Assignment-8.5

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Batch-23

Task Description #1 (Username Validator – Apply AI in Authentication Context)

• Task: Use AI to generate at least 3 assert test cases for a function is_valid_username(username) and then implement the function using Test-Driven Development principles.

• Requirements:

o Username length must be between 5 and 15 characters.

o Must contain only alphabets and digits.

o Must not start with a digit.

o No spaces allowed.

Example Assert Test Cases:

assert is_valid_username("User123") == True

assert is_valid_username("12User") == False

assert is_valid_username("Us er") == False

Expected Output #1:

• Username validation logic successfully passing all AI-generated test cases.

Task Description #2 (Even–Odd & Type Classification – Apply AI for Robust Input Handling)

• Task: Use AI to generate at least 3 assert test cases for a function classify_value(x) and implement it using conditional logic and loops.

• Requirements:

o If input is an integer, classify as "Even" or "Odd".

o If input is 0, return "Zero".

o If input is non-numeric, return "Invalid Input".

Example Assert Test Cases:

assert classify_value(8) == "Even"

assert classify_value(7) == "Odd"

assert classify_value("abc") == "Invalid Input"

Expected Output #2:

• Function correctly classifying values and passing all test cases

```
17  def classify_value(x):
18      if x < 0:
19          return "Negative"
20      elif x == 0:
21          return "Zero"
22      elif x%2 == 0:
23          return "Even"
24      else:
25          return "Odd"
26  # Test cases for the classify_value function
27  assert classify_value(8) == "Even"
28  assert classify_value(7) == "Odd"
29  assert classify_value("abc") == "Invalid Input"

PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS
PS C:\Users\SONY REDDY\OneDrive\Desktop\AI ASSISTANT CODING> & C:/Users/SONY REDDY/AppData/Local/Programs/Py
  File "c:\Users\SONY REDDY\OneDrive\Desktop\AI ASSISTANT CODING\2303A51666_LabAssignment-8.py", line 29, in
    assert classify_value("abc") == "Invalid Input"
           ^^^^^^^^^^^^^^^^^^^^^
  File "c:\Users\SONY REDDY\OneDrive\Desktop\AI ASSISTANT CODING\2303A51666_LabAssignment-8.py", line 18, in
    if x < 0:
       ^^^^^
TypeError: '<' not supported between instances of 'str' and 'int'
```

Task Description #3 (Palindrome Checker – Apply AI for String Normalization)

• Task: Use AI to generate at least 3 assert test cases for a function is_palindrome(text) and implement the function.

• Requirements:

o Ignore case, spaces, and punctuation.

o Handle edge cases such as empty strings and single

characters.

Example Assert Test Cases:

assert is_palindrome("Madam") == True

assert is_palindrome("A man a plan a canal Panama") ==

True

assert is_palindrome("Python") == False

Expected Output #3:

• Function correctly identifying palindromes and passing all AI-generated tests

```
31  def is_palindrome(text):
32      cleaned_text = ''.join(char.lower() for char in text if char.isalnum())
33      return cleaned_text == cleaned_text[::-1]
34  # Test cases for the is_palindrome function
35  assert is_palindrome("Madam") == True
36  assert is_palindrome("A man a plan a canal Panama") ==True
37  assert is_palindrome("Python") == False
38  print("All test cases for is_palindrome passed!")
```

```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS

PS C:\Users\SONY REDDY\OneDrive\Desktop\AI ASSISTANT CODING> & "C:/Users/SONY REDDY/AppData/Local/Programs/Python/Python313/pyt
op/AI ASSISTANT CODING/2303A51666_LabAssignment-8.py"
All test cases for is_palindrome passed!
```

Task Description #4 (BankAccount Class – Apply AI for Object-Oriented Test-Driven Development)

• Task: Ask AI to generate at least 3 assert-based test cases for a BankAccount class and then implement the class.

• Methods:

o deposit(amount)

o withdraw(amount)

o get_balance()

Example Assert Test Cases:

acc = BankAccount(1000)

acc.deposit(500)

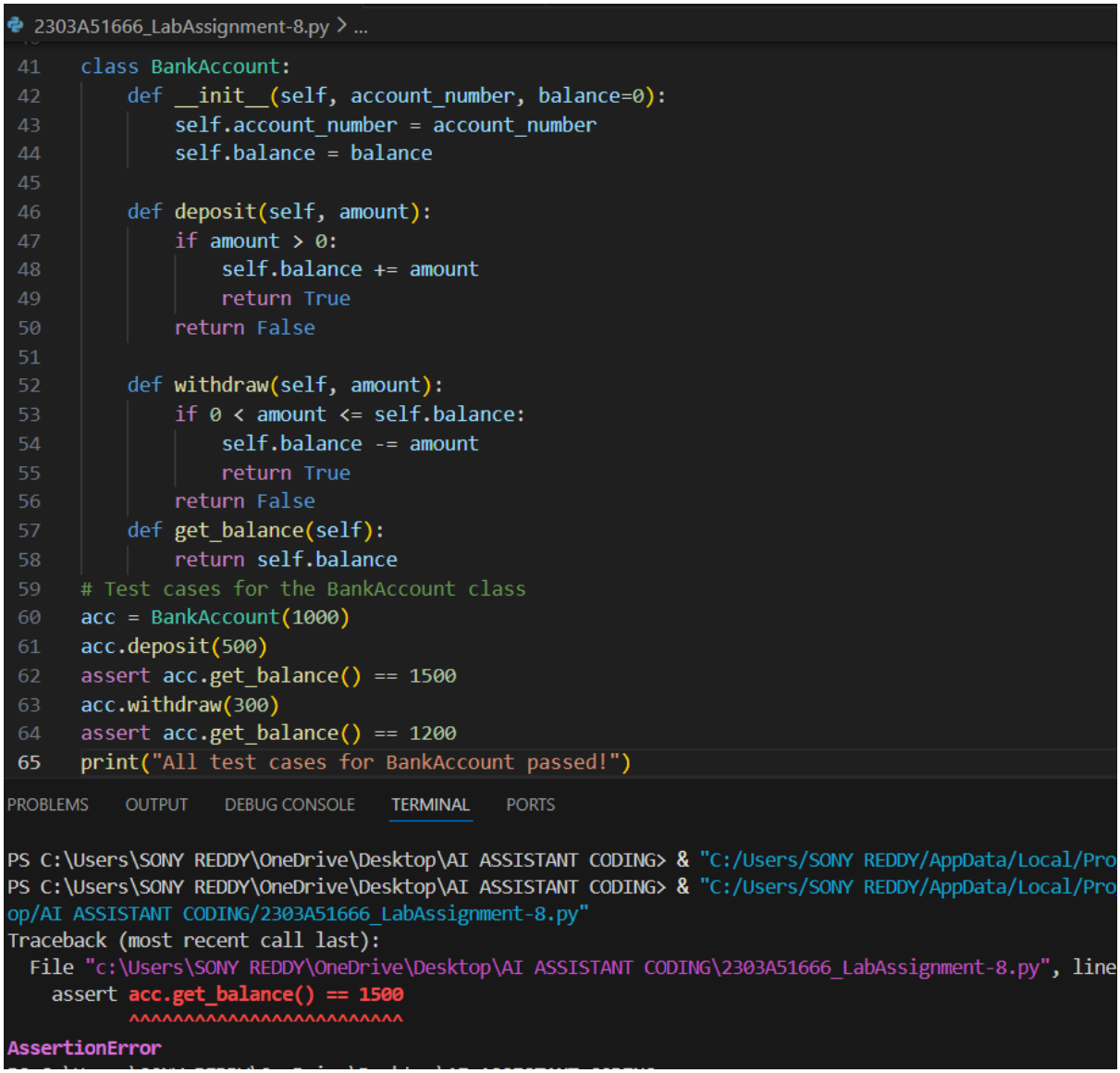
assert acc.get_balance() == 1500

acc.withdraw(300)

assert acc.get_balance() == 1200

Expected Output #4:

• Fully functional class that passes all AI-generated assertions.



Task Description #5 (Email ID Validation – Apply AI for Data Validation)

• Task: Use AI to generate at least 3 assert test cases for a function validate_email(email) and implement the function.

• Requirements:

o Must contain @ and .

o Must not start or end with special characters.

o Should handle invalid formats gracefully.

Example Assert Test Cases:

assert validate_email("user@example.com") == True

assert validate_email("userexample.com") == False

assert validate_email("@gmail.com") == False

Expected Output #5:

• Email validation function passing all AI-generated test cases and handling edge cases correctly.

```python
def validate_email(email):
    if '@' not in email or '.' not in email:
        return False
    at_index = email.index('@')
    dot_index = email.rindex('.')
    if at_index < 1 or dot_index < at_index + 2 or dot_index >= len(email) - 1:
        return False
    return True
# Test cases for the validate_email function
assert validate_email("user@example.com") == True
assert validate_email("userexample.com") == False
assert validate_email("@gmail.com") == False
print("All test cases for validate_email passed!")
```

```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS

PS C:\Users\SONY REDDY\OneDrive\Desktop\AI ASSISTANT CODING> & "C:/Users/SONY REDDY/AppData/Local/Programs/Python/Python
op/AI ASSISTANT CODING/2303A51666_LabAssignment-8.py"
All test cases for validate_email passed!
```