10/9/2024

**Uzair Ali S/O Yar Muhammad Memon**

**B-S CS III Section A**

**023-23-0350**

**T0: Ma’am Marina Rajpoot**

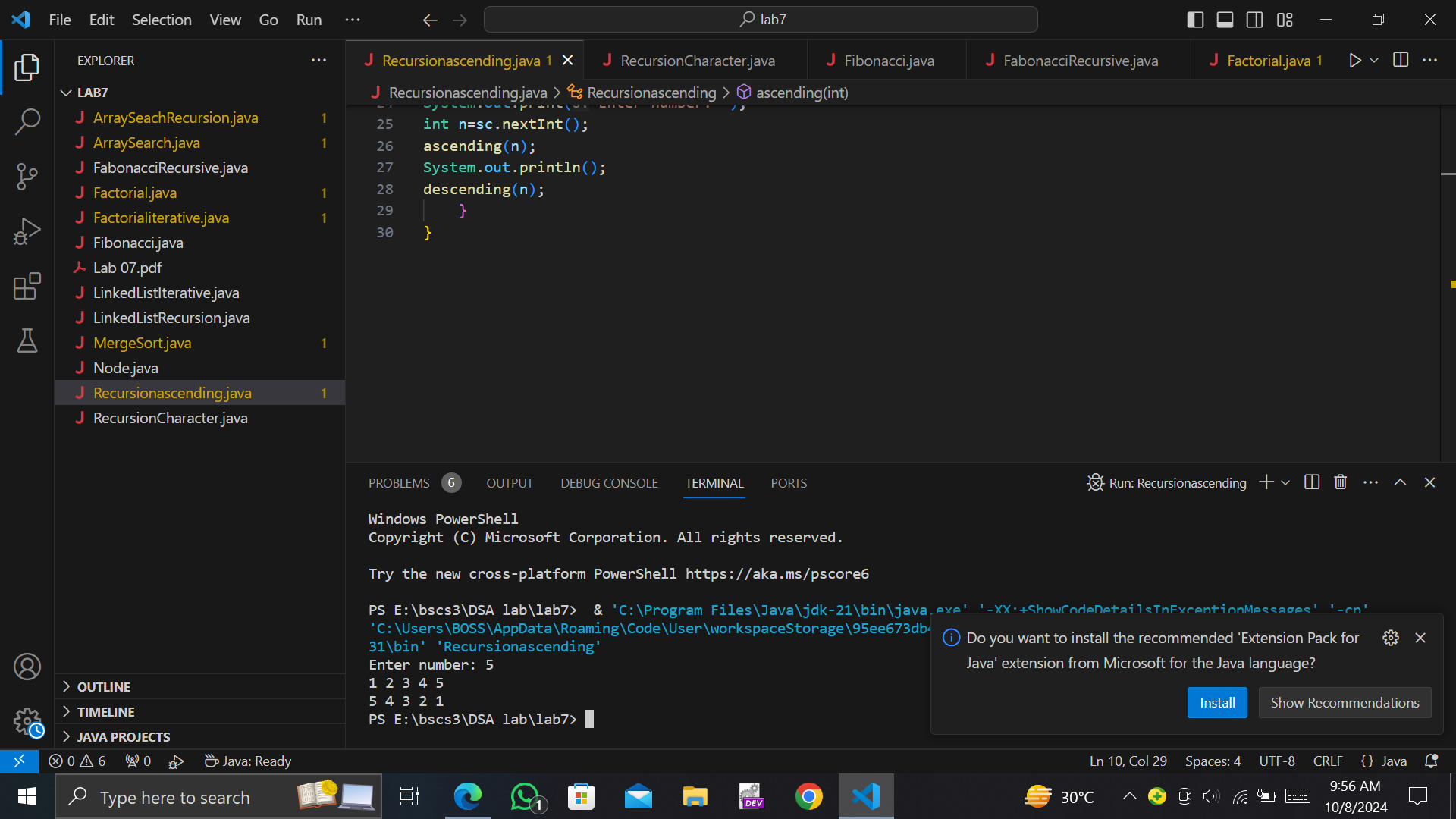
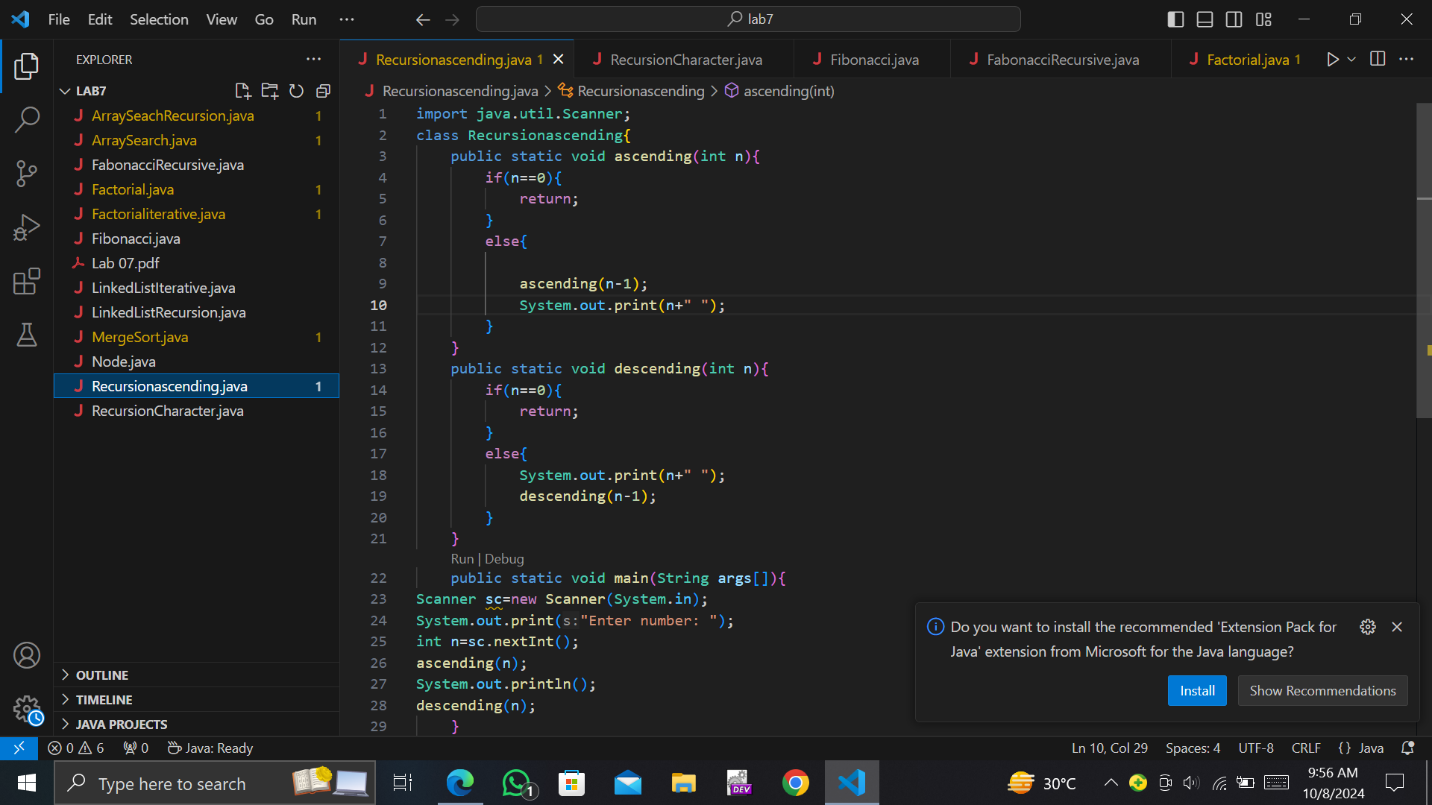
Data Structures

Lab 7 Exercise Solutions

**Task #1**

1. Write a program to ask user input N and print numbers from 1 – N in ascending/descending order using recursion.

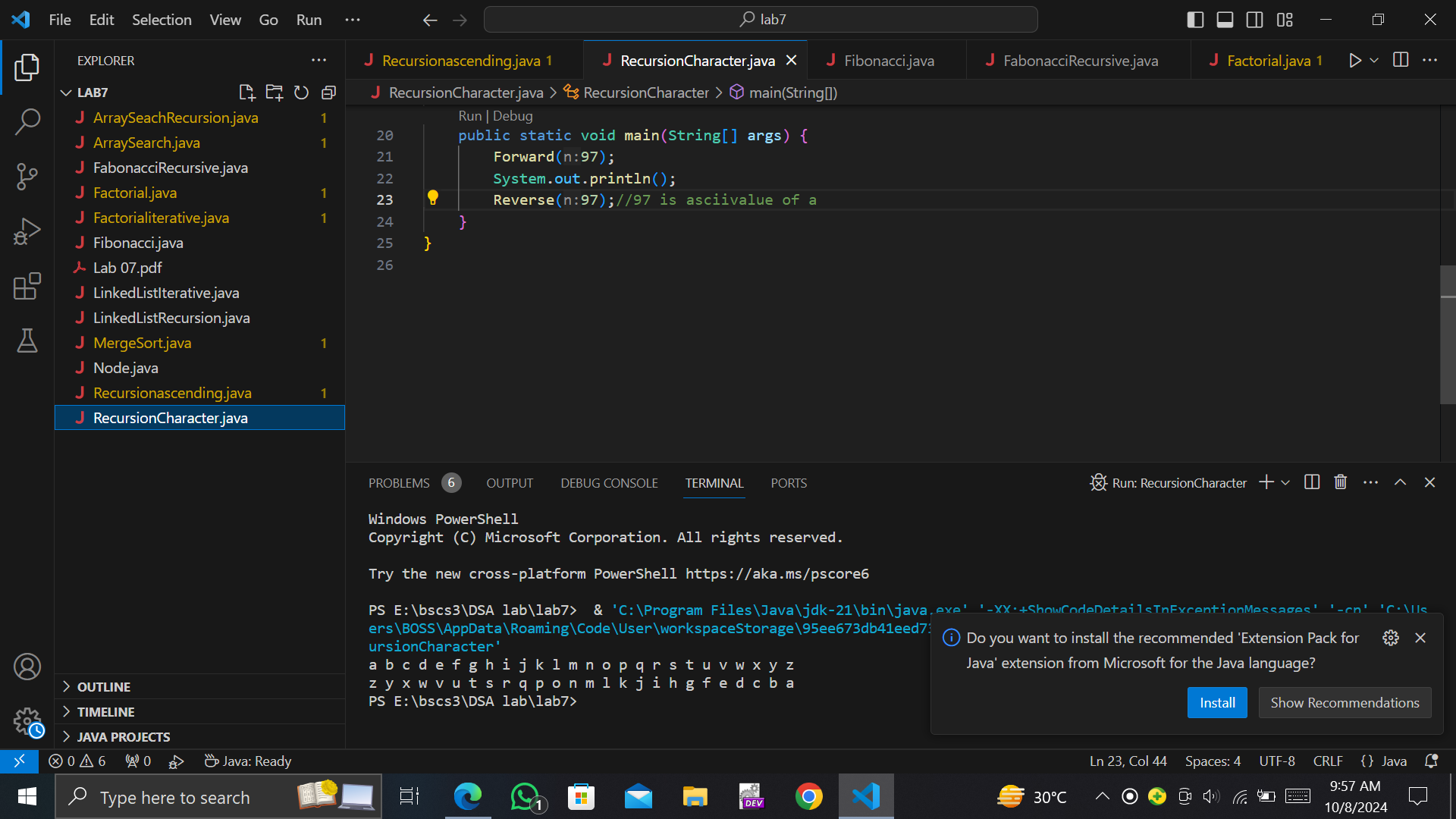
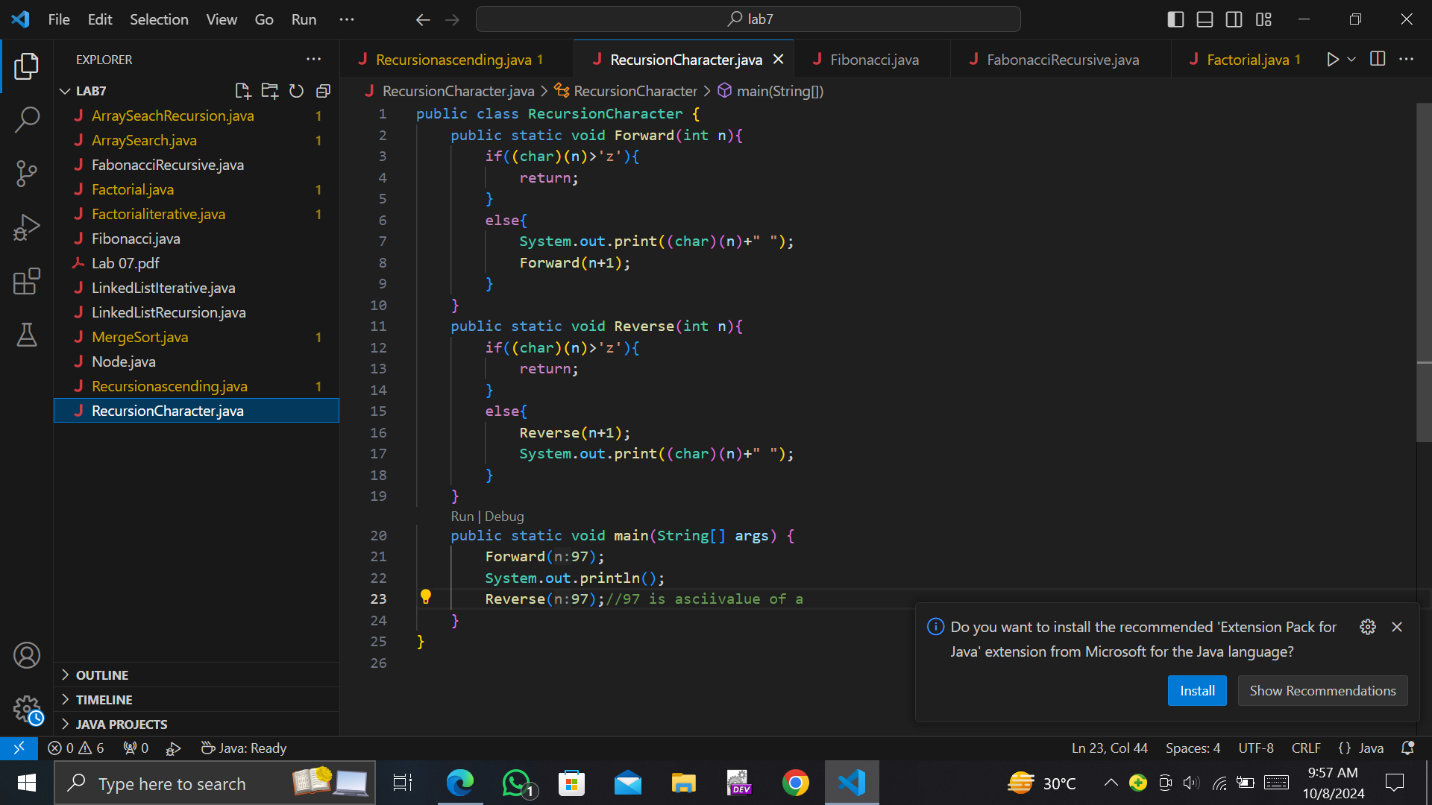
**Solution:**

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**Task #2**

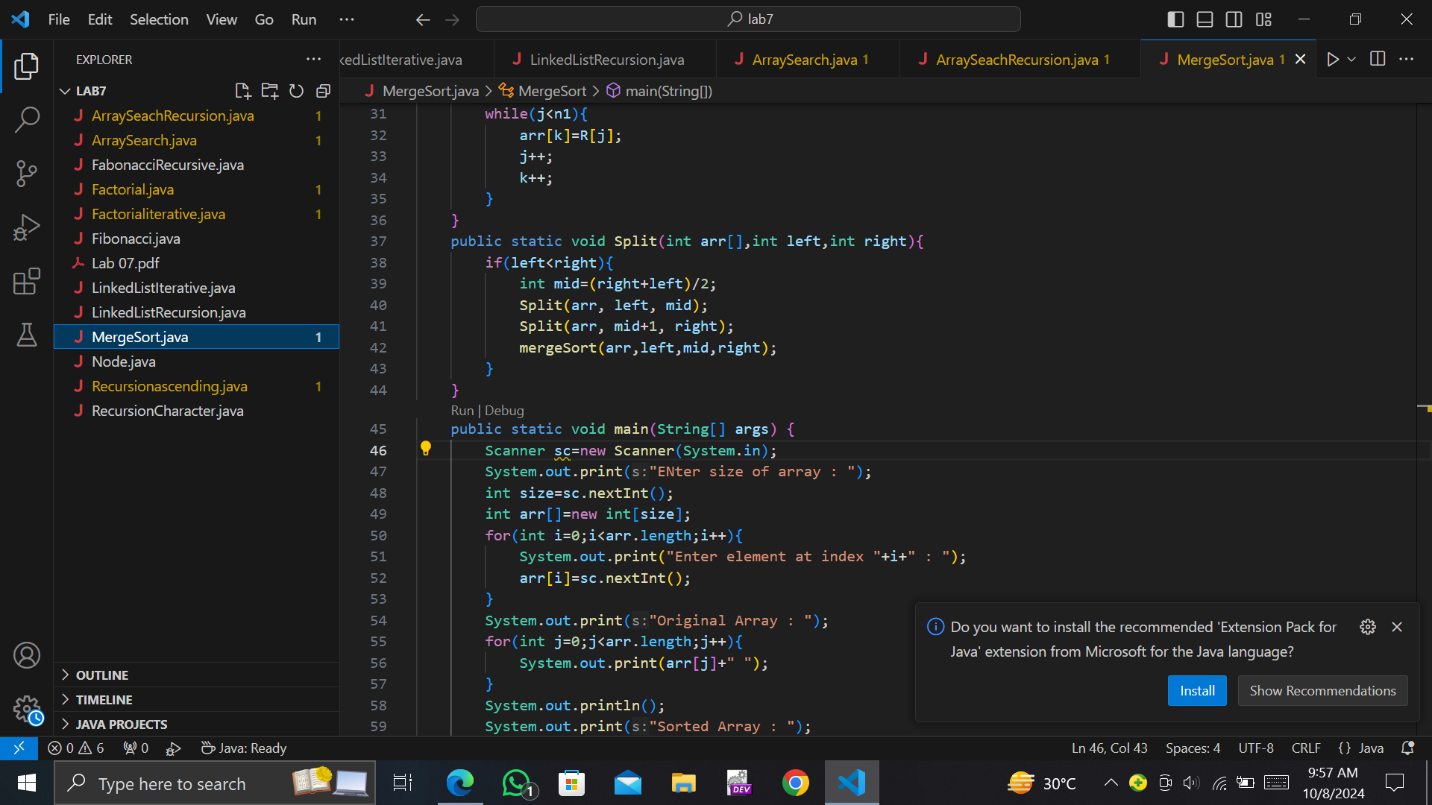
. Print 1d character array values using recursion in forward/reverse direction.

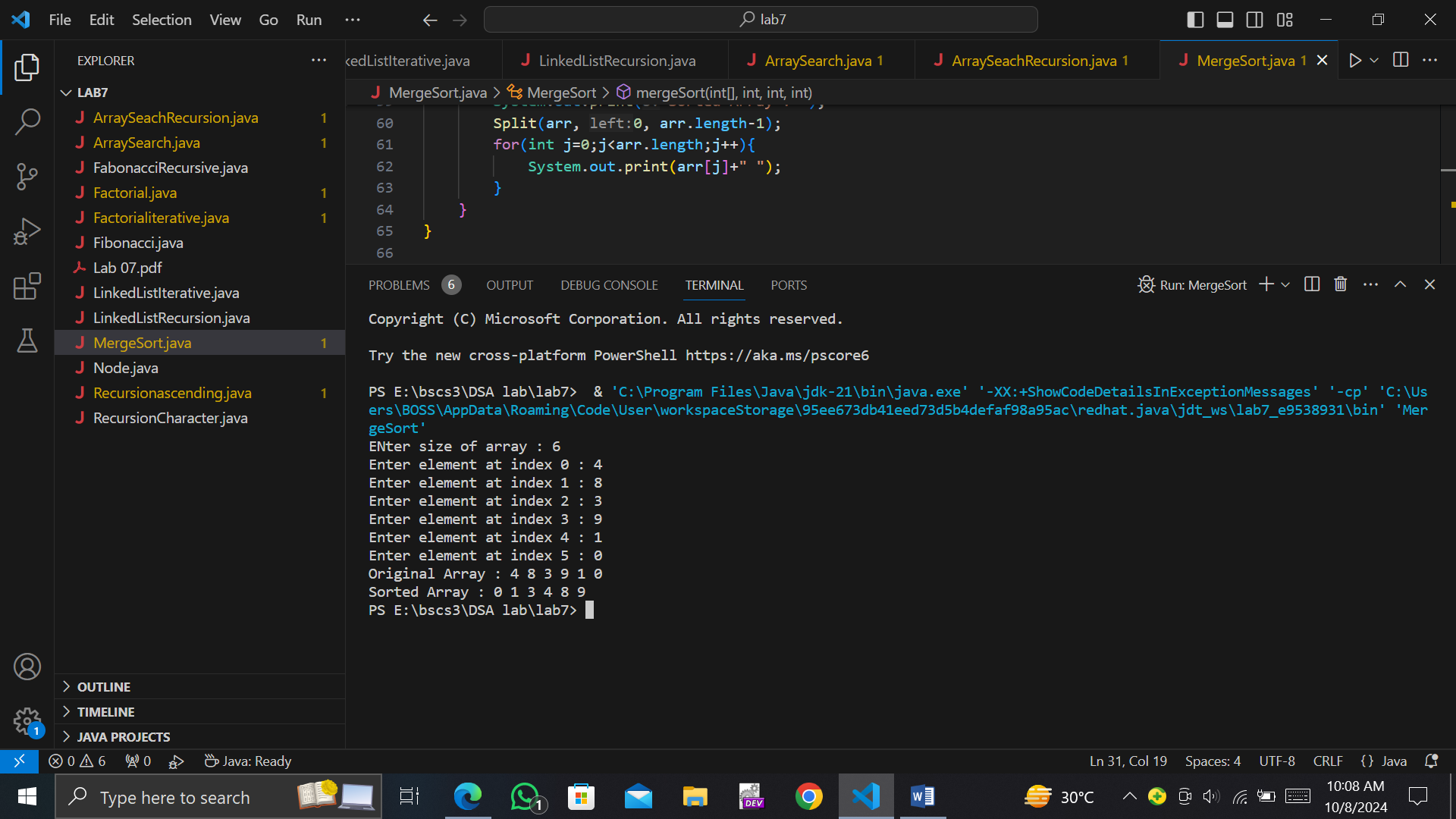
**Solution:**

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**Task #3(a)**

**Merge Sort**

**Solution: **

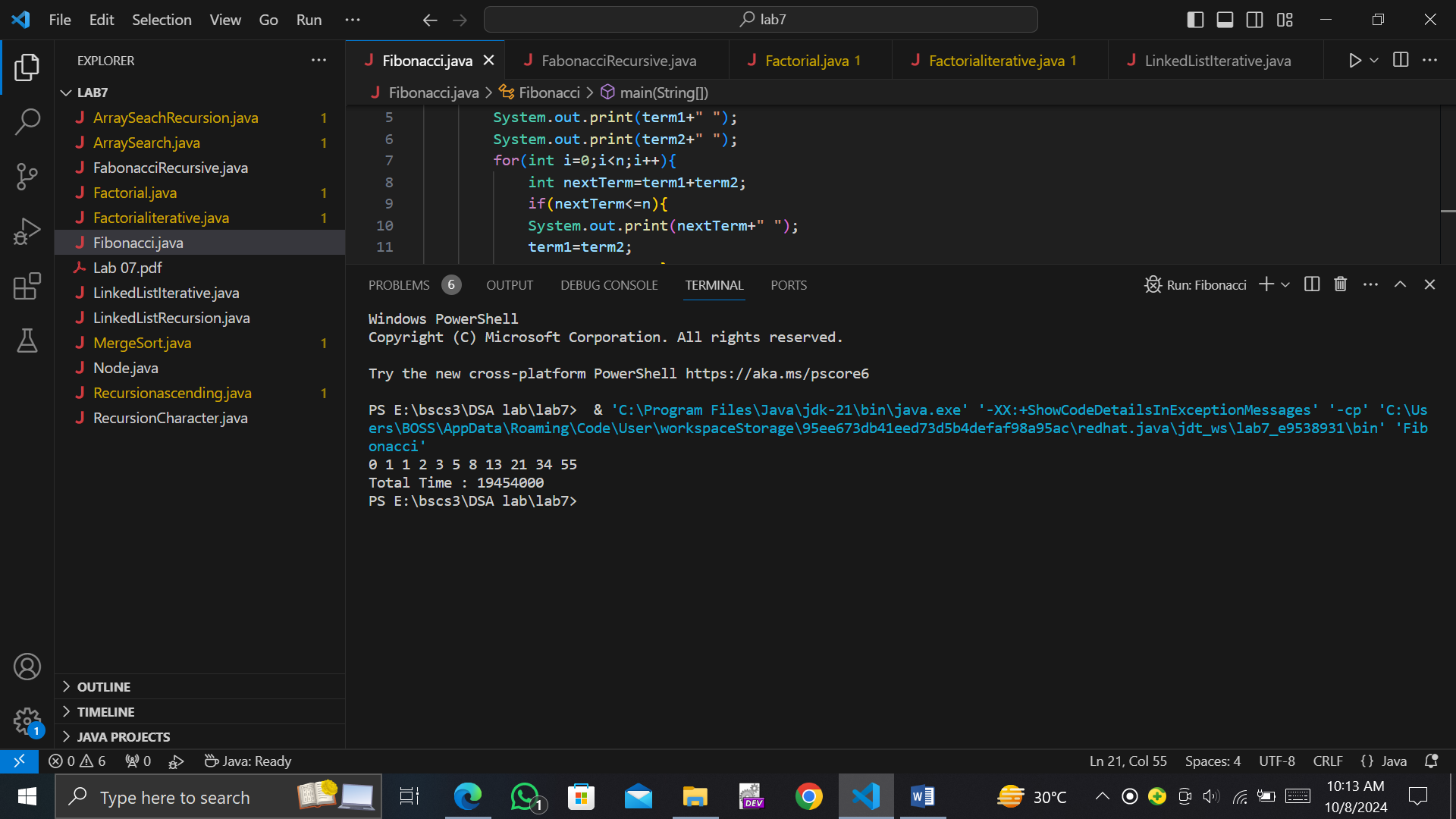
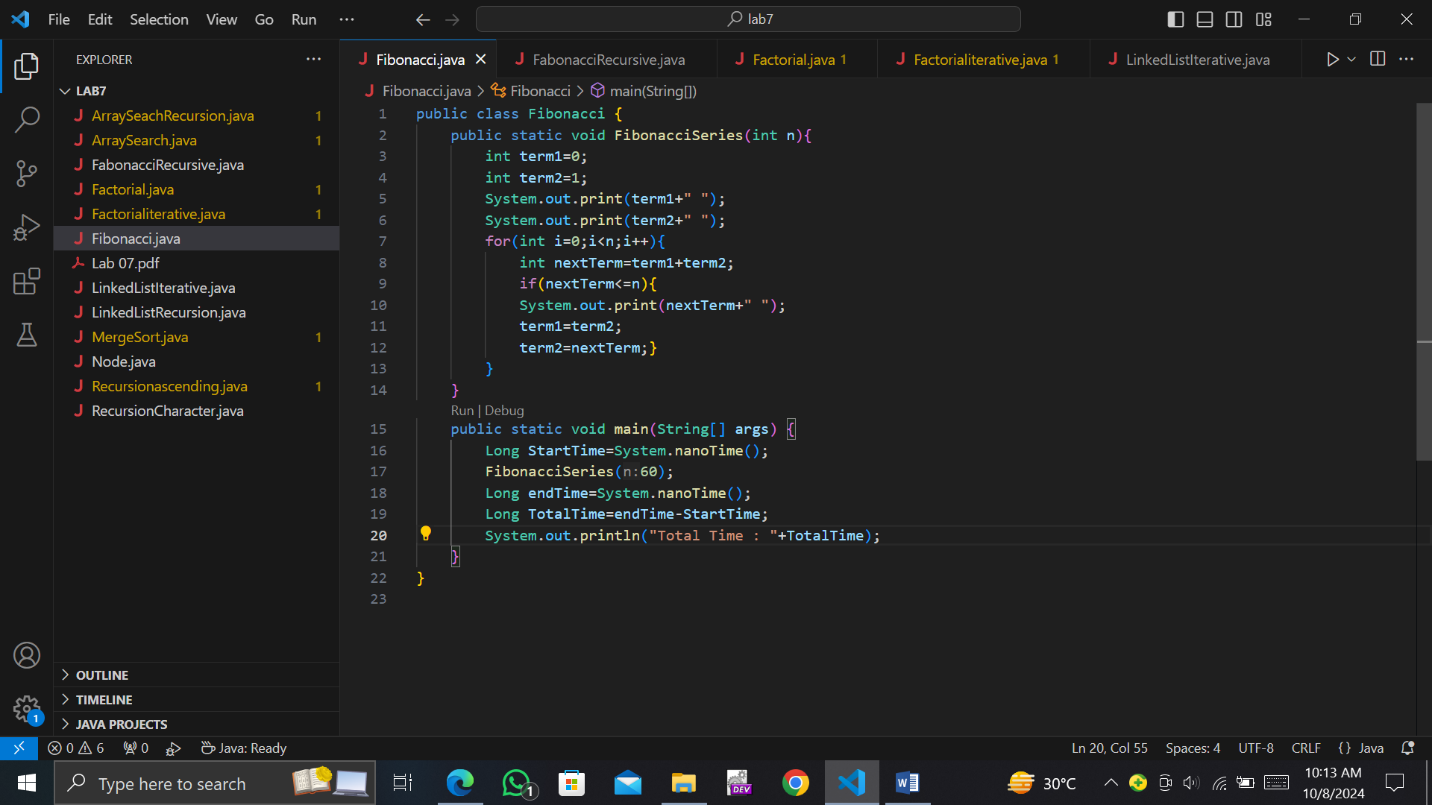
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**Task #4**

. Write a program to generate Fibonacci series till N. N is any user input

. a) Using iterative approach and calculate time.

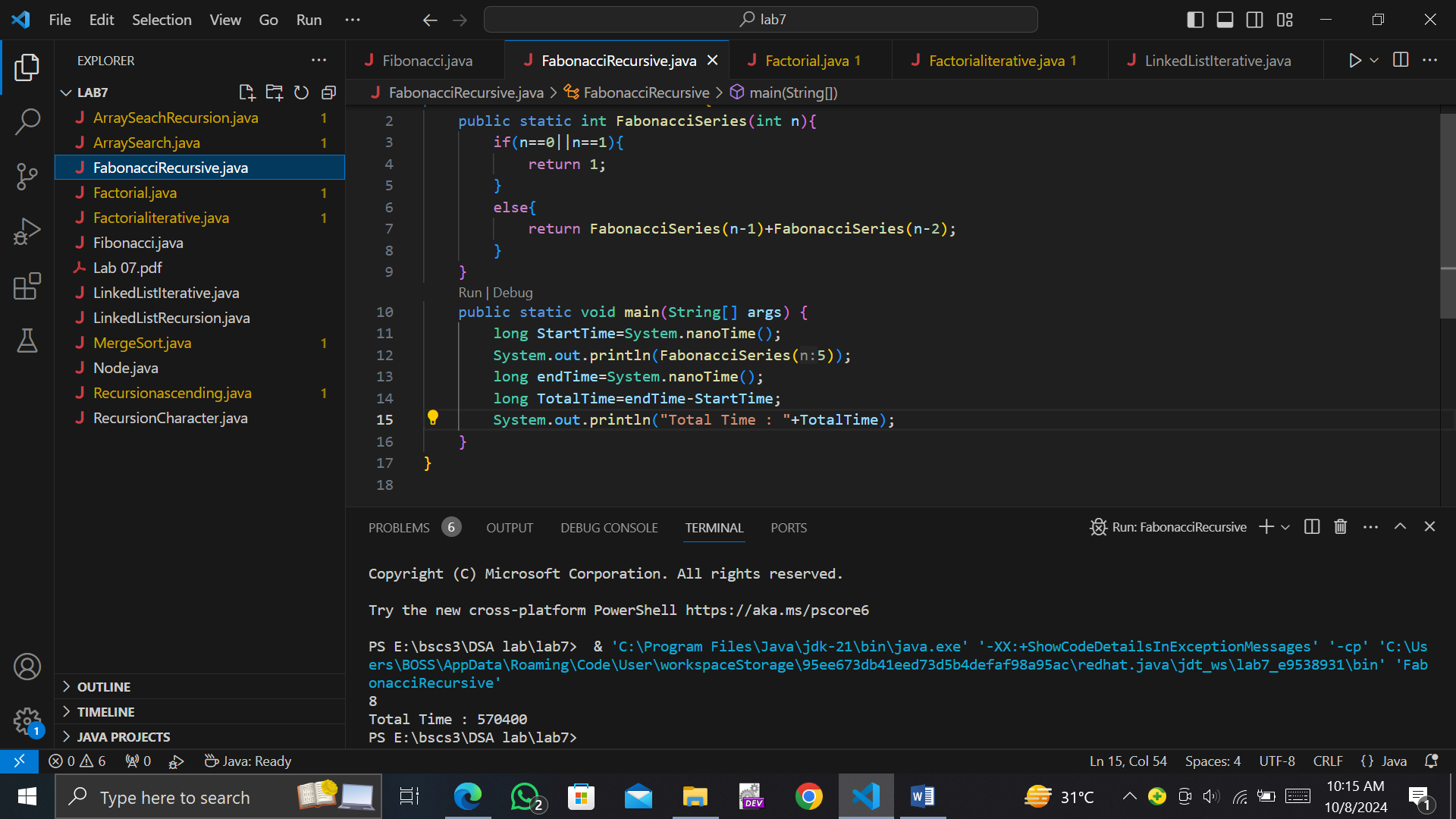
**Solution:**

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. Write a program to generate Fibonacci series till N. N is any user input

. b) Using recursive approach and calculate time.

**Solution:**

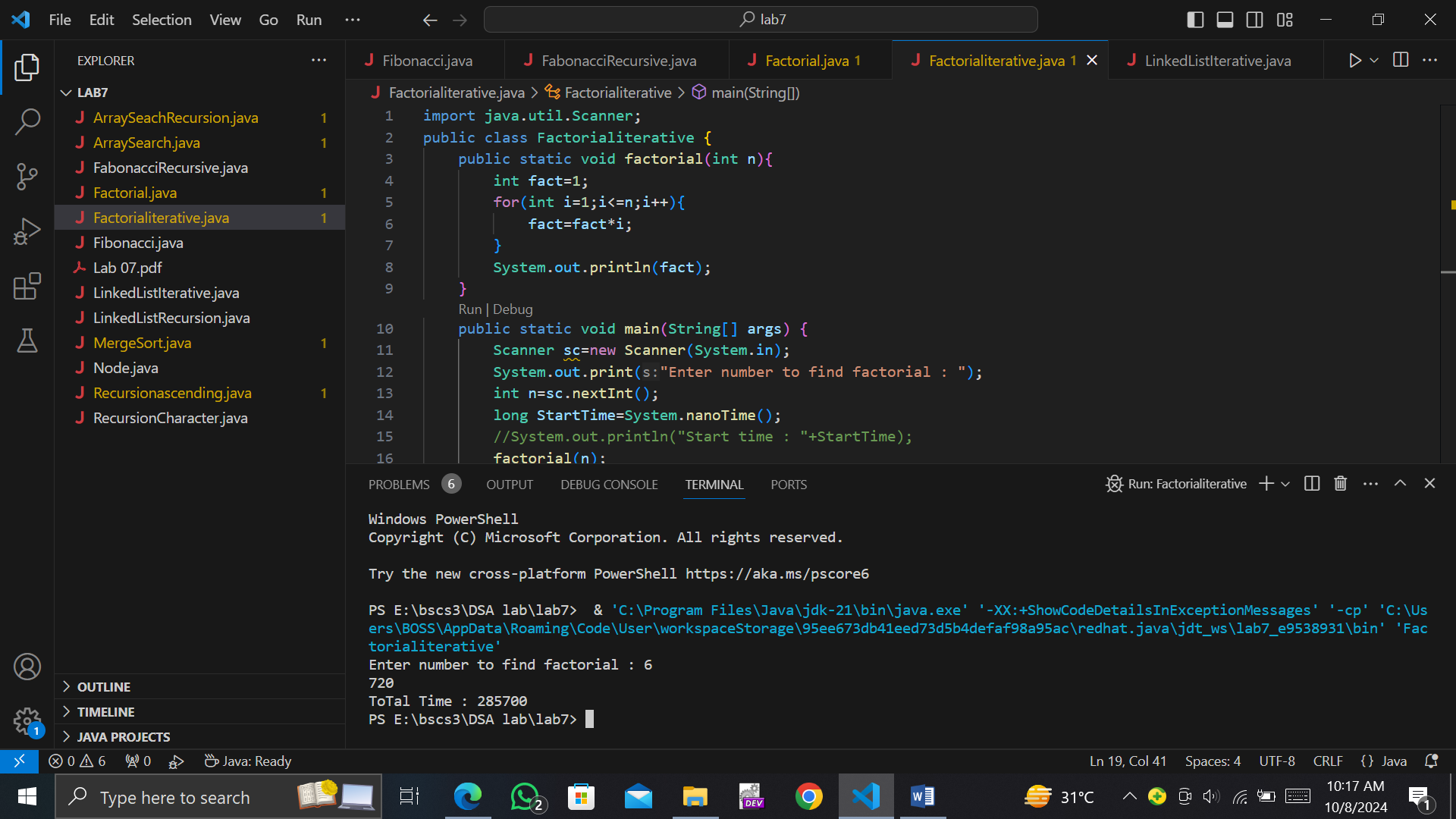
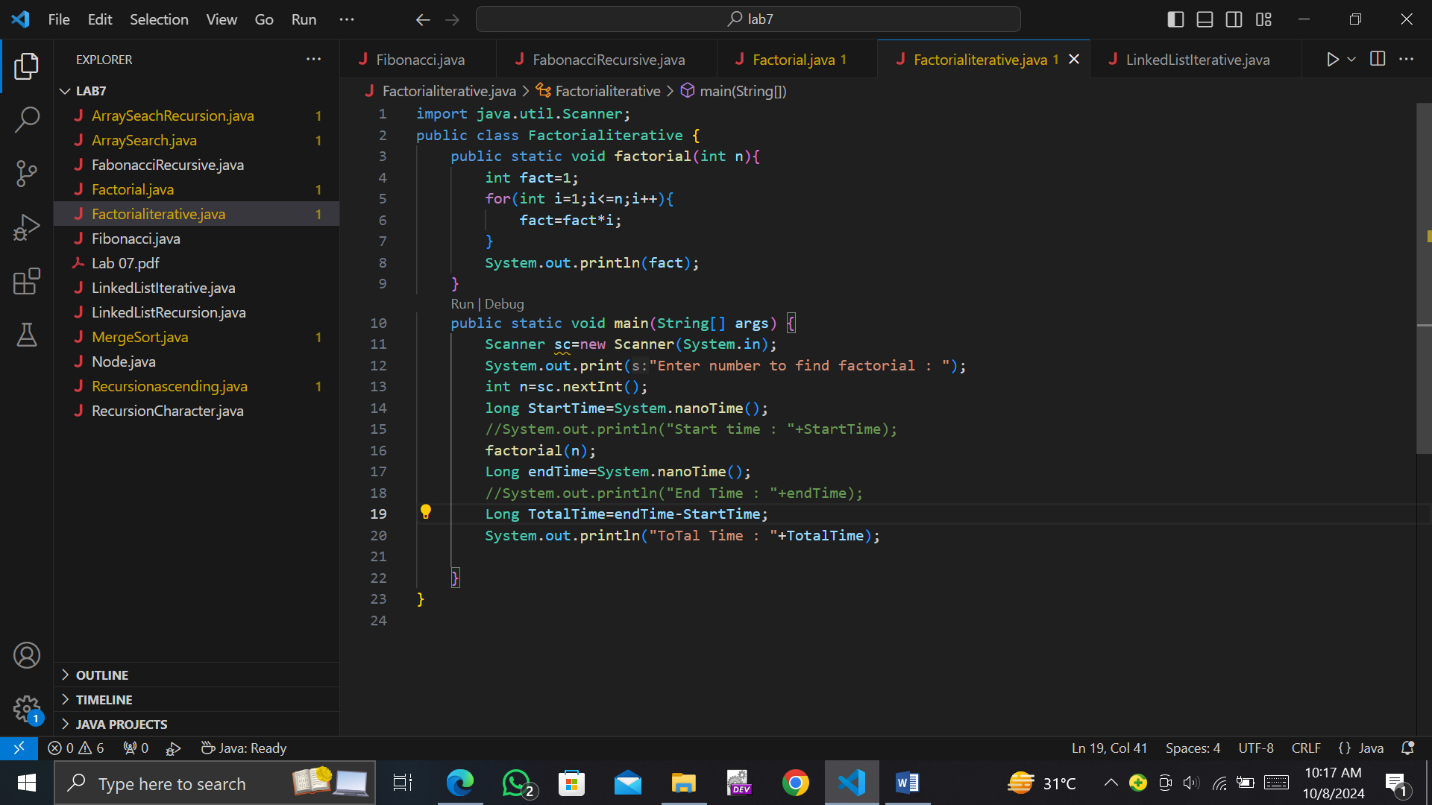
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**Task #5**

Design a method to calculate factorial of N number where N is any user input.

a) Using iterative approach and calculate time.

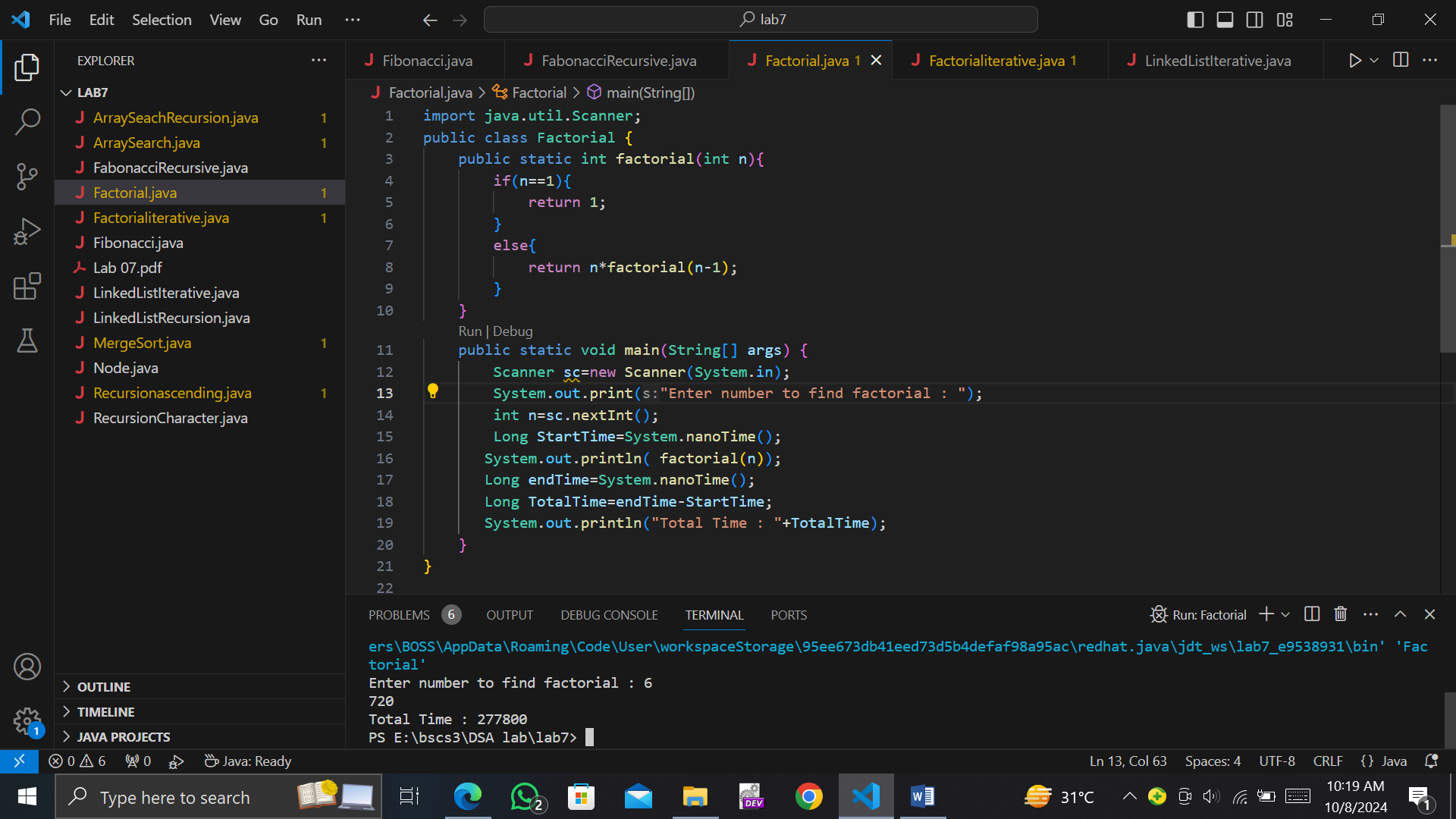
**Solution:**

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Design a method to calculate factorial of N number where N is any user input.

b) Using recursive approach and calculate time.

**Solution:**

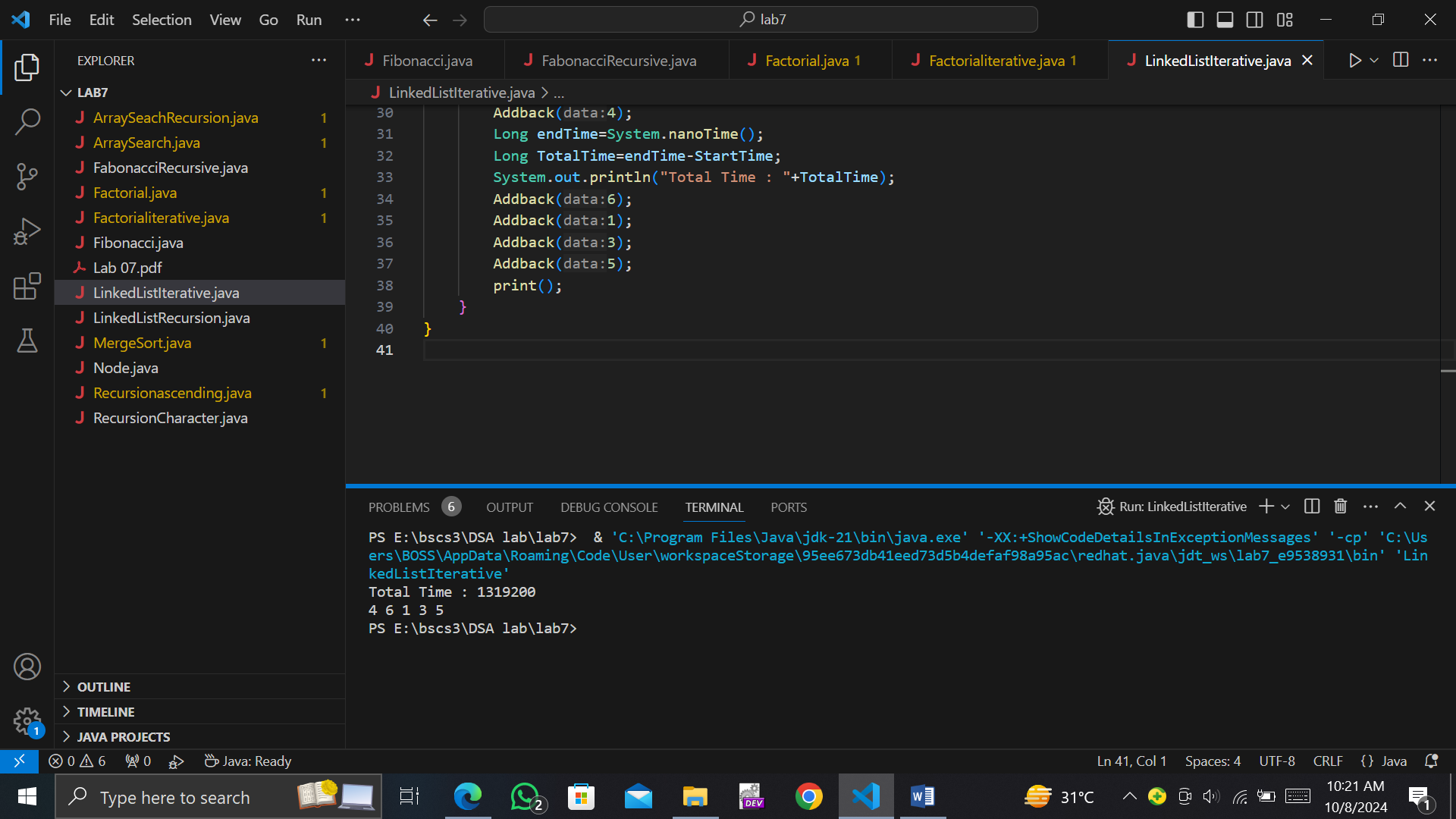
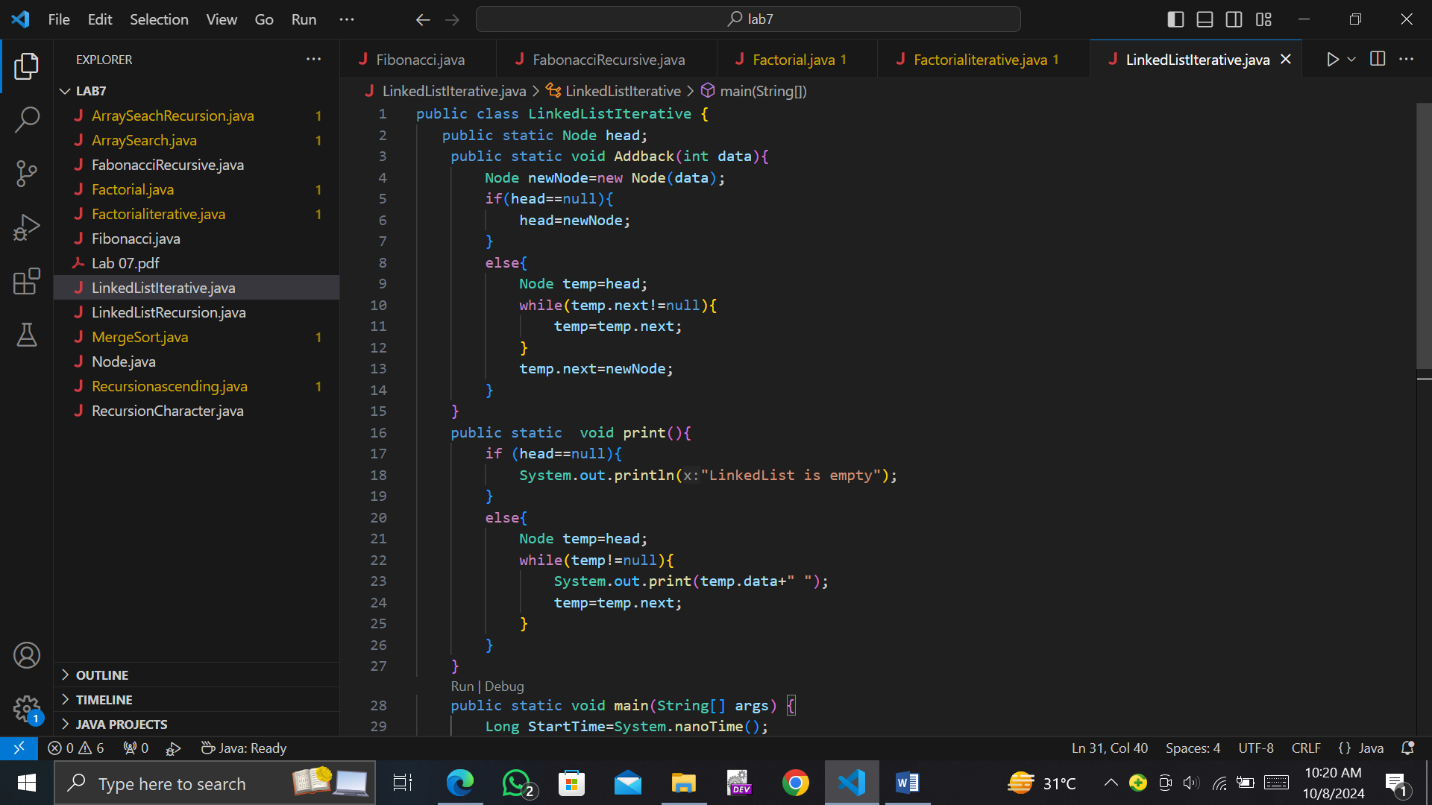
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**Task #6**

Write a program to print all nodes from linked list

a) Using iterative approach and calculate time.

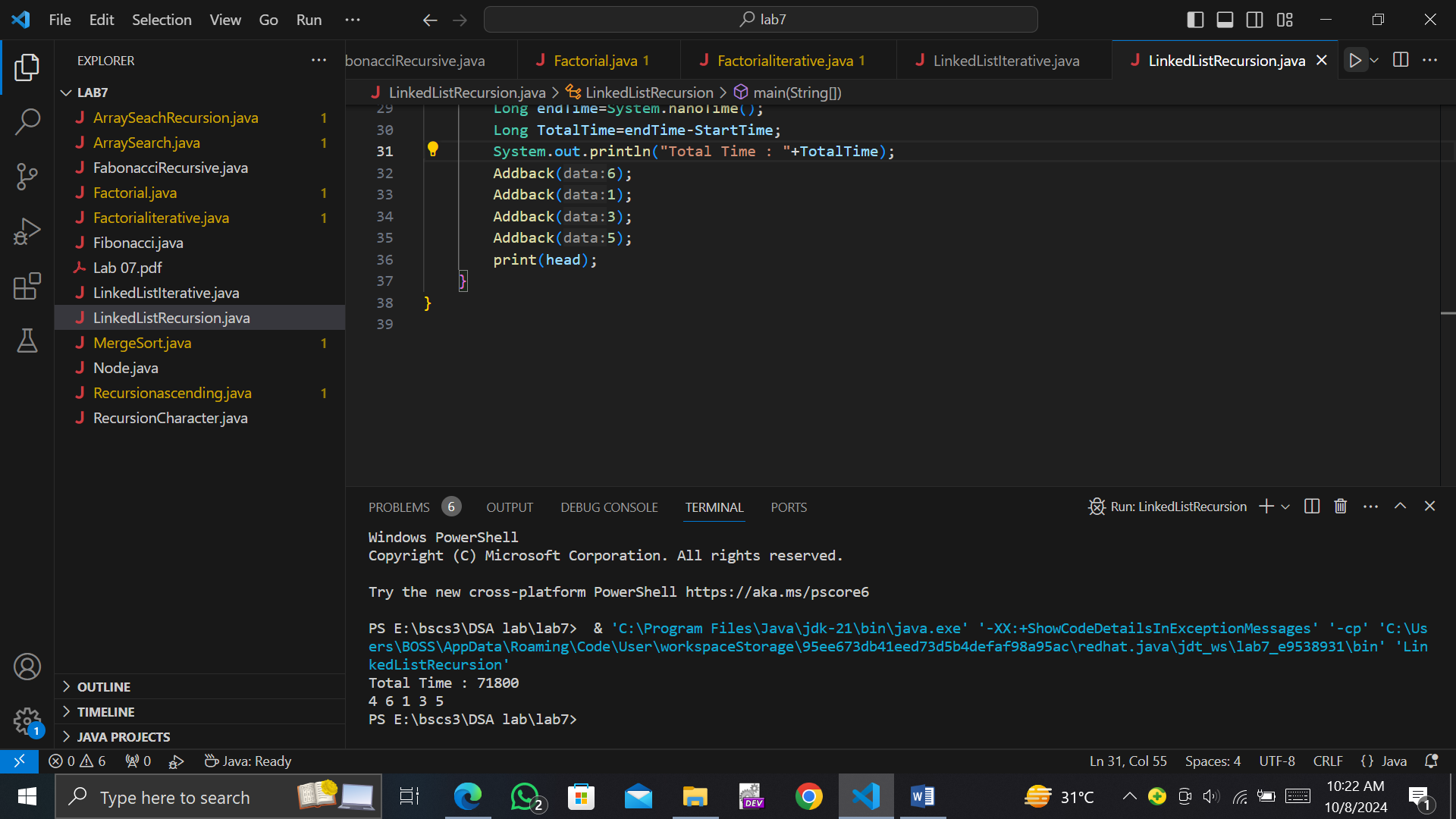
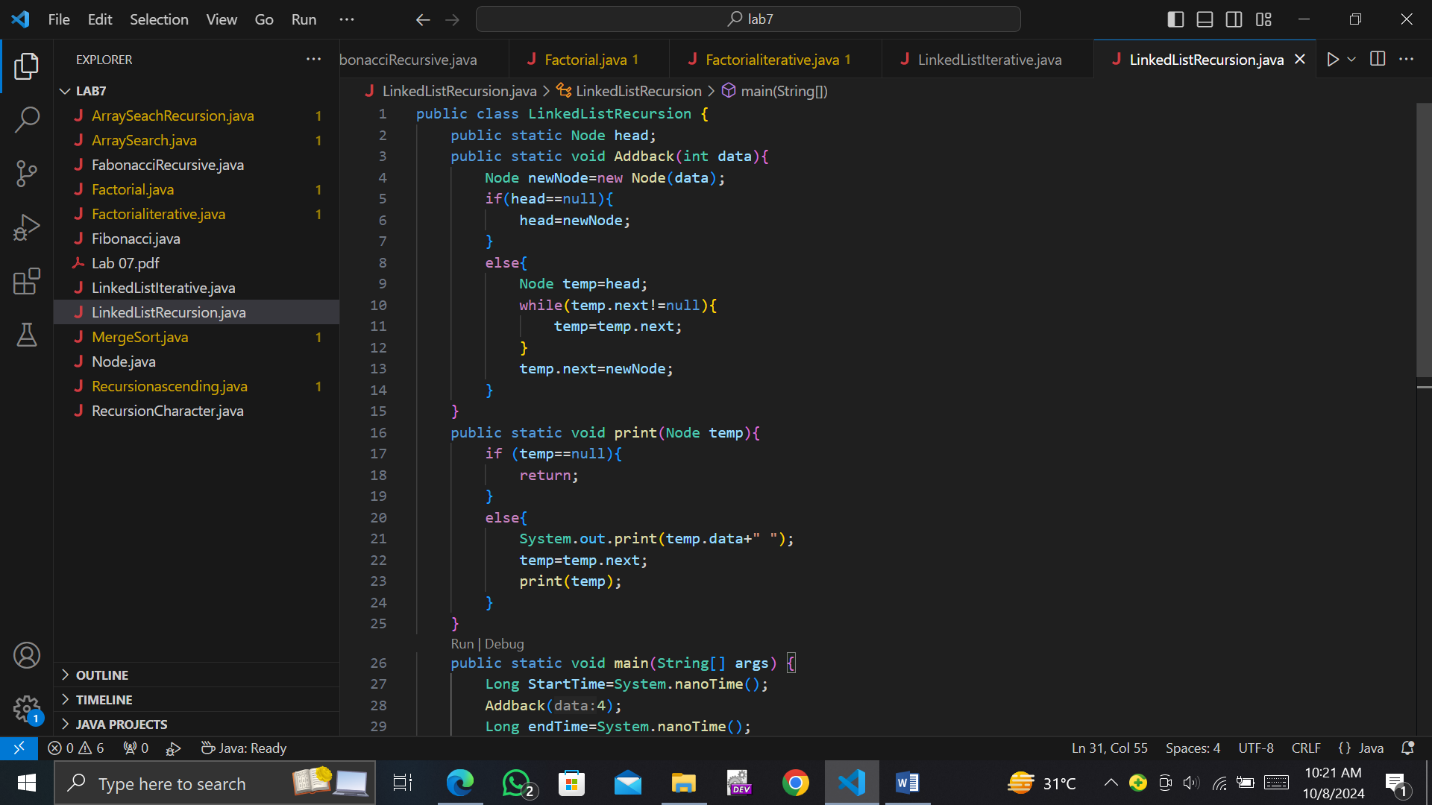
**Solution:**

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Write a program to print all nodes from linked list

b) Using recursive approach and calculate time.

**Solution:**

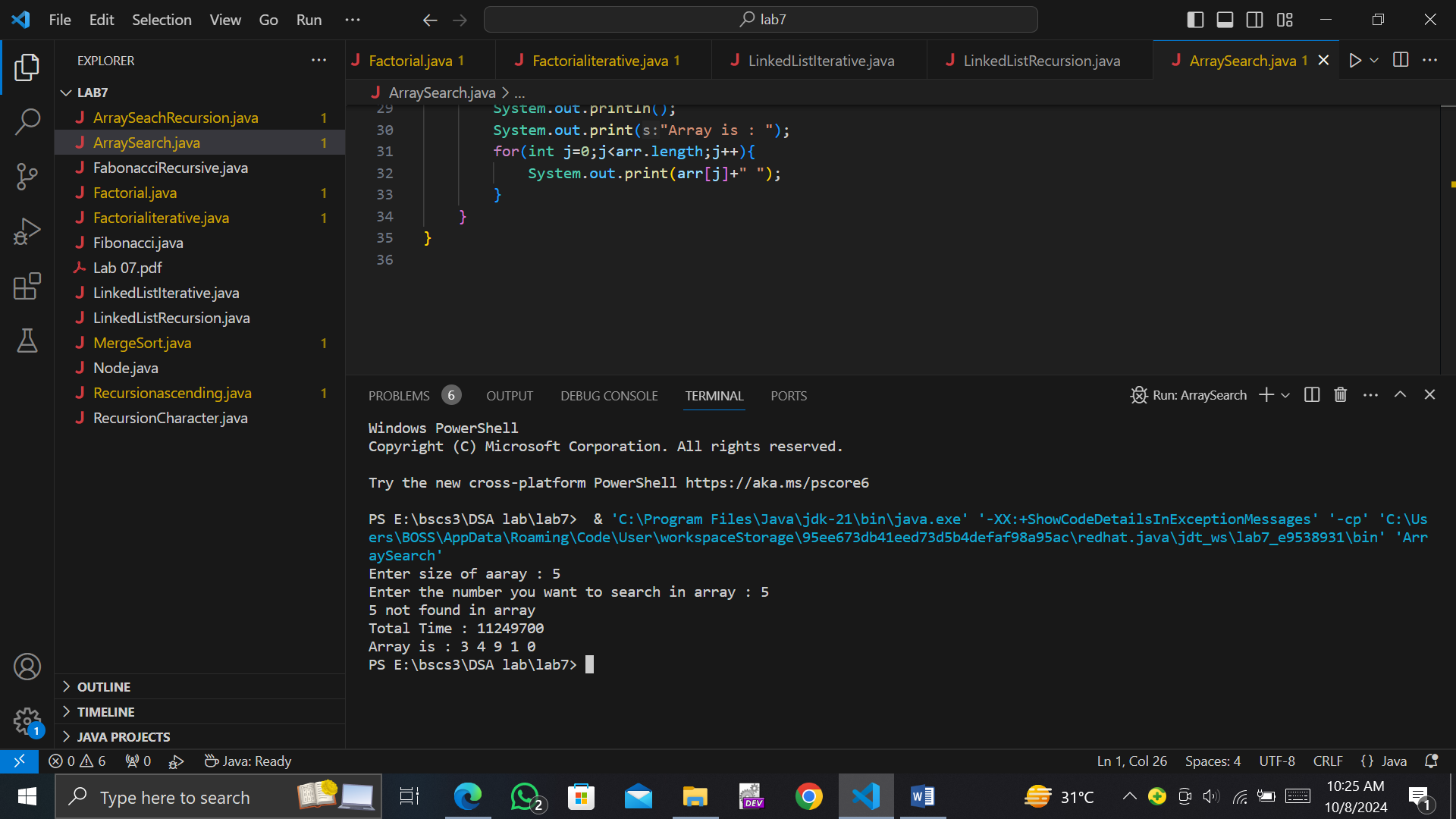
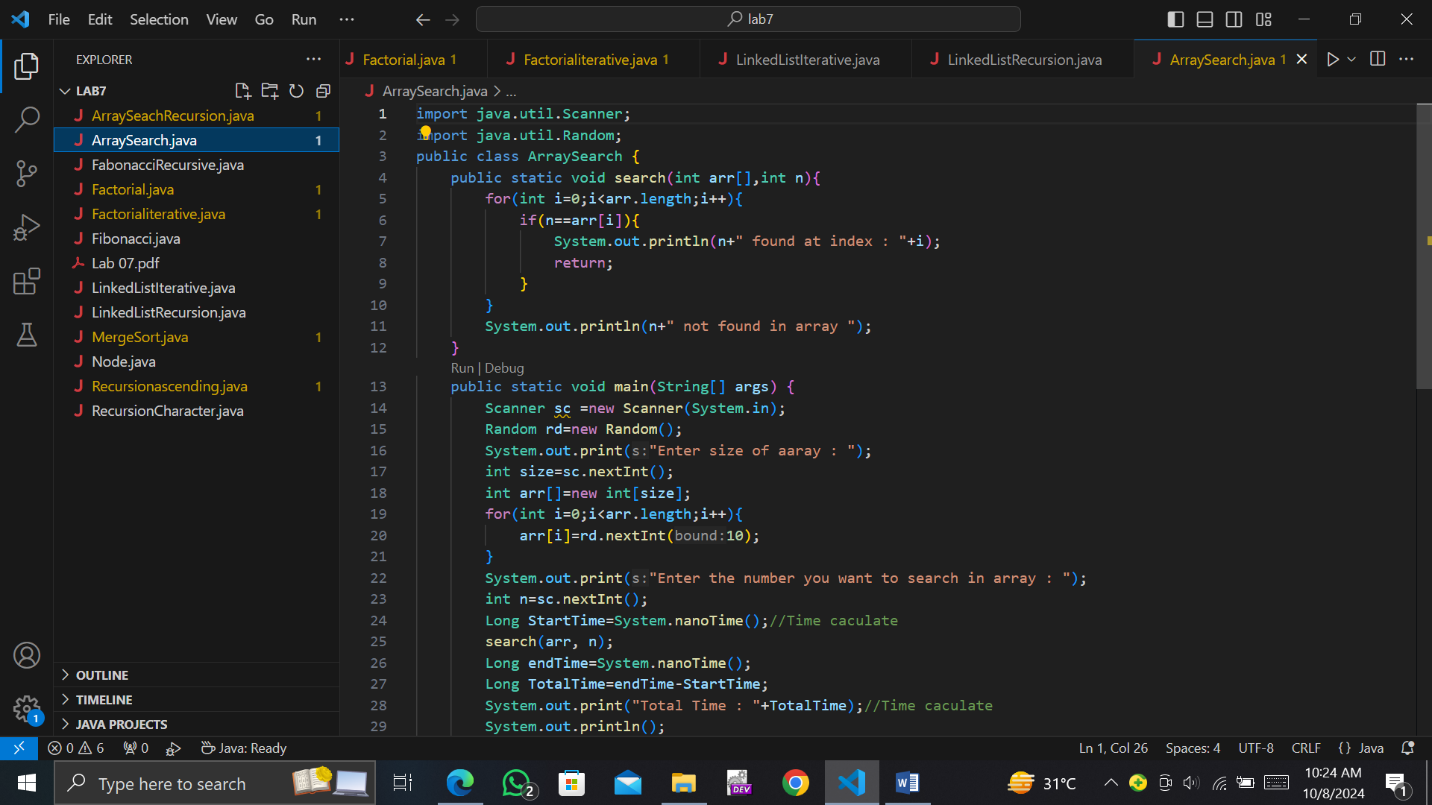
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**Task #7**

Write a program to store random values in array of integers and ask user any input Search, find out whether Search value is present in array or not. If present, then return 1 otherwise 0.

1. Using iterative approach and calculate time.

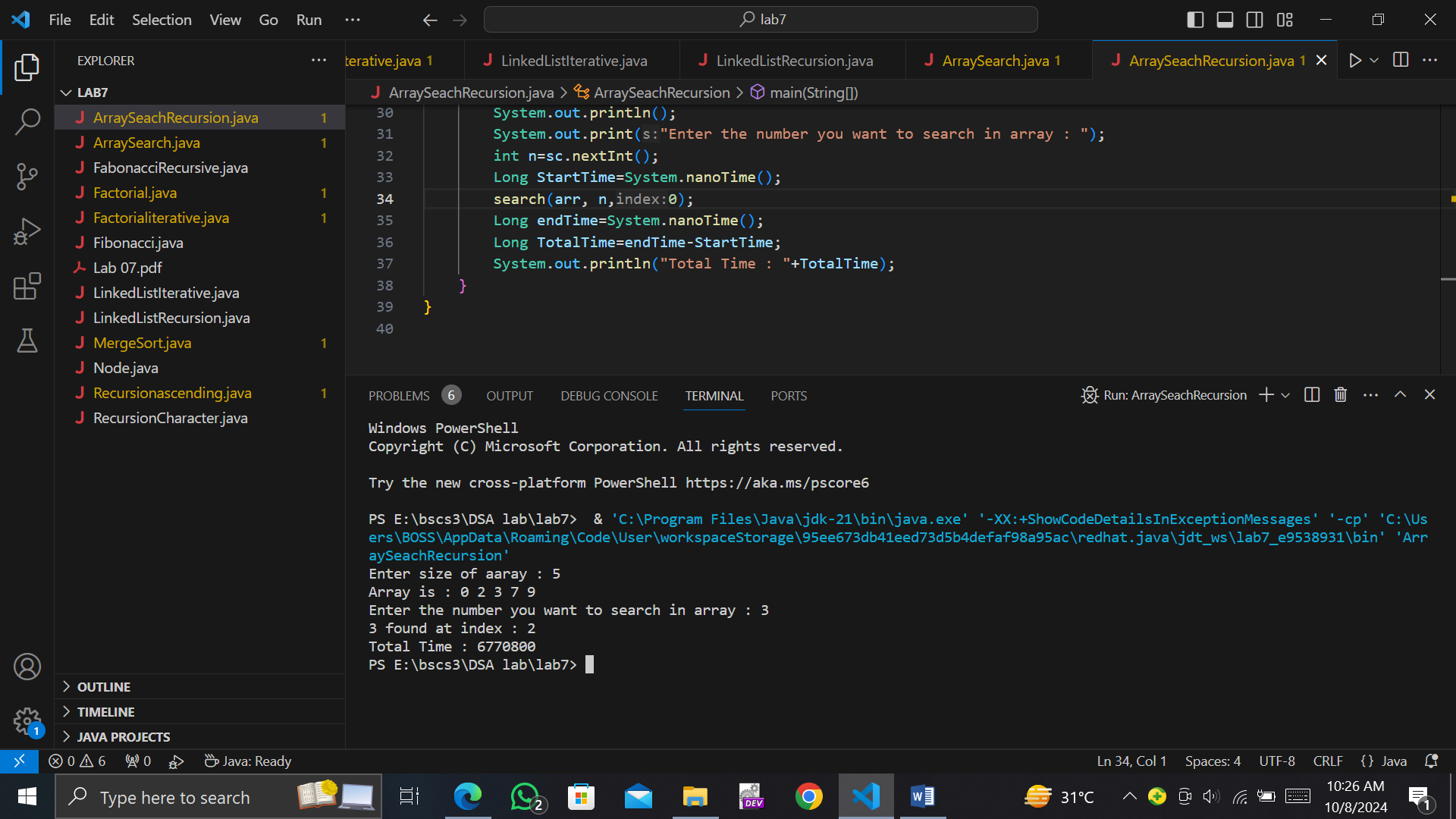
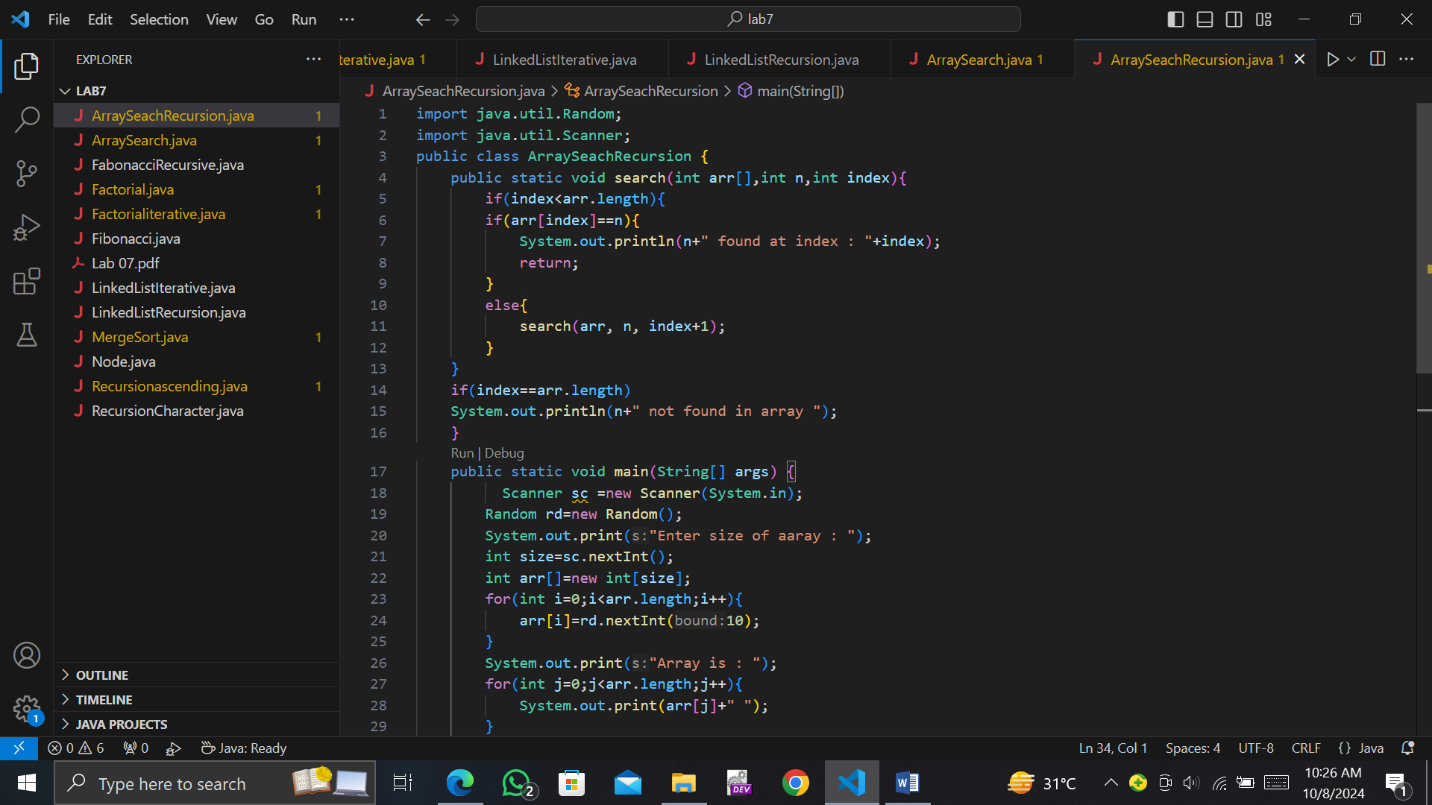
**Solution:**

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Write a program to store random values in array of integers and ask user any input Search, find out whether Search value is present in array or not. If present, then return 1 otherwise 0.

1. Using recursive approach and calculate time.

**Solution:**

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