Week-1 : Java Practice programs

Name : KODALI SHASHANK VINAYAK

Reg no : RA2411028010093

Sec : V1

-----------------------------------------------------------------------------------------------------------

1. Create a program that demonstrates different ways to create strings and basic

manipulation.

Program:

public class StringManipulation

{

    public static void main(String[] args)

    {

        String str1 = "Java Programming";

        String str2 = new String("Java Programming");

        char[] charArray = {'J', 'a', 'v', 'a', ' ', 'P', 'r', 'o', 'g', 'r', 'a', 'm', 'm', 'i', 'n', 'g'};

        String str3= new String(charArray);

        System.out.println("Comparing with ==");

        System.out.println("Str1==Str2:" +str1==str2);

        System.out.println("Str1==Str3:" +str1==str3);

        System.out.println("\nComparing witg .equals():");

        System.out.println("str1.equals(str2):" +str1.equals(str2));

        System.out.println("str1.equals(str2):" +str1.equals(str3));

         System.out.println("\nExplanation:");

        System.out.println("== compares object references (memory addresses),");

        System.out.println(".equals() compares the actual string contents.");

        String quote = "Programming Quote:\n\"Code is poetry\" - Unknown\nPath: C:\\Java\\Projects";

        System.out.println("\n" + quote);

  }

  }

Output:

Comparing with ==

false

false

Comparing witg .equals():

str1.equals(str2):true

str1.equals(str2):true

Explanation:

== compares object references (memory addresses),

.equals() compares the actual string contents.

Programming Quote:

"Code is poetry" - Unknown

Path: C:\Java\Projects

2. Task: Create a program that takes user input and processes it using various string methods.

Program:

import java.util.Scanner;

public class StringMethods {

    public static void main(String[] args) {

        Scanner scanner = new Scanner(System.in);

        System.out.print("Enter your full name (first and last): ");

        String fullName = scanner.nextLine();

        System.out.print("Enter your favorite programming language: ");

        String language = scanner.nextLine();

        System.out.print("Enter a sentence about your programming experience: ");

        String experience = scanner.nextLine();

        String[] names = fullName.trim().split(" ");

        String firstName = names[0];

        String lastName = names.length > 1 ? names[1] : "";

        int charCount = experience.replace(" ", "").length();

        String languageUpper = language.toUpperCase();

        System.out.println("\n--- Summary ---");

        System.out.println("First Name: " + firstName);

        System.out.println("Last Name: " + lastName);

        System.out.println("Favorite Language (Uppercase): " + languageUpper);

        System.out.println("Character count in experience (excluding spaces): " + charCount);

        scanner.close();

    }

}

Output:

Enter your full name (first and last): Hlo World

Enter your favorite programming language: Python

Enter a sentence about your programming experience: I dont know programming

--- Summary ---

First Name: Hlo

Last Name: World

Favorite Language (Uppercase): PYTHON

Character count in experience (excluding spaces): 20

3. Task: Create a program that manages a list of student names using string arrays and methods.

Program:

public class StringArrays {

    public static String findLongestString(String[] names) {

        String longest = "";

        for (String name : names) {

            if (name.length() > longest.length()) {

                longest = name;

            }

        }

        return longest;

    }

    public static int countNamesStartingWith(String[] names, char letter) {

        int count = 0;

        for (String name : names) {

            if (name.charAt(0) == letter) {

                count++;

            }

        }

        return count;

    }

    public static String[] formatNames(String[] names) {

        String[] formatted = new String[names.length];

        for (int i = 0; i < names.length; i++) {

            formatted[i] = names[i].trim().toLowerCase();

        }

        return formatted;

    }

    public static void main(String[] args) {

    String[] students = {"John Smith", "Alice Johnson", "Bob Brown",

    "Carol Davis", "David Wilson"};

    System.out.println(findLongestString(students));

    String [] formatted\_names = formatNames(students);

    for (String name : formatted\_names) {

        System.out.println(name);

    }

    }

}

Output:

Alice Johnson

john smith

alice johnson

bob brown

carol davis

david Wilson

4. Task: Create a simple text processor that combines all concepts learned.

Program:

import java.util.Scanner;

import java.util.Arrays;

public class TextProcessor {

    public static String cleanInput(String input) {

        return input.trim().replaceAll("\\s+", " ");

    }

    public static void analyzeText(String text) {

        String[] words = text.split(" ");

        int wordCount = words.length;

        int charCount = text.replace(" ", "").length();

        System.out.println("\n--- TEXT ANALYSIS ---");

        System.out.println("Words: " + wordCount);

        System.out.println("Characters (no spaces): " + charCount);

    }

    public static String[] getWordsSorted(String text) {

        String[] words = text.toLowerCase().replaceAll("[^a-zA-Z ]", "").split(" ");

        Arrays.sort(words);

        return words;

    }

    public static void main(String[] args) {

        Scanner scanner = new Scanner(System.in);

        System.out.println("=== TEXT PROCESSOR ===");

        System.out.print("Enter a paragraph of text:\n> ");

        String input = scanner.nextLine();

        String cleaned = cleanInput(input);

        System.out.println("\nCleaned Text:\n" + cleaned);

        analyzeText(cleaned);

        String[] sortedWords = getWordsSorted(cleaned);

        System.out.println("\n--- SORTED WORDS ---");

        for (String word : sortedWords) {

            System.out.println(word);

        }

        System.out.print("\nSearch for a word: ");

        String searchWord = scanner.next().toLowerCase();

        boolean found = Arrays.asList(sortedWords).contains(searchWord);

        System.out.println("Found: " + found);

        scanner.close();

    }

}

Output:

=== TEXT PROCESSOR ===

Enter a paragraph of text:

> Hlo world my self robo

Cleaned Text:

Hlo world my self robo

--- TEXT ANALYSIS ---

Words: 5

Characters (no spaces): 18

--- SORTED WORDS ---

hlo

my

robo

self

world

Search for a word: robo

Found: true