# Week 2

1.Write a program to count word frequencies in a given text.

import java.util.HashMap;

import java.util.Map;

i mport java.util.regex.Pattern;

public class WordFrequencyCounter {

public static Map<String, Integer> countWordFrequencies(String text) {

// Convert text to lowercase and remove non-alphabetic characters

String cleanedText = text.toLowerCase().replaceAll("[^a-zA-Z\\s]", "");

// Tokenize the text into words

String[] words = cleanedText.split("\\s+");

// Count the frequency of each word

Map<String, Integer> wordFrequencies = new HashMap<>();

for (String word : words) {

wordFrequencies.put(word, wordFrequencies.getOrDefault(word, 0) + 1);

}

return wordFrequencies;

}

public static void main(String[] args) {

// Example usage

String inputText = "This is a sample text. The text is a simple example.";

Map<String, Integer> frequencies = countWordFrequencies(inputText);

System.out.println("Word frequencies:");

for (Map.Entry<String, Integer> entry : frequencies.entrySet()) {

System.out.println(entry.getKey() + ": " + entry.getValue());

}

}

}

Output:

Word frequencies:

the: 1

a: 2

this: 1

is: 2

simple: 1

text: 2

sample: 1

example: 1

2 Palindrome Checker

Write a program that checks if a given word is a palindrome .

import java.util.Scanner;

public class PalindromeChecker {

public static boolean isPalindrome(String word) {

// Remove non-alphanumeric characters and convert to lowercase

String cleanWord = word.replaceAll("[^a-zA-Z0-9]", "").toLowerCase();

// Check if the cleaned word is a palindrome

int left = 0;

int right = cleanWord.length() - 1;

while (left < right) {

if (cleanWord.charAt(left) != cleanWord.charAt(right)) {

return false; // Not a palindrome

}

left++;

right--;

}

return true; // Palindrome

}

public static void main(String[] args) {

Scanner scanner = new Scanner(System.in);

System.out.print("Enter a word: ");

String inputWord = scanner.nextLine();

if (isPalindrome(inputWord)) {

System.out.println("The input is a palindrome.");

} else {

System.out.println("The input is not a palindrome.");

}

scanner.close();

}

}

Output:

Enter a word: level

The input is a palindrome.

List of Manipulation

Creates a list of numbers,then write a program that prints the square of each number in the list.

Create a list of numbers

List<Integer> numbers = new ArrayList<>();

numbers.add(1);

numbers.add(2);

numbers.add(3);

numbers.add(4);

numbers.add(5);

Package exp2

import java.util.ArrayList;

import java.util.List;

public class squareofnumbers {

public static void main(String[] args) {

// Create a list of numbers

List<Integer> numbers = new ArrayList<>();

numbers.add(1);

numbers.add(2);

numbers.add(3);

numbers.add(4);

numbers.add(5);

// Print the square of each number

System.out.println("Original Numbers: " + numbers);

System.out.println("Squares:");

for (int number : numbers) {

int square = number \* number;

System.out.println(number + " squared is: " + square);

}

}

}

Output:

Squares:

1 squared is: 1

2 squared is: 4

3 squared is: 9

4 squared is: 16

5 squared is: 25