

AI ASSISTED CODING ASS-8.1

2303A51678

Batch-28

Task Description #1 (Password Strength Validator – Apply AI in Security Context)

Task: Apply AI to generate at least 3 assert test cases for `is_strong_password(password)` and implement the validator function.

CODE:

#Apply AI to generate at least 3 assert test cases for `is_strong_password(password)` and implement the validator function

```
def is_strong_password(password):

    if len(password) < 8:
        return False
    if not any(char.isupper() for char in password):
        return False
    if not any(char.islower() for char in password):
        return False
    if not any(char.isdigit() for char in password):
        return False
    if not any(char in "!@#$%^&*()-_=+[]{}|;:'\".,<>?/" for char in password):
        return False
    return True

# Assert test cases
assert is_strong_password("Password123!") == True, "Test case 1 failed"
assert is_strong_password("weakpass") == False, "Test case 2 failed"
assert is_strong_password("Short1!") == False, "Test case 3 failed"
print("All test cases passed!")
```

#Task Description #2 (Number Classification with Loops – Apply AI for Edge Case Handling)

#Write a Python function classify_numbers(n) that classifies numbers from 1 to n as 'Even', 'Odd', or 'Prime'. Use loops to iterate through the numbers and apply AI techniques to handle edge cases, such as negative numbers or non-integer inputs. Provide the implementation of the function along with test cases.

CODE:

```
def classify_numbers(n):
    if not isinstance(n, int) or n < 1:
        return "Input must be a positive integer."

    classifications = {}

    for num in range(1, n + 1):
        if num % 2 == 0:
            classifications[num] = 'Even'
        else:
            classifications[num] = 'Odd'

        if num > 1 and all(num % i != 0 for i in range(2, int(num**0.5) + 1)):
            classifications[num] += ' and Prime'

    return classifications

# Test cases
print(classify_numbers(10))
print(classify_numbers(-5))
print(classify_numbers(5.5))
```

Task Description #3 (Anagram Checker – Apply AI for String Analysis)

- **Task:** Use AI to generate at least 3 assert test cases for is_anagram(str1, str2) and implement the function.

- **Requirements:**

- o Ignore case, spaces, and punctuation.
- o Handle edge cases (empty strings, identical words).

CODE:

```
import string
def is_anagram(str1, str2):
    # Remove spaces and punctuation, and convert to lowercase
    translator = str.maketrans('', '', string.punctuation + ' ')
    str1_cleaned = str1.translate(translator).lower()
    str2_cleaned = str2.translate(translator).lower()
    return sorted(str1_cleaned) == sorted(str2_cleaned)
# Assert test cases
assert is_anagram("Listen", "Silent") == True, "Test case 1 failed"
assert is_anagram("Triangle", "Integral") == True, "Test case 2 failed"
assert is_anagram("Apple", "Pabble") == False, "Test case 3 failed"
assert is_anagram("", "") == True, "Test case 4 failed"
assert is_anagram("Dormitory", "Dirty Room") == True, "Test case 5 failed"
print("All test cases passed!")
```

Task Description #4 (Inventory Class – Apply AI to Simulate Real-World Inventory System)

- **Task:** Ask AI to generate at least 3 assert-based tests for an Inventory class with stock management.
- **Methods:**
 - o add_item(name, quantity)
 - o remove_item(name, quantity)
 - o get_stock(name)

CODE:

```
class Inventory:
    def __init__(self):
        self.stock = {}

    def add_item(self, name, quantity):
        if name in self.stock:
            self.stock[name] += quantity
        else:
            self.stock[name] = quantity

    def remove_item(self, name, quantity):
        if name in self.stock and self.stock[name] >= quantity:
            self.stock[name] -= quantity
            return True
        return False

    def get_stock(self, name):
        return self.stock.get(name, 0)
```

```

# Assert test cases
inventory = Inventory()
inventory.add_item("Apple", 10)
assert inventory.get_stock("Apple") == 10, "Test case 1 failed"
inventory.remove_item("Apple", 5)
assert inventory.get_stock("Apple") == 5, "Test case 2 failed"
assert inventory.remove_item("Apple", 10) == False, "Test case 3 failed"
assert inventory.get_stock("Banana") == 0, "Test case 4 failed"
print("All test cases passed!")

```

Task Description #5 (Date Validation & Formatting – Apply AI for Data Validation)

- **Task:** Use AI to generate at least 3 assert test cases for validate_and_format_date(date_str) to check and convert dates.

- **Requirements:**

- o Validate "MM/DD/YYYY" format.
- o Handle invalid dates.
- o Convert valid dates to "YYYY-MM-DD".

CODE:

```

from datetime import datetime
def validate_and_format_date(date_str):
    try:
        date_obj = datetime.strptime(date_str, "%m/%d/%Y")
        return date_obj.strftime("%Y-%m-%d")
    except ValueError:
        return "Invalid date format. Please use MM/DD/YYYY."
# Assert test cases
assert validate_and_format_date("12/31/2020") == "2020-12-31", "Test case 1 failed"
assert validate_and_format_date("02/30/2020") == "Invalid date format. Please use MM/DD/YYYY.", "Test case 2 failed"
assert validate_and_format_date("2020/12/31") == "Invalid date format. Please use MM/DD/YYYY.", "Test case 3 failed"
assert validate_and_format_date("01/01/2021") == "2021-01-01", "Test case 4 failed"
print("All test cases passed!")

```