

# ASSIGNMENT – 8.1

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**Batch-27**

## **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.

#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.**

```
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).

```

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)
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".

```
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!")
```