

## 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
caseinsensitive counting
```

```
    // 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();
```

The screenshot shows the Visual Studio Code (VS Code) editor interface. The file explorer on the left shows a project structure with folders for 'java', 'code vault ass2', 'CODEVALT', 'lecture1' through 'lecture7', and 'mainflow'. The 'WordFrequencyCounter.java' file is open in the editor. The code in the file matches the code provided in the previous blocks. The terminal at the bottom shows the output of the program: 'Enter a text: sahana anirudha', 'Word Frequencies:', 'anirudha: 1', and 'sahane: 1'. The status bar at the bottom indicates the current file is 'Current File (java)', the language is 'Java', and the version is 'Ln 44, Col 1'.

```
word = word.toLowerCase();
```

```
    }  
    - }
```

**Output:-**

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

```
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:-

The screenshot shows a VS Code editor with the file `PalindromeChecker.java` open. The code is as follows:

```
3 public class PalindromeChecker {
27 public static boolean isPalindrome(String word) {
40 }
41 // Move the pointers towards the center
42 left++;
43 right--;
44 }
45
46 // If all characters match, it's a palindrome
47 return true;
48 }
49 }
50
```

The terminal output shows the program being run with the input "nitin":

```
770e10831e@redhat:java\jdt_ws\java_f6d5c7d9\bin$ java PalindromeChecker
Enter a word:
nitin
nitin is a palindrome.
```

**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 = 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:-

The screenshot shows the Visual Studio Code editor with a project named 'code vault ass2'. The file 'SquareOfNumbers.java' is open, displaying the Java code. The code imports 'ArrayList', 'List', and 'Scanner', defines a 'SquareOfNumbers' class with a 'main' method, and uses a 'Scanner' to read input until 'done' is entered. It then calculates and prints the squares of the entered numbers.

The terminal output shows the execution of the program:

```

Enter numbers (type 'done' to finish):
55
done
Squares of the numbers:
55 squared is 3025

```

The status bar at the bottom indicates the current file is 'Current File (java)', the language is 'Java', and the editor is using 'Prettier' for formatting.