Lab 1.3 – AI Assisted Coding (Fibonacci Tasks)

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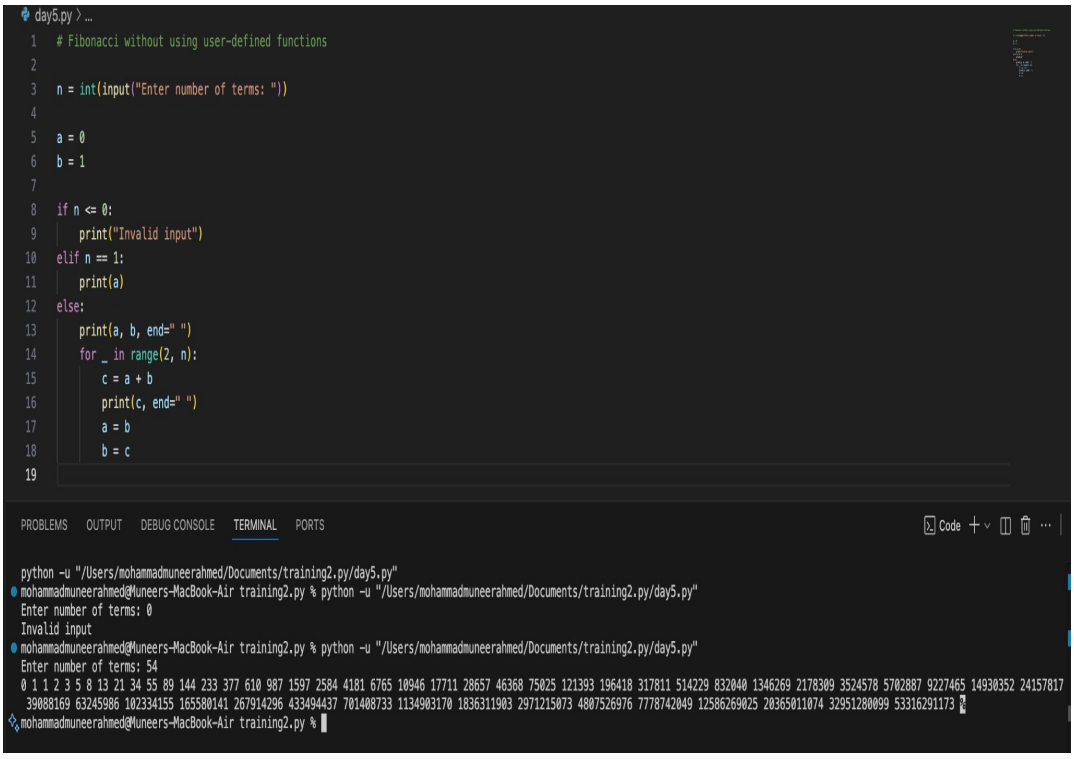
Task 1 – Fibonacci Without Functions (Procedural)

Algorithm:
1. Read integer n
2. Initialize a=0, b=1
3. Handle base cases
4. Loop and compute next = a+b
5. Update variables
Pseudocode:
INPUT n
a←0,b←1
FOR i from 0 to n
PRINT a
a,b←b,a+b



Task 2 – Optimized Fibonacci

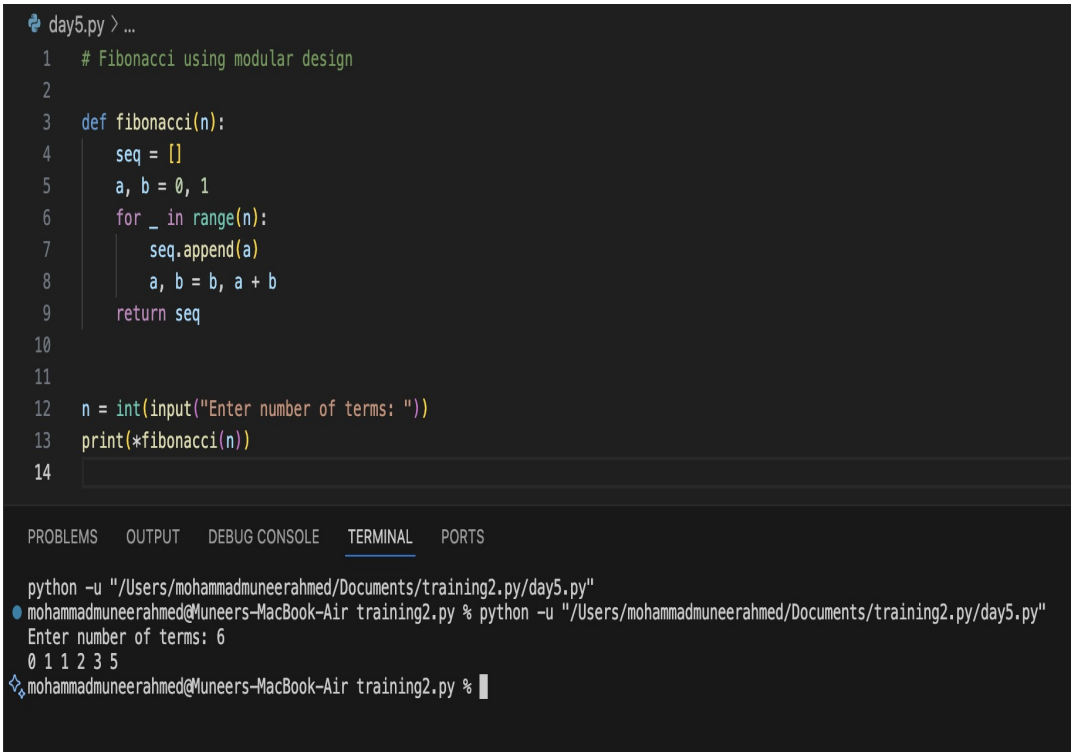
Algorithm:
1. Read n
2. Use tuple swap update
3. Print each term

Pseudocode:
INPUT n
a,b←0,1
REPEAT n times
PRINT a
a,b←b,a+b

Task 3 – Modular Fibonacci Using Function

Algorithm:
1. Define function
2. Loop and append
3. Return sequence

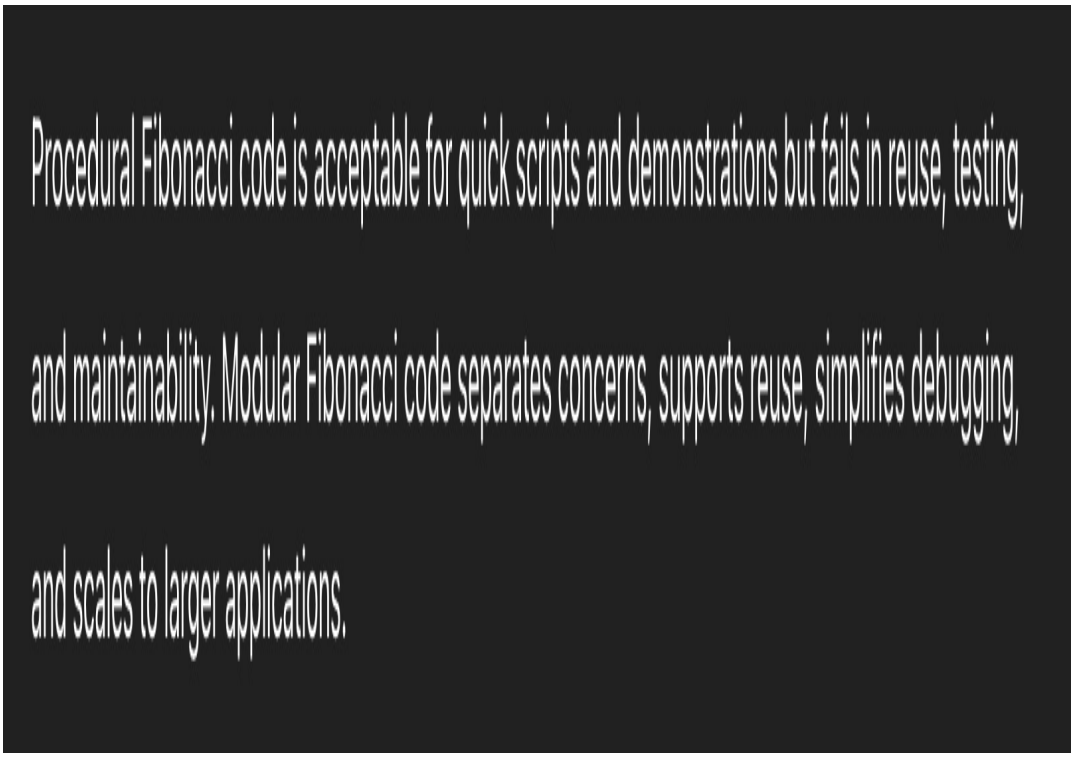
Pseudocode:
FUNCTION fib(n)
a,b←0,1
list←[]
LOOP n
append a
a,b←b,a+b
RETURN list



Task 4 – Procedural vs Modular Comparison

Algorithm:
1. Evaluate reuse
2. Evaluate clarity
3. Evaluate debugging

Pseudocode:
COMPARE procedural vs modular
REPORT differences



Task 5 – Iterative vs Recursive Fibonacci

Algorithm:
Iterative loop method
Recursive base+call method
Pseudocode:
ITERATIVE loop update
RECURSIVE fib(n-1)+fib(n-2)