AI ASSIGNMENT-8.5

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Batch:36

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:
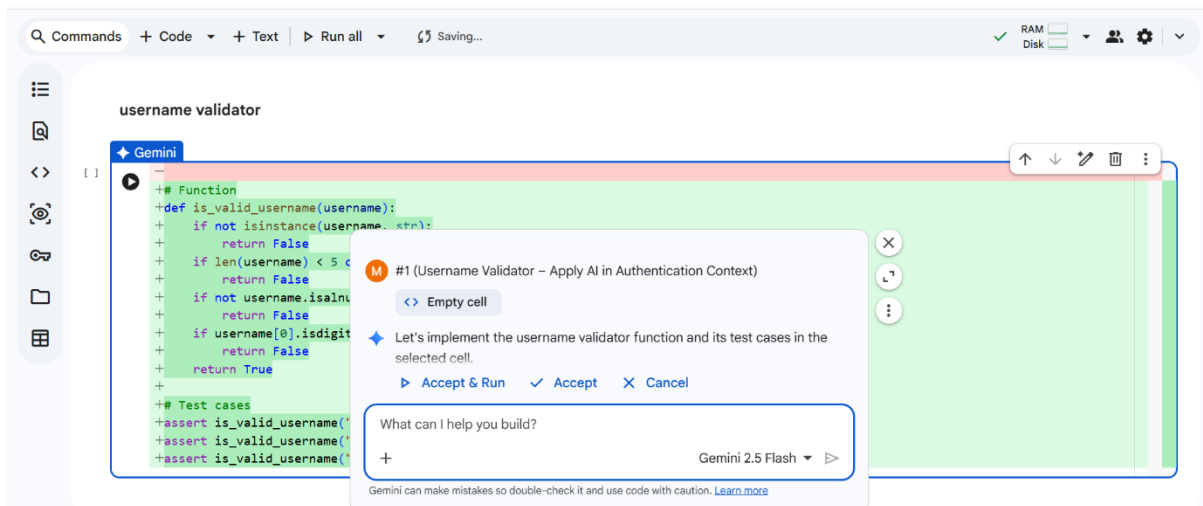
assert is_valid_username("User123") == True

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.

Output:

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".

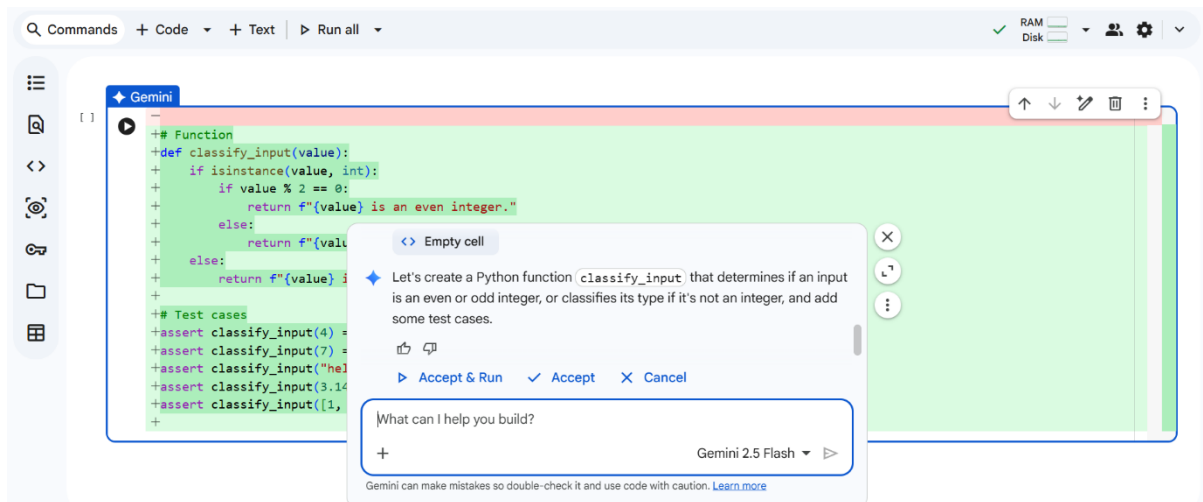Example Assert Test Cases:

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.

Output:

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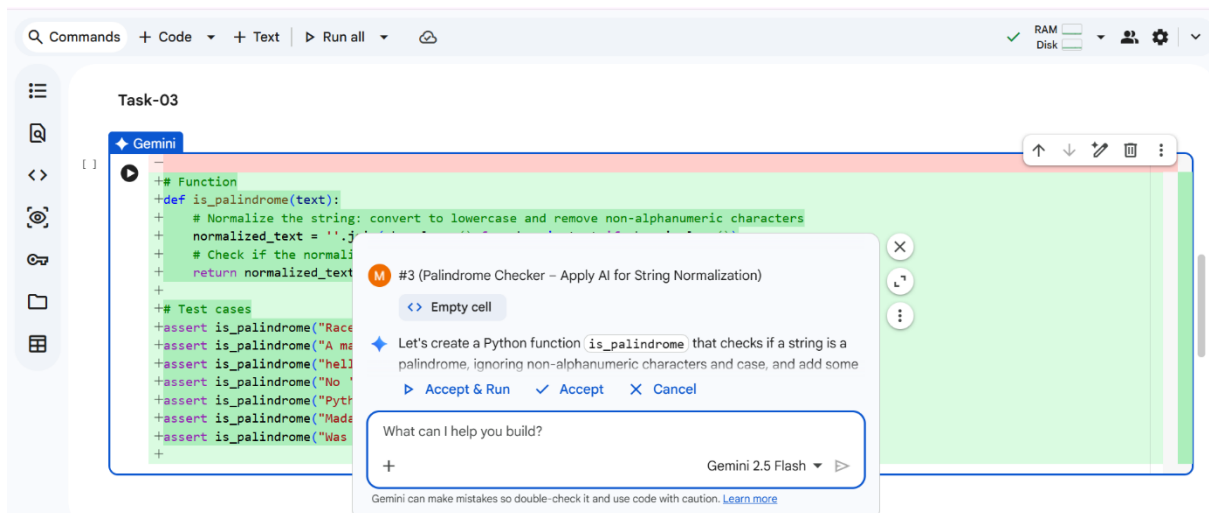
assert is_palindrome("A man a plan a canal Panama") ==

True

assert is_palindrome("Python") == False

Expected Output #3:

• Function correctly identifying palindromes and passing all

AI-generated tests.

Output:

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.

Output:

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```

Task-04

◆ Gemini   ↑ ↓ ✎ 🗑 ⋮

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[ ]   ▷   +# Function: BankAccount Class
           +class BankAccount:
           +    def __init__(self, initial_balance=0):
           +        if not isinstance(initial_balance, (int, float)) or initial_balance < 0:
           +            raise ValueErr ╭──────────────────────────────────────╮  ✕
           +        self.balance = ini│  Ⓜ #4 (BankAccount Class – Apply AI for Object-Oriented Test-Driven
           +                          │     Development)                              ⤢
           +    def deposit(self, amou│                                               ⋮
           +        if not isinstance(│     <> Empty cell
           +            raise ValueErr│
           +        self.balance += an│  ◆ Let's create a (BankAccount) class with methods for (deposit),(withdraw),
           +        return self.baланc│     ▷ Accept & Run   ✓ Accept   ✕ Cancel
           +                          │
           +    def withdraw(self, amo│     What can I help you build?
           +        if not isinstance(│
           +            raise ValueErr│     +                              Gemini 2.5 Flash ▾  ▷
           +        if amount > self.b│
           +            raise ValueErr│  Gemini can make mistakes so double-check it and use code with caution. Learn more
           +        self.balance -= an╰──────────────────────────────────────╯
           +        return self.balanc
```

```
[5]   ▷   try:
✓ 0s          account10 = BankAccount(-50)
              assert False, "Test 10 Failed: Expected ValueError for negative initial balance"
          except ValueError as e:
              assert str(e) == "Initial balance must be a non-negative number.", f"Test 10 Failed: Wrong error message: {e}"

          # Test 11: Initial balance as float
          account11 = BankAccount(100.50)
          assert account11.get_balance() == 100.50, f"Test 11 Failed: Expected 100.50, got {account11.get_balance()}"

          # Test 12: Deposit float amount
          account12 = BankAccount(50)
          account12.deposit(25.75)
          assert account12.get_balance() == 75.75, f"Test 12 Failed: Expected 75.75, got {account12.get_balance()}"

          # Test 13: Withdraw float amount
          account13 = BankAccount(100.25)
          account13.withdraw(10.15)
          assert account13.get_balance() == 90.10, f"Test 13 Failed: Expected 90.10, got {account13.get_balance()}"

          print("All BankAccount tests passed!")

      ⋯  All BankAccount tests passed!
```

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.

Output: