #   demonstrates how to use docstrings in Python.
    #   Parameters:
    #   n (int): The number to calculate the factorial of.
    #   Returns:int: The factorial of n.
    #   """
    #   if n == 0:    # check if n is 0 and return 1 if it is because factorial of 0 is 1
    #     return 1    # Factorial of 0 is defined to be 1
    #   else:
    #     return n * factorial(n - 1)  # Recursive call to calculate factorial of n
    # print(square.__doc__)
```

Problem 4: Attendance Management Module

Task:

1. Create a module attendance.py with functions:

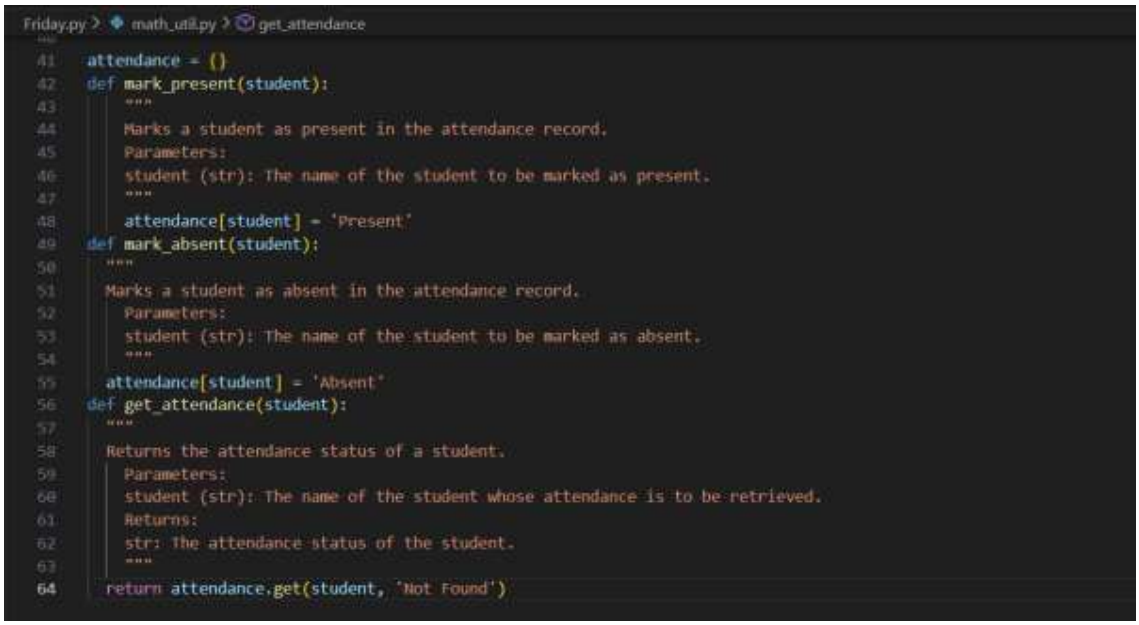
o mark_present(student)

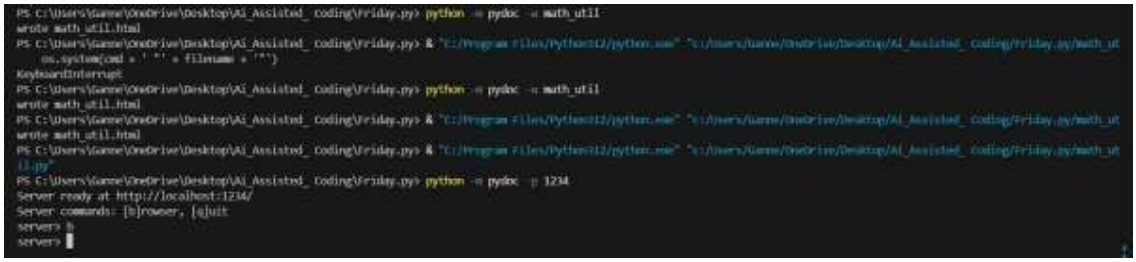
o mark_absent(student) o

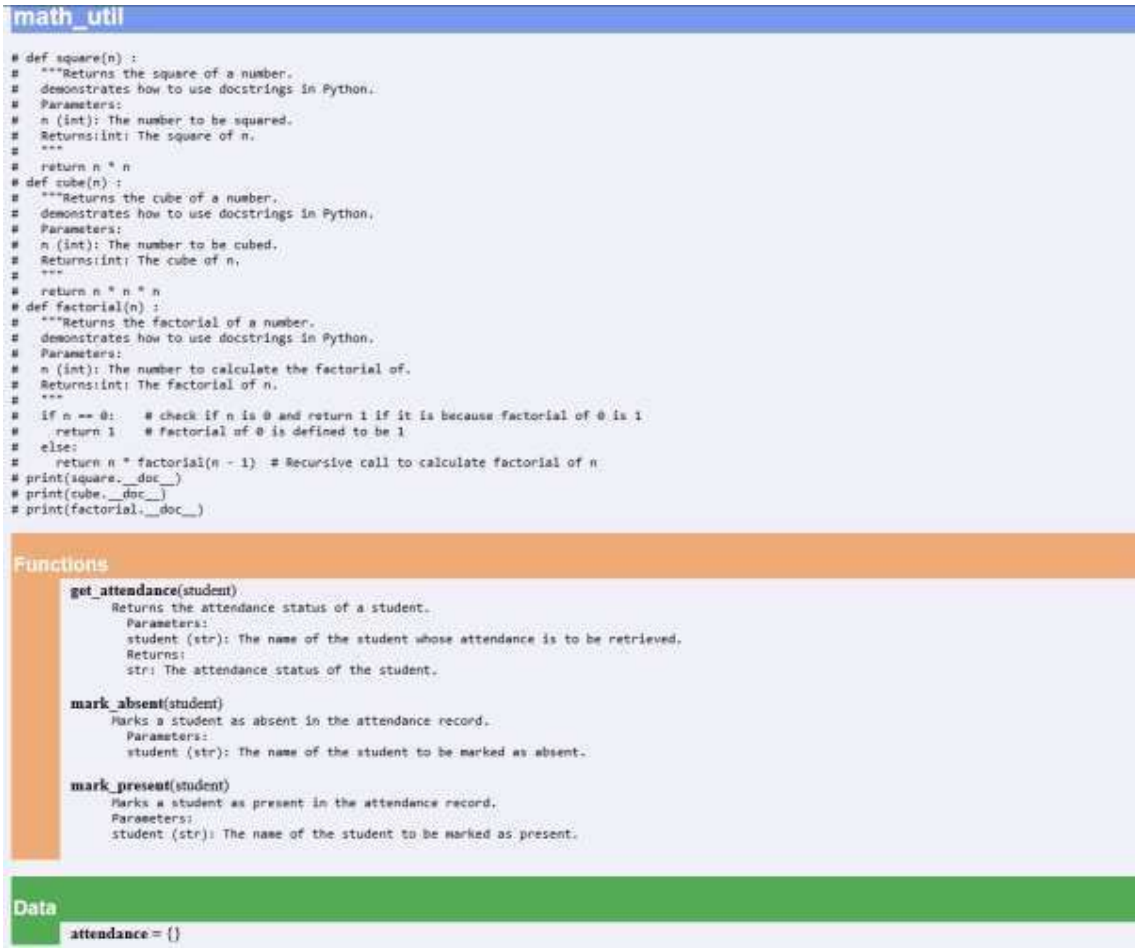
get_attendance(student)

2. Add proper docstrings.

3. Generate and view documentation in terminal and browse







Problem 5: File Handling Function

Consider the function: def

read_file(filename):

with open(filename, 'r') as f:

return f.read()

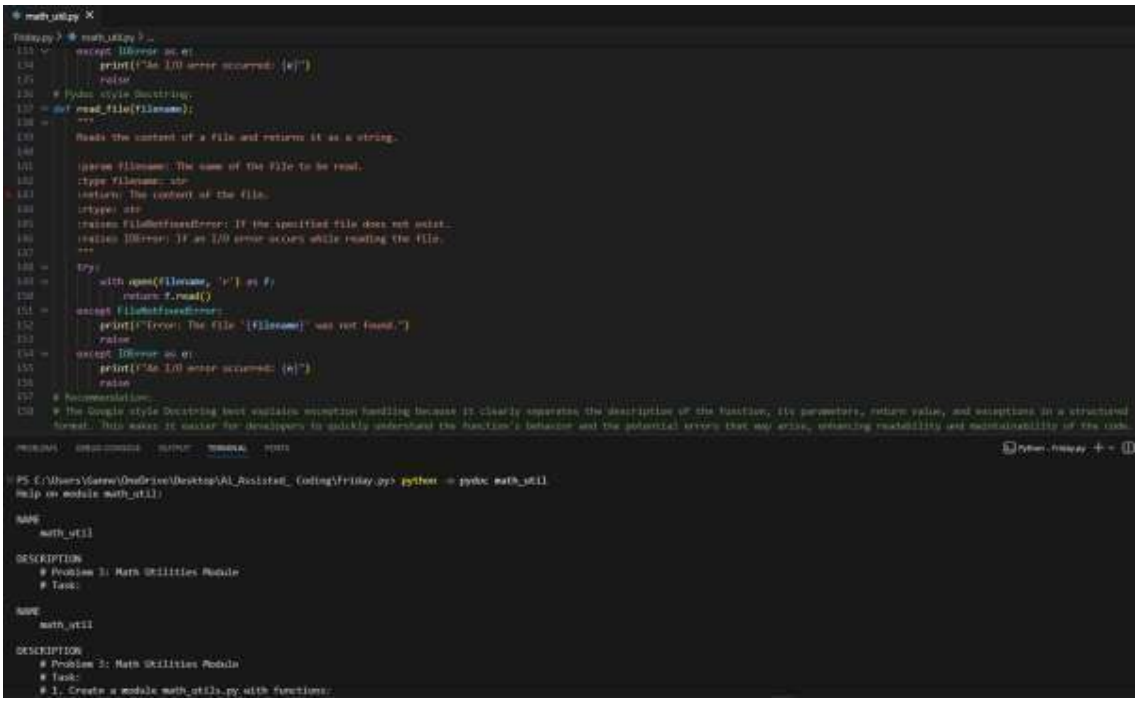
Task:

1. Write documentation using all three formats.

2. Identify which style best explains exception handling.

3. Justify your recommendation.

```python
#DocString style:
def read_file(filename):
    """
    Reads the content of a file and returns it as a string.

    Parameters:
    filename (str): The name of the file to be read.

    Returns:
    str: The content of the file.

    Raises:
    FileNotFoundError: If the specified file does not exist.
    IOError: If an I/O error occurs while reading the file.
    """
    try:
        with open(filename, 'r') as f:
            return f.read()
    except FileNotFoundError:
        print(f"Error: The file '{filename}' was not found.")
        raise
    except IOError as e:
        print(f"An I/O error occurred: {e}")
        raise
# Google style Docstring:
def read_file(filename):
    """
    Reads the content of a file and returns it as a string.

    Args:
        filename (str): The name of the file to be read.

    Returns:
        str: The content of the file.
    Raises:
        FileNotFoundError: If the specified file does not exist.
        IOError: If an I/O error occurs while reading the file.
    """
    try:
        with open(filename, 'r') as f:
            return f.read()
    except FileNotFoundError:
        print(f"Error: The file '{filename}' was not found.")
        raise
    except IOError as e:
```


math_util.py
except IOError as e:
print(f"An I/O error occurred: {e}")
raise
# Pydoc-style Docstring
def read_file(filename):
"""
Reads the content of a file and returns it as a string.
:param filename: The name of the file to be read.
:type filename: str
:return: The content of the file.
:rtype: str
:raises FileNotFoundError: If the specified file does not exist.
:raises IOError: If an I/O error occurs while reading the file.
"""
try:
with open(filename, 'r') as f:
return f.read()
except FileNotFoundError:
print(f"Error: The file '{filename}' was not found.")
raise
except IOError as e:
print(f"An I/O error occurred: {e}")
raise
Recommendation:
The Google-style Docstring best explains exception handling because it clearly separates the description of the function, its parameters, return value, and exceptions in a structured format. This makes it easier for developers to quickly understand the function's behavior and the potential errors that may arise, enhancing readability and maintainability of the code.
PS C:\Users\Ganesh\OneDrive\Desktop\AI_Assisted_ Coding\Friday.py> python -m pydoc math_util
Help on module math_util:
NAME
math_util
DESCRIPTION
Problem 3: Math Utilities Module
Task:
NAME
math_util
DESCRIPTION
Problem 3: Math Utilities Module
Task:
1. Create a module math_utils.py with functions: