Assignment 6.1

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Batch 17

Task Description #1 (AI-Based Code Completion for Loops)

Task: Use an AI code completion tool to generate a loop-based

program.

Prompt:

“Generate Python code to print all even numbers between 1 and N

using a loop.”

Expected Output:

• AI-generated loop logic.

• Identification of loop type used (for or while).

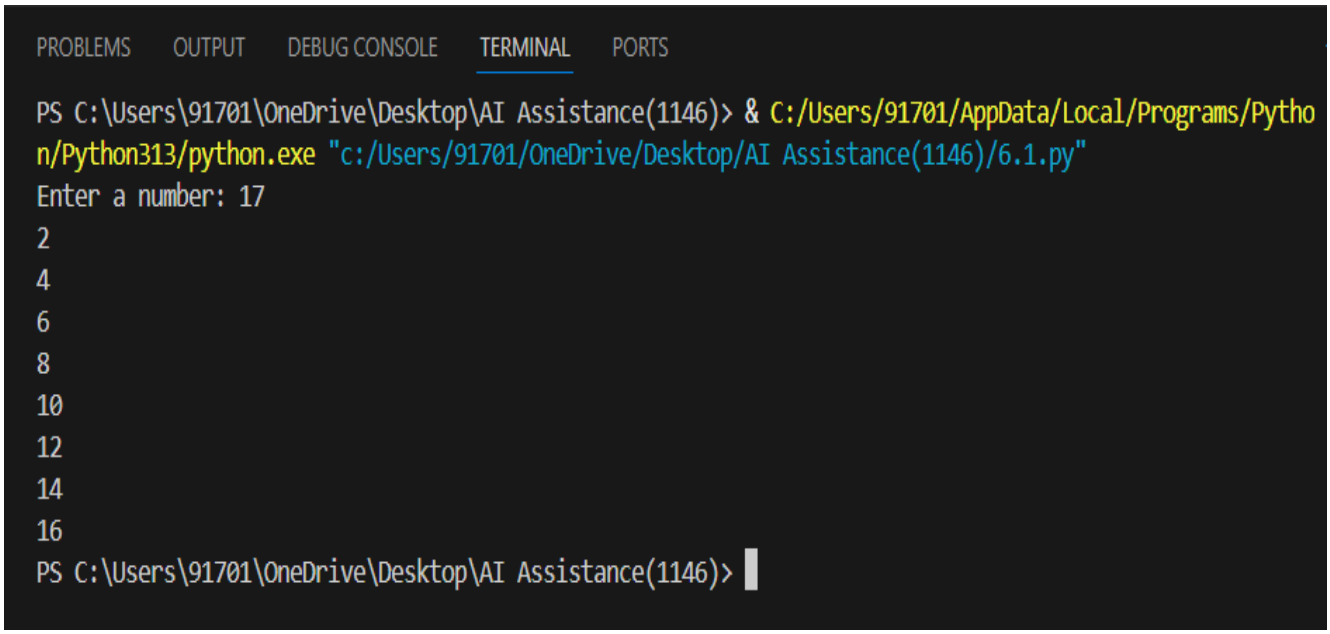
• Validation with sample inputs.

Code:

```
N = int(input("Enter a number: "))
```

```
for i in range(1, N + 1):
    if i % 2 == 0:
        print(i)
```

Output:



Analysis:

The AI-generated loop correctly identifies even numbers using a modulus condition. The logic works for multiple inputs but can be optimized to skip odd numbers.

Task Description #2 (AI-Based Code Completion for Loop with Conditionals)

Task: Use an AI code completion tool to combine loops and conditionals.

Prompt:

“Generate Python code to count how many numbers in a list are even

and odd.”

Expected Output:

• AI-generated code using loop and if condition.

• Correct count validation.

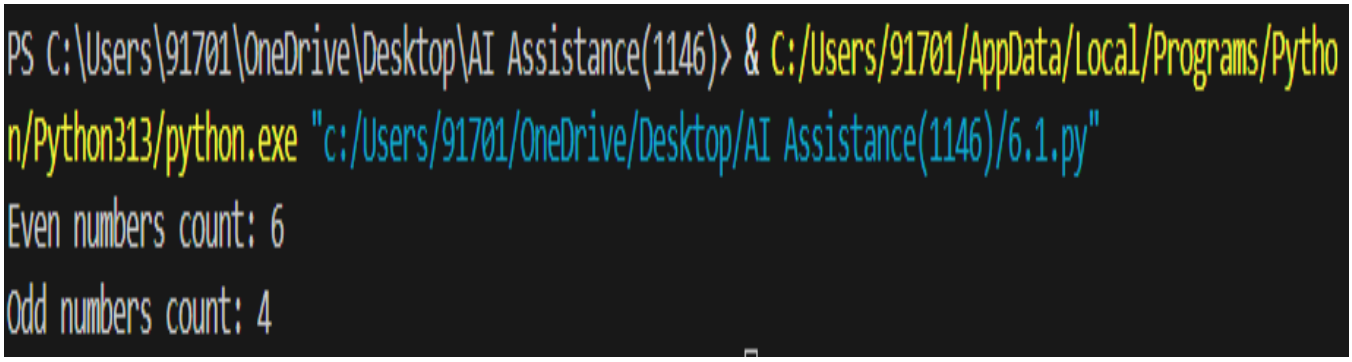
• Explanation of logic flow.

Code:

```
numbers = [10, 23, 45, 66, 78, 89, 90, 12, 34, 57]
even_count = 0
odd_count = 0
for number in numbers:
    if number % 2 == 0:
        even_count += 1
    else:
        odd_count += 1
print("Even numbers count:", even_count)
```

print("Odd numbers count:", odd_count)

Output:



Analysis:

The AI successfully combined a loop and conditional statements to count even and odd numbers. The program produces correct results for different lists without logical errors.

Task Description #3 (AI-Based Code Completion for Class

Attributes Validation)

Task: Use an AI tool to complete a Python class that validates user

input.

Prompt:

“Generate a Python class User that validates age and email using

conditional statements.”

Expected Output:

• AI-generated class with validation logic.

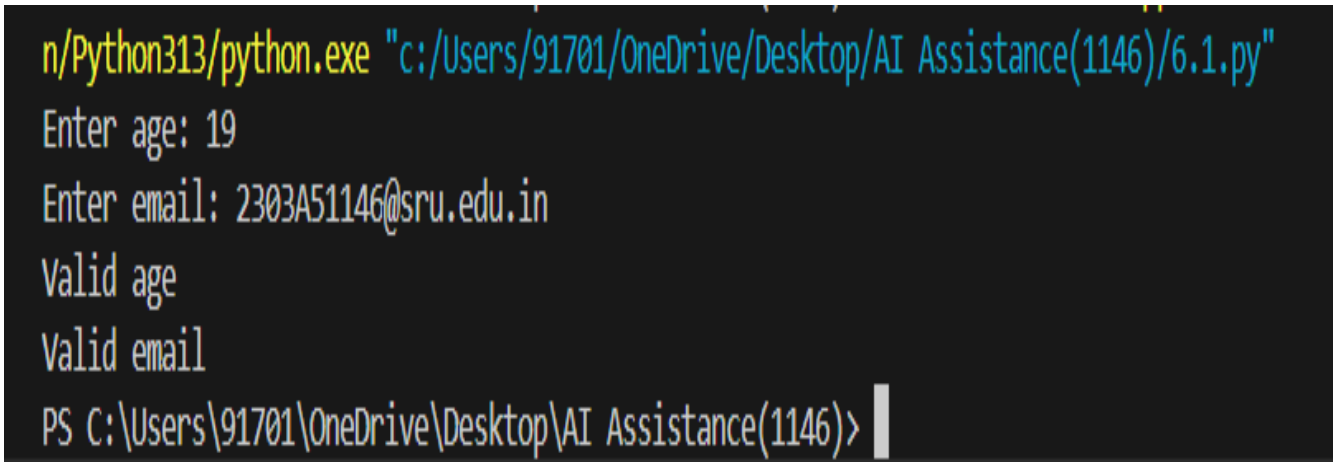
• Verification of condition handling.

• Test cases for valid and invalid inputs.

Code:

```
class User:
    def __init__(self, age, email):
        if 1 <= age <= 120:
            print("Valid age")
        else:
            print("Invalid age")

        if "@" in email and "." in email:
            print("Valid email")
        else:
            print("Invalid email")
age = int(input("Enter age: "))
email = input("Enter email: ")

u = User(age, email)
```

Output:



Analysis:

The User class validates age and email using conditions and exceptions.
Email validation is basic and may miss complex invalid formats.

Task Description #4 (AI-Based Code Completion for Classes)

Task: Use an AI code completion tool to generate a Python class for

managing student details.

Prompt:

“Generate a Python class Student with attributes (name, roll number,

marks) and methods to calculate total and average marks.”

Expected Output:

• AI-generated class code.

• Verification of correctness and completeness of class structure.

• Minor manual improvements (if needed) with justification.

Code:

```
class Student:
    def __init__(self, name, roll, marks):
        self.name = name
        self.roll = roll
        self.marks = marks

    def total_marks(self):
        return sum(self.marks)

    def average_marks(self):
        return self.total_marks() / len(self.marks)

s1 = Student("Rahul", 101, [80, 75, 90])
print("\nStudent Total:", s1.total_marks())
print("Student Average:", s1.average_marks())
```

Output:

```
Student Total: 245
Student Average: 81.66666666666667
PS C:\Users\91701\OneDrive\Desktop\AI Assistance(1146)>
```

Analysis:
The Student class correctly calculates total and average marks.Additional checks are needed to handle empty mark lists safely.

Task Description 5 (AI-Assisted Code Completion Review)

Task: Use an AI tool to generate a complete Python program using

classes, loops, and conditionals together.

Prompt:

“Generate a Python program for a simple bank account system using

class, loops, and conditional statements.”

Expected Output:

• Complete AI-generated program.

• Identification of strengths and limitations of AI suggestions.

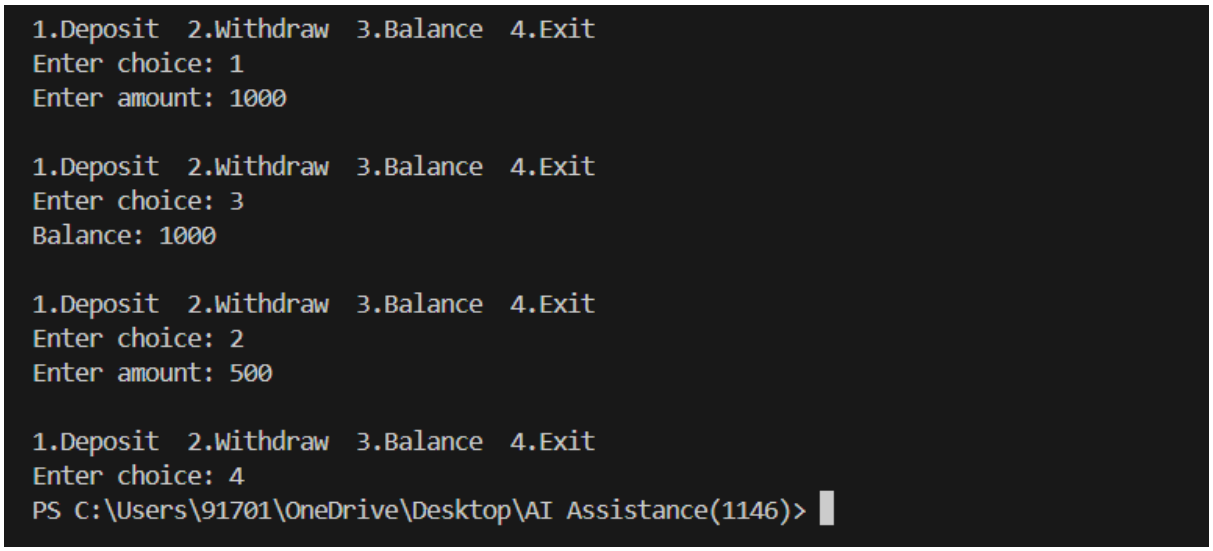
• Reflection on how AI assisted coding productivity.

Code:

```
class BankAccount:
    def __init__(self):
        self.balance = 0

    def deposit(self, amount):
        if amount > 0:
            self.balance += amount

    def withdraw(self, amount):
        if amount <= self.balance:
            self.balance -= amount
        else:
            print("Insufficient balance")

    def show_balance(self):
        print("Balance:", self.balance)

account = BankAccount()

while True:
    print("\n1.Deposit  2.Withdraw  3.Balance  4.Exit")
```

```
    choice = int(input("Enter choice: "))
    if choice == 1:
        account.deposit(int(input("Enter amount: ")))
    elif choice == 2:
        account.withdraw(int(input("Enter amount: ")))
    elif choice == 3:
        account.show_balance()
    elif choice == 4:
        break
    else:
        print("Invalid choice")
```

Output:



Analysis:

The bank system effectively combines classes, loops, and conditionals.
Input validation and transaction history are missing.