

AI ASSISTED CODING Hall

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Batch:13

Assignment-6.1 Task-1:

Task Description #1 (AI-Based Code Completion for Loops) Task: Use an AI code completion tool to generate a loop-based Program

Prompt :

#Ok Generate Python code to print all even numbers between 1 and N using a loop.

Code and Out put: Using For loop

The screenshot shows the Visual Studio Code interface with a Python file named 'Assess 6.1.py'. The code uses a for loop to print even numbers from 2 to N. The terminal shows the execution output for N=20, listing even numbers from 2 to 20. The right sidebar contains a chat window with suggestions for efficient and alternative code implementations.

```
1 ##
2 # Using the for Loop:
3 N = int(input("Enter N: "))
4 for i in range(2, N + 1, 2):
5     print(i)
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

I code/Assess 6.1.py

PS C:\Users\gandr\Documents\3Year-2Sem\AI assistants Coding\AI code> C:\Users\gandr\AppData\Local\Programs\Python\Python314\python.exe "c:/Users/gandr/Documents/3Year-2Sem/AI assistants Coding/AI code/Assess 6.1.py"

Enter N: 20

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PS C:\Users\gandr\Documents\3Year-2Sem\AI assistants Coding\AI code>

CHAT

PRINT EVEN NUMBERS IN PYTHON USIN...

✓ Provided minimal Python code for even numbers

Print all even numbers between 1 and N ✓

Efficient (for loop with step 2):

```
N = int(input("Enter N: "))
for i in range(2, N + 1, 2):
    print(i)
```

Alternative (while loop):

```
N = int(input("Enter N: "))
i = 2
while i <= N:
    print(i)
    i += 2
```

Tip: If you want validation, wrap

+ Assess 6.1.py

Describe what to build next

Agent Auto

Code : Using While Loop/

The screenshot shows the Visual Studio Code interface with a Python file named 'Assess 6.1.py'. The code uses a while loop to print even numbers from 2 to N. The terminal shows the execution output for N=2 and N=23, listing even numbers from 2 to 22. The right sidebar contains a chat window with suggestions for efficient and alternative code implementations.

```
7 # Using the while Loop:
8 N = int(input("Enter N: "))
9 i = 2
10 while i <= N:
11     print(i)
12     i += 2
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

I code/Assess 6.1.py

PS C:\Users\gandr\Documents\3Year-2Sem\AI assistants Coding\AI code> C:\Users\gandr\AppData\Local\Programs\Python\Python314\python.exe "c:/Users/gandr/Documents/3Year-2Sem/AI assistants Coding/AI code/Assess 6.1.py"

Enter N: 2

2

Enter N: 23

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PS C:\Users\gandr\Documents\3Year-2Sem\AI assistants Coding\AI code>

CHAT

PRINT EVEN NUMBERS IN PYTHON USIN...

✓ Print all even numbers between 1 and N

Efficient (for loop with step 2):

```
N = int(input("Enter N: "))
for i in range(2, N + 1, 2):
    print(i)
```

Alternative (while loop):

```
N = int(input("Enter N: "))
i = 2
while i <= N:
    print(i)
    i += 2
```

Tip: If you want validation, wrap
int(input(...)) in a try/except block
to handle non-integer input. ⚡

+ Assess 6.1.py

Describe what to build next

Agent Auto

Task-2:

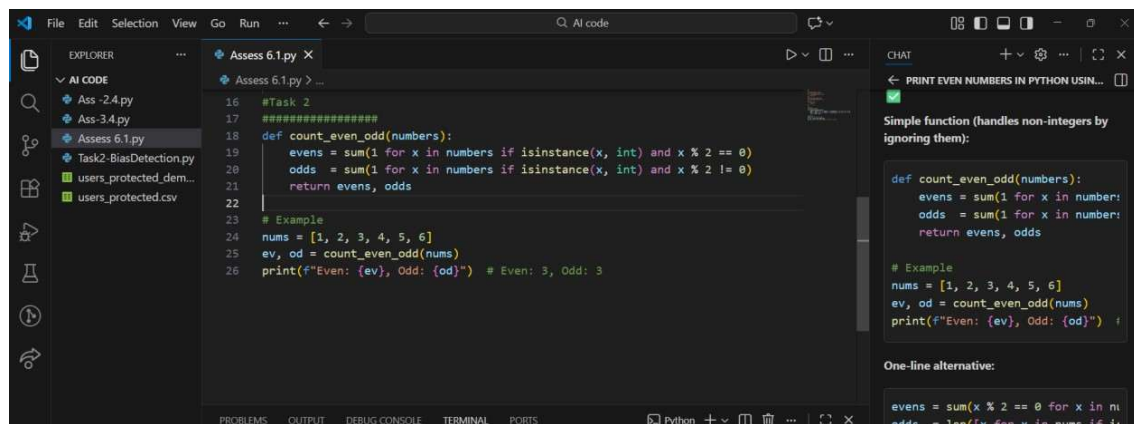
Task Description #2 (AI-Based Code Completion for Loop with Conditionals)

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

Prompt:

ok Generate Python code to count how many numbers in a list are even and odd.

Code:

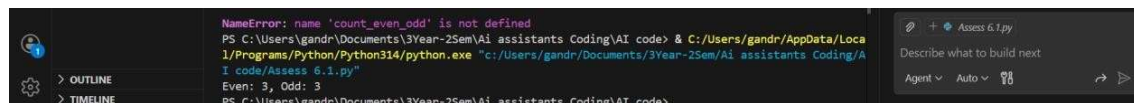


The screenshot shows a code editor with a file explorer on the left. The file explorer shows a folder named 'AI CODE' containing files: 'Ass -2.4.py', 'Ass -3.4.py', 'Assess 6.1.py', 'Task2-BiasDetection.py', 'users_protected_demo...', and 'users_protected.csv'. The main editor window shows the code for 'Assess 6.1.py'. The code defines a function 'count_even_odd(numbers)' that returns a tuple of even and odd counts. It includes a comment '#Task 2' and a comment '#####'. The function uses list comprehensions to count even and odd numbers. An example is provided: 'nums = [1, 2, 3, 4, 5, 6]', 'ev, od = count_even_odd(nums)', and 'print(f"Even: {ev}, Odd: {od}") # Even: 3, Odd: 3'. The right sidebar shows a chat window with the prompt 'PRINT EVEN NUMBERS IN PYTHON USING...' and the generated code.

```
#Task 2
#####
def count_even_odd(numbers):
    evens = sum(1 for x in numbers if isinstance(x, int) and x % 2 == 0)
    odds = sum(1 for x in numbers if isinstance(x, int) and x % 2 != 0)
    return evens, odds

# Example
nums = [1, 2, 3, 4, 5, 6]
ev, od = count_even_odd(nums)
print(f"Even: {ev}, Odd: {od}") # Even: 3, Odd: 3
```

Output:



The screenshot shows a terminal window with the command 'PS C:\Users\gandr\Documents\3Year-2Sem\AI assistants Coding\AI code> & C:/Users/gandr/AppData/Local/Programs/Python/Python314/python.exe "c:/Users/gandr/Documents/3Year-2Sem/AI assistants Coding/AI code/Assess 6.1.py"' and the output 'Even: 3, Odd: 3'. The right sidebar shows a chat window with the prompt 'Describe what to build next' and the generated code.

```
PS C:\Users\gandr\Documents\3Year-2Sem\AI assistants Coding\AI code> & C:/Users/gandr/AppData/Local/Programs/Python/Python314/python.exe "c:/Users/gandr/Documents/3Year-2Sem/AI assistants Coding/AI code/Assess 6.1.py"
Even: 3, Odd: 3
PS C:\Users\gandr\Documents\3Year-2Sem\AI assistants Coding\AI code>
```

Task-3:

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

Code:

The first screenshot shows the implementation of the `User` class in `Assess 6.1.py`. The class includes attributes `name`, `age`, and `email`, and methods for validation and representation.

```
1 # Assess 6.1.py
2 # Create a class User that validates age and email using conditional statements.
3
4 # Task 3:
5
6 class User:
7     """Create a class User that validates age and email using conditional statements."""
8
9     def __init__(self, name: str, age: int, email: str):
10         self.name = name
11         self.age = age
12         self.email = email
13
14     @property
15     def age(self) -> int:
16         return self._age
17
18     @age.setter
19     def age(self, value: int):
20         if not isinstance(value, int):
21             raise ValueError("Age must be an integer.")
22         if value < 0:
23             raise ValueError("Age must be non-negative.")
24         self._age = value
25
26     @property
27     def email(self) -> str:
28         return self._email
29
30     @email.setter
31     def email(self, value: str):
32         if not isinstance(value, str):
33             raise ValueError("Email must be a string.")
34         if len(value) > 254:
35             raise ValueError("Email must not contain spaces.")
36         if value.count("@") != 1:
37             raise ValueError("Email must contain exactly one '@'.")
38         local, domain = value.split("@")
39         if not local:
40             raise ValueError("Email local part must not be empty.")
41         if "." not in domain:
42             raise ValueError("Email domain must contain a '.'.")
43         if domain.startswith(".") or domain.endswith("."):
44             raise ValueError("Email domain must not start or end with a '.'.")
45         self._email = value
46
47     def __repr__(self):
48         return f"User(name={self.name!r}, age={self.age}, email={self.email!r})"
49
50
51 def input_user():
52     while True:
53         name = input("Enter name: ").strip()
54         if not name:
55             print("Name cannot be empty.")
56             continue
57         raw_age = input("Enter age: ").strip()
58         try:
59             age = int(raw_age)
60         except ValueError:
61             print("Age must be an integer.")
62             continue
63         email = input("Enter email: ").strip()
64         user = User(name, age, email)
65         print("Created: ", user)
66         return user
67
68 except KeyboardInterrupt:
69     print("Cancelled by user.")
70     return None
71
72 if __name__ == "__main__":
73     input_user()
```

The second screenshot shows the continuation of the `input_user` function and the `__main__` block, which calls `input_user()` to create a `User` object.

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```

Output:

The terminal output shows the execution of the script `Assess 6.1.py` using `python.exe`. The user is prompted to enter their name, age, and email, and the script outputs the created `User` object.

```
PS C:\Users\gandr\Documents\3Year-2Sem\AI assistants Coding\AI code> python.exe "c:/Users/gandr/Documents/3Year-2Sem/AI assistants Coding/AI code/Assess 6.1.py"
Enter name: Rakesh Rao
Enter age: 19
Enter email: 2303A51851@sru.edu.in
Created: User(name='Rakesh Rao', age=19, email='2303A51851@sru.edu.in')
```

Task-4:

Task-5:

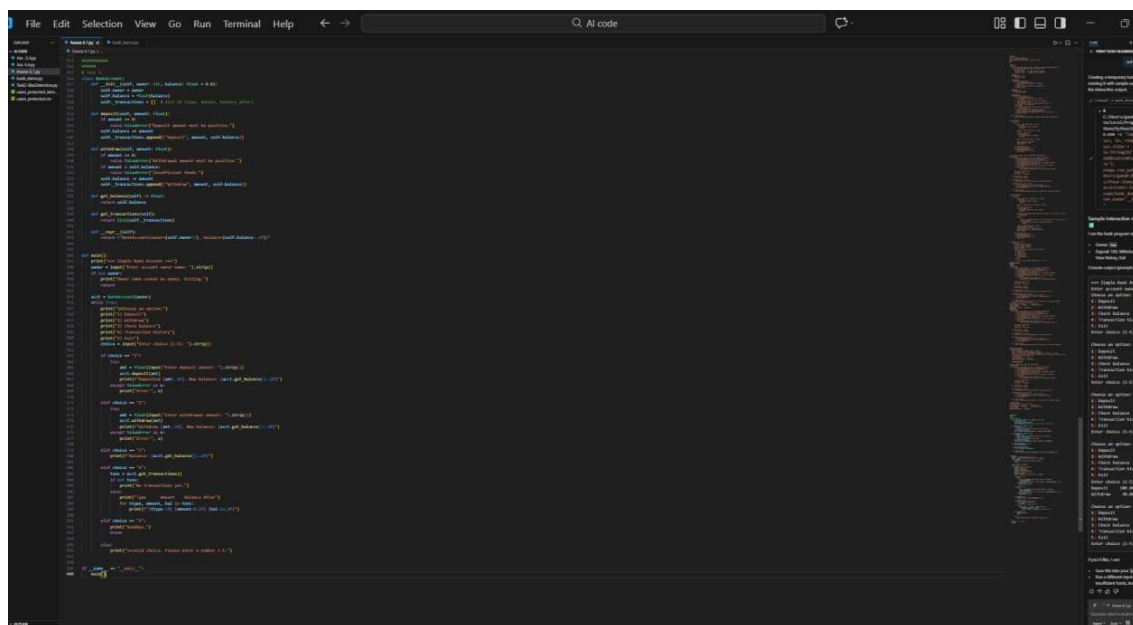
Task Description 5 (AI-Assisted Code Completion Review)

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.

Code:



```
File Edit Selection View Go Run Terminal Help
AI code

class BankAccount:
    def __init__(self, owner, balance=0.0):
        self.owner = owner
        self.balance = balance

    def __str__(self):
        return f"Bank Account for {self.owner} with balance {self.balance:.2f}"

    def deposit(self, amount):
        if amount > 0:
            self.balance += amount
            print(f"Deposited {amount:.2f}. New balance: {self.balance:.2f}")
        else:
            print("Invalid deposit amount. Please enter a positive value.")

    def withdraw(self, amount):
        if amount > 0 and self.balance >= amount:
            self.balance -= amount
            print(f"Withdrew {amount:.2f}. New balance: {self.balance:.2f}")
        else:
            print("Invalid withdrawal amount or insufficient funds. Please enter a valid amount.")

    def check_balance(self):
        print(f"Current balance for {self.owner}: {self.balance:.2f}")

    def transaction_history(self, limit=5):
        history = self._get_transactions()
        if len(history) > limit:
            print(f"Showing last {limit} transactions for {self.owner}.")
        for transaction in history[-limit:]:
            print(transaction)

    def _get_transactions(self):
        # In a real application, this would query a database
        # For simplicity, we'll use a class attribute to store transactions
        if not hasattr(BankAccount, '_transactions'):
            BankAccount._transactions = []
        return BankAccount._transactions

    @classmethod
    def _reset_transactions(cls):
        cls._transactions = []

    @classmethod
    def _add_transaction(cls, owner, amount, description=""):
        cls._transactions.append({
            'owner': owner,
            'amount': amount,
            'description': description
        })

    @classmethod
    def _get_transactions(cls):
        return cls._transactions

# Main program
def main():
    print("Simple Bank Account System")
    print("Enter account owner name: ")
    owner = input()

    # Create a new account
    account = BankAccount(owner)

    # Main loop
    while True:
        print("\nChoose an option:")
        print("1) Deposit")
        print("2) Withdraw")
        print("3) Check balance")
        print("4) Transaction history")
        print("5) Exit")

        choice = input("Enter choice (1-5): ")

        if choice == '1':
            print("Enter amount to deposit: ")
            amount = float(input())
            account.deposit(amount)

        elif choice == '2':
            print("Enter amount to withdraw: ")
            amount = float(input())
            account.withdraw(amount)

        elif choice == '3':
            account.check_balance()

        elif choice == '4':
            limit = input("Enter number of transactions to show (1-10): ")
            limit = int(limit) if limit.isdigit() else 5
            account.transaction_history(limit)

        elif choice == '5':
            print("Exiting program. Goodbye!")
            break

        else:
            print("Invalid choice. Please enter a valid option (1-5).")

    # Reset transactions for the next run
    BankAccount._reset_transactions()

if __name__ == "__main__":
    main()
```

Out Put:



```
PS C:\Users\gandr\Documents\3Year-2Sem\AI assistants Coding\AI code> & C:/Users/gandr/AppData/Local/Programs/Python/Python314/python.exe "C:/Users/gandr/Documents/3Year-2Sem/AI assistants Coding/AI code/Assess 6.1.py"
=== Simple Bank Account ===
Enter account owner name: rakesh

Choose an option:
1) Deposit
2) Withdraw
3) Check balance
4) Transaction history
5) Exit
Enter choice (1-5): Deposit
```