ASSIGNMENT 10.1

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Task Description #1 – Syntax and Logic Errors

Task: Use AI to identify and fix syntax and logic errors in a faulty

Python script.

Sample Input Code:

```
# Calculate average score of a student
def calc_average(marks):
total = 0
for m in marks:
total += m
average = total / len(marks)
return avrage # Typo here
marks = [85, 90, 78, 92]
print("Average Score is ", calc_average(marks)
```

Expected Output:

- Corrected and runnable Python code with explanations of the

fixes.

1.py

Assignment 10.1 > 1.py > ...

```python
# Fix The Below Code With Proper Docstring and Syntax Errors and Proper Function Name
# FIXED: Added docstring and corrected function implementation
def calc_average(marks):
    """Calculate the average score of a student."""
    total = 0
    for m in marks:
        total += m
    average = total / len(marks)
    return average  # FIXED: Corrected typo from "avrage" to "average"

marks = [85, 90, 78, 92]
print("Average Score is ", calc_average(marks))  # FIXED: Added missing closing parenthesis

```

```
Average Score is  86.25
```

Task Description #2 – PEP 8 Compliance

Task: Use AI to refactor Python code to follow PEP 8 style guidelines.

Sample Input Code:

def area_of_rect(L,B) : return L*B

print(area_of_rect(10,20))

Expected Output:

- Well-formatted PEP 8-compliant Python code.

2.py

Assignment 10.1 > 2.py > calculate_rectangle_area

```python
# Fix The Below Code With Proper Docstring and Syntax Errors and Proper Understandable Function Name
# Follow PEP 8 Style Guide
# FIXED: Added docstring and corrected function implementation
def calculate_rectangle_area(length, breadth):
    """
    Calculate the area of a rectangle.
    Args:
        length (float): The length of the rectangle.
        breadth (float): The breadth of the rectangle.
        Returns:
        float: The area of the rectangle.
    """
    return length * breadth
print(calculate_rectangle_area(10, 20))
```

```
200
```

Task Description #3 – Readability Enhancement

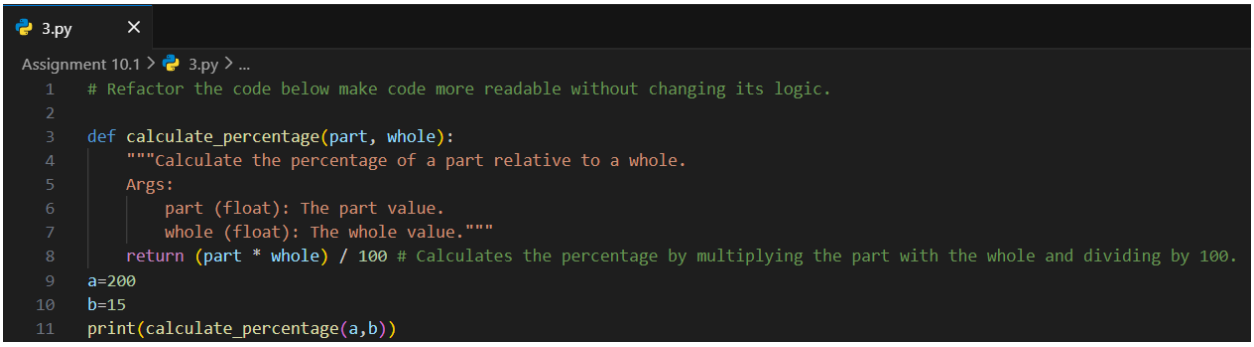
Task: Use AI to make code more readable without changing its logic.

Sample Input Code:

```
def c(x,y):
return x*y/100
a=200
b=15
print(c(a,b))
```

Expected Output:

- Python code with descriptive variable names, inline comments, and clear formatting.




```
30.0
```

Task Description #4 – Refactoring for Maintainability

Task: Use AI to break repetitive or long code into reusable functions.

Sample Input Code:

students = ["Alice", "Bob", "Charlie"]

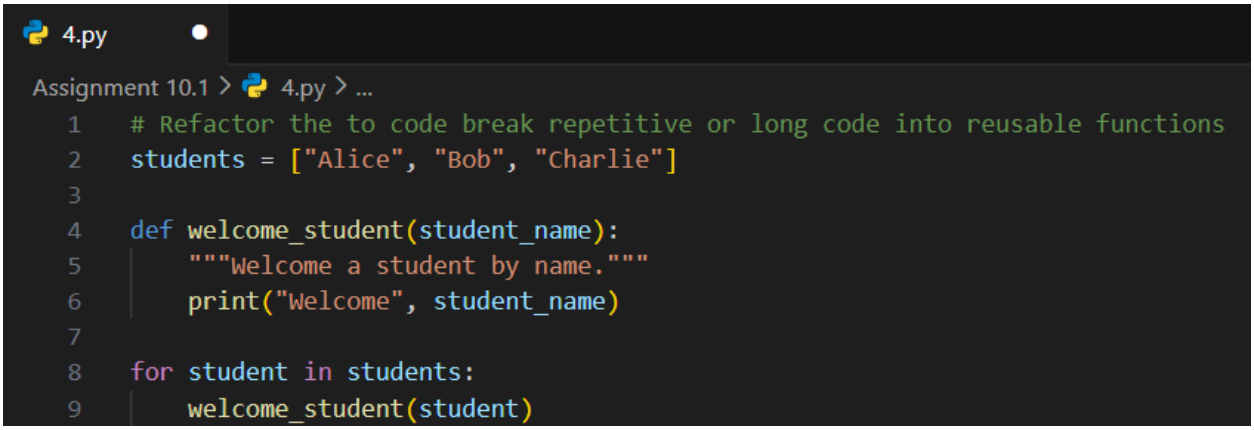
print("Welcome", students[0])

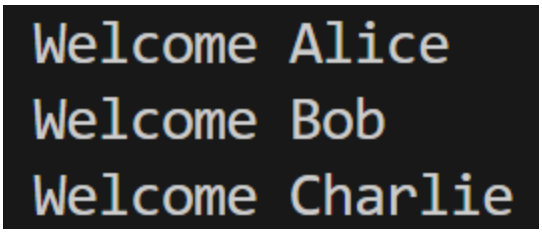
print("Welcome", students[1])

print("Welcome", students[2])

Expected Output:

- Modular code with reusable functions.





Task Description #5 – Performance Optimization

Task: Use AI to make the code run faster.

Sample Input Code:

Find squares of numbers

nums = [i for i in range(1,1000000)]

squares = []

for n in nums:

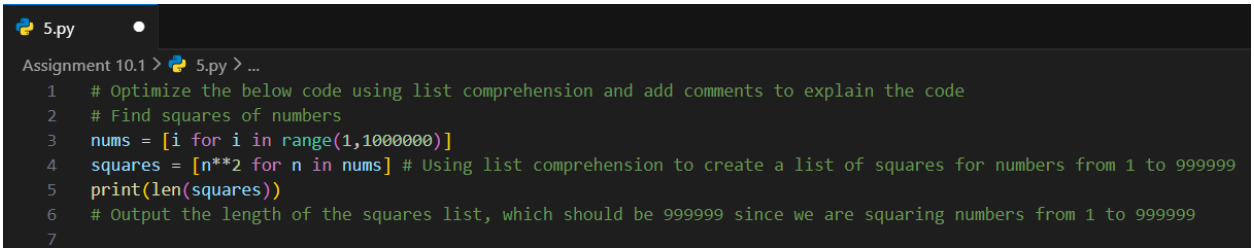
squares.append(n**2)

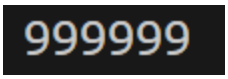
print(len(squares))

Expected Output:

- Optimized code using list comprehensions or vectorized

operations.





Task Description #6 – Complexity Reduction

Task: Use AI to simplify overly complex logic.

Sample Input Code:

```
def grade(score):
if score >= 90:
return "A"
else:
if score >= 80:
return "B"
else:
if score >= 70:
return "C"
else:
if score >= 60:
return "D"
else:
return "F"
```

Expected Output:

- Cleaner logic using elif or dictionary mapping.