

AI Assisted Coding Assignment - 1

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```
lab 1.3.py > ...
1  # Q1. Generate a python program to perform fibonacci series
2  # take user inputs
3  # Do not use functions
4
5  n = int(input("Enter the number of terms in Fibonacci series: "))
6
7  a, b = 0, 1
8  count = 0
9
10 if n <= 0:
11     print("Please enter a positive integer.")
12
13 elif n == 1:
14     print("Fibonacci series up to", n, ":")
15     print(a)
16
17 elif n == 2:
18     print("Fibonacci series up to", n, ":")
19     print(a)
20     print(b)
21
22 else:
23     print("Fibonacci series:")
    print(a)
    print(b)
    while count < n - 2:
        a, b = b, a + b
        print(a)
        count += 1
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
PS C:\Users\porika manikanta\OneDrive\Desktop\ai assistant> & "C:/Program Files/Python311/python.exe"
  "c:/Users/porika manikanta/OneDrive/Desktop/ai assistant/lab 1.3.py"
Enter the number of terms in Fibonacci series: 10
Fibonacci series:
0 1 1 2 3 5 8 13 21 34
PS C:\Users\porika manikanta\OneDrive\Desktop\ai assistant> |
```

Task 1: AI-Generated Logic Without Modularization (Fibonacci Sequence

Without Functions) **Code:**

Task 2: AI Code Optimization & Cleanup (Improving Efficiency) **Code:**

```
8
9 # Q2. Optimize this Fibonacci code
10 # Simplify logic and variable usage
11
12 n = int(input("Enter the number of terms in Fibonacci series: "))
13
14 a, b = 0, 1
15
16 for i in range(n):
17     print(a, end=' ')
18     a, b = b, a + b
19
20
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
C:\Users\porika manikanta\OneDrive\Desktop\ai assistant> & "C:/Program Files/Python311/python.
c:/Users/porika manikanta/OneDrive/Desktop/ai assistant/lab 1.3.py"
Enter the number of terms in Fibonacci series: 10
Fibonacci series:
1 1 2 3 5 8 13 21 34
C:\Users\porika manikanta\OneDrive\Desktop\ai assistant> & "C:/Program Files/Python311/python.
c:/Users/porika manikanta/OneDrive/Desktop/ai assistant/lab 1.3.py"
Enter the number of terms in Fibonacci series: 5
1 1 2 3
C:\Users\porika manikanta\OneDrive\Desktop\ai assistant> |
```

Task 3: Modular Design Using AI Assistance (Fibonacci Using Functions) **Code:**

```
9 # Q3. Write python function to generate Fibonacci series up to n terms
10 # Use meaningful comments
11
12 def fibonacci_series(n):
13     """
14     Generate Fibonacci series up to n terms.
15
16     Parameters:
17     n (int): The number of terms in the Fibonacci series to generate.
18
19     Returns:
20     list: A list containing the Fibonacci series up to n terms.
21     """
22
23     series = []          # Initialize an empty list to store the Fibonacci series
24     a, b = 0, 1          # Starting values for the Fibonacci series
25
26     for i in range(n):   # Loop n times to generate n terms
27         series.append(a) # Append the current value of 'a' to the series
28         a, b = b, a + b  # Update to the next Fibonacci numbers
29
30     return series        # Return the generated Fibonacci series
31
32
33 PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
34 Python + -
35
36 C:\Users\porika manikanta\OneDrive\Desktop\ai assistant> & "C:/Program Files/Python311/python.exe" "c:\Users\porika manikanta\OneDrive\Desktop\ai assistant\lab 1.3.py"
37 Enter the number of terms in Fibonacci series: 10
38 Fibonacci series up to 10 terms:
39 [0, 1, 1, 2, 3, 5, 8, 13, 21, 34]
40 C:\Users\porika manikanta\OneDrive\Desktop\ai assistant> |
```

Task 4: Comparative Analysis – Procedural vs Modular Fibonacci Code **Code:**

```
lab 1.3.py > fibonacci_modular
84 # ----- Modular approach -----
85 def fibonacci_modular(n):
86     a, b = 0, 1
87     series = []
88
89     for i in range(n):
90         series.append(a)
91         a, b = b, a + b
92
93     return series
94
95
96 n_modular = int(input("Enter the number of terms in Fibonacci series (Modular): "))
97 result_modular = fibonacci_modular(n_modular)
98
99 print("Fibonacci series (Modular):")
100 print(result_modular)
101
102
103
104
```

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```
PS C:\Users\porika manikanta\OneDrive\Desktop\ai assistant> & "C:/Program Files/Python311/python.exe"
manikanta/OneDrive/Desktop/ai assistant/lab 1.3.py"
Enter the number of terms in Fibonacci series (Procedural): 10
Fibonacci series (Procedural):
0 1 1 2 3 5 8 13 21 34
Enter the number of terms in Fibonacci series (Modular): 10
Fibonacci series (Modular):
[0, 1, 1, 2, 3, 5, 8, 13, 21, 34]
PS C:\Users\porika manikanta\OneDrive\Desktop\ai assistant>
```

Task 5: AI-Generated Iterative vs Recursive Fibonacci Approaches (Different
Algorithmic Approaches for Fibonacci Series) **Code:**

```
Welcome lab 4.3.py lab 1.3.py X
lab 1.3.py > ...
101
102 # Generate python code for AI-Generated Iterative vs. Recursive Fibonacci Approaches
103 # (Different Algorithmic Approaches for Fibonacci Series)
104
105 # ----- Iterative approach -----
106 n_iter = int(input("Enter the number of terms in Fibonacci series (Iterative): "))
107
108 a, b = 0, 1
109 print("Fibonacci series (Iterative):")
110
111 for i in range(n_iter):
112     print(a, end=' ')
113     a, b = b, a + b
114
115 print() # New line for better readability
116
117
118 # ----- Recursive approach -----
119 def fibonacci_recursive(n):
120     if n <= 0:
121         return []
122     elif n == 1:
123         return [0]
124
125 PS C:\Users\porika manikanta\OneDrive\Desktop\ai assistant> & "C:/Program Files/Python311/python.exe" "c:/
manikanta/OneDrive/Desktop/ai assistant/lab 1.3.py"
Enter the number of terms in Fibonacci series (Iterative): 10
Fibonacci series (Iterative):
0 1 1 2 3 5 8 13 21 34
Enter the number of terms in Fibonacci series (Recursive): 10
Fibonacci series (Recursive):
[0, 1, 1, 2, 3, 5, 8, 13, 21, 34]
PS C:\Users\porika manikanta\OneDrive\Desktop\ai assistant> |
```