ASSIGNMENT NO:-2

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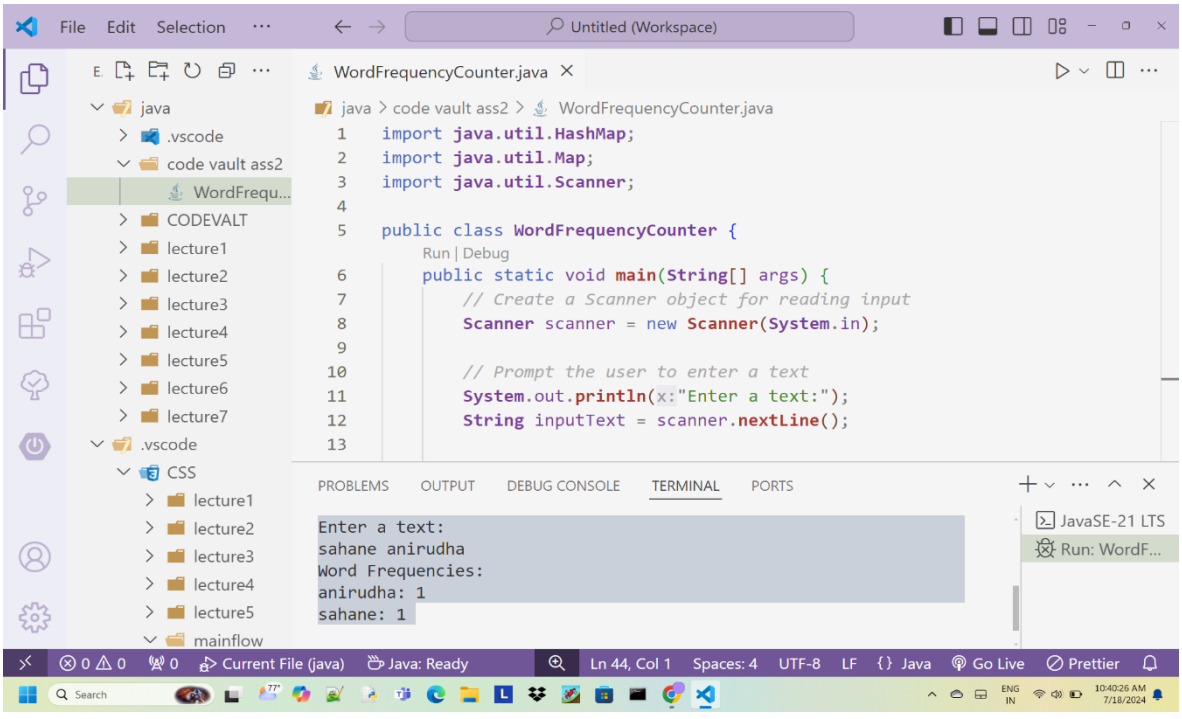
Task 1 :- write the program to count word frequencies in a given text in java

```
import java.util.HashMap;
import java.util.Map;
import java.util.Scanner;

public class WordFrequencyCounter {
    public static void main(String[] args) {
        // Create a Scanner object for reading input
        Scanner scanner = new Scanner(System.in);

        // Prompt the user to enter a text
        System.out.println("Enter a text:");
        String inputText = scanner.nextLine();

        // Split the input text into words
        String[] words = inputText.split("\\s+");

        // Create a HashMap to store word frequencies
        Map<String, Integer> wordFrequencies = new HashMap<>();

        // Iterate through each word in the array
        for (String word : words) {
            // Convert the word to lowercase to ensure case-insensitive counting
            word = word.toLowerCase();
```

```
            // If the word is already in the map, increment its frequency
            if (wordFrequencies.containsKey(word)) {
                wordFrequencies.put(word, wordFrequencies.get(word) + 1);
            } else {
                // Otherwise, add the word to the map with a frequency of 1
                wordFrequencies.put(word, 1);
            }
        }

        // Print the word frequencies
        System.out.println("Word Frequencies:");
        for (Map.Entry<String, Integer> entry : wordFrequencies.entrySet()) {
            System.out.println(entry.getKey() + ": " + entry.getValue());
        }

        // Close the scanner
        scanner.close();
    }
}
```

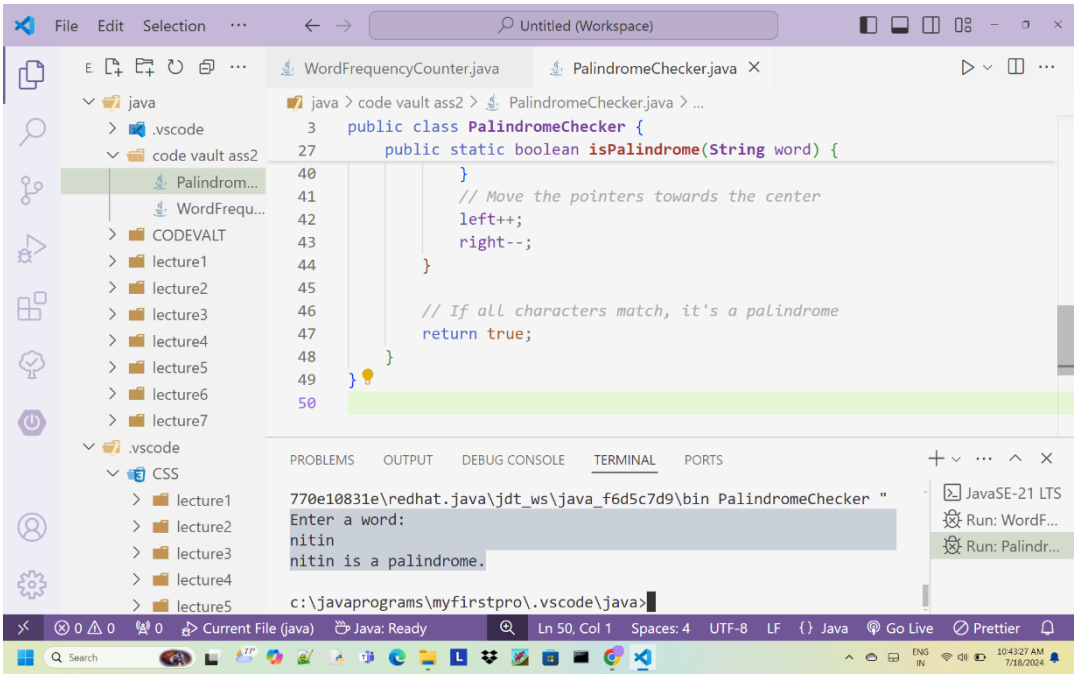
Output:-



Task 2:- write a program that checks if a given word is palindrome or not

```java
import java.util.Scanner;

public class PalindromeChecker {
    public static void main(String[] args) {
        // Create a Scanner object for reading input
        Scanner scanner = new Scanner(System.in);

        // Prompt the user to enter a word
        System.out.println("Enter a word:");
        String word = scanner.nextLine();

        // Check if the word is a palindrome
        boolean isPalindrome = isPalindrome(word);

        // Print the result
        if (isPalindrome) {
            System.out.println(word + " is a palindrome.");
        } else {
            System.out.println(word + " is not a palindrome.");
        }

        // Close the scanner
        scanner.close();
    }

    // Method to check if a given word is a palindrome
    public static boolean isPalindrome(String word) {
        // Convert the word to lowercase to ensure case-insensitive comparison
        word = word.toLowerCase();

        // Initialize pointers for the start and end of the word
        int left = 0;
        int right = word.length() - 1;

        // Compare characters from the start and end moving towards the center
        while (left < right) {
            // If characters do not match, it's not a palindrome
            if (word.charAt(left) != word.charAt(right)) {
                return false;
            }
            // Move the pointers towards the center
            left++;
            right--;
        }

        // If all characters match, it's a palindrome
        return true;
    }
}
```

Output:-



Task 3:-create a list of number then write a program that prints the square of each number in the list

```
import java.util.ArrayList;
import java.util.List;
import java.util.Scanner;

public class SquareOfNumbers {
    public static void main(String[] args) {
        // Create a Scanner object for reading input
        Scanner scanner = new Scanner(System.in);

        // Create a list to store the numbers
        List<Integer> numbers = new ArrayList<>();

        // Prompt the user to enter numbers
        System.out.println("Enter numbers (type 'done' to finish):");

        // Read numbers from the user until 'done' is entered
        while (scanner.hasNext()) {
            if (scanner.hasNextInt()) {
                numbers.add(scanner.nextInt());
            } else {
                String input = scanner.next();
                if (input.equalsIgnoreCase("done")) {
                    break;
                } else {
                    System.out.println("Invalid input. Please enter a number or 'done' to finish.");
                }
            }
        }

        // Print the square of each number in the list
        System.out.println("Squares of the numbers:");
        for (int number : numbers) {
            System.out.println(number + " squared is " + (number * number));
        }

        // Close the scanner
        scanner.close();
    }
}
```

Output:-