**Day 3 Assignment**

**Variables**

1. Create one employee class and in that class create instance variable, local variable and static variable.

Code:

package Practice\_assign;

class Student

{

String name;

static int *rollno*=123;

String sec;

void section(String sec)

{

this.sec = sec;

System.***out***.println("Section: " + sec);

}

}

public class Assign\_1 {

public static void main(String[] args) {

Student std = new Student();

std.name="Bobby";

System.***out***.println(std.name);

System.***out***.println(std.*rollno*);

std.section("A section");

//System.out.println("Stored Section: " + std.sec);

}

}

Output:

Bobby

123

Section: A section

1. Create addition of two numbers using variables.

Code:

package Practice\_assign;

class Add

{

int Addition(int a, int b)

{

int c=a+b;

return c;

}

}

public class Assign\_2 {

public static void main(String[] args) {

Add a=new Add();

int b= a.Addition(200,3);

System.***out***.println("Sum is : "+b);

}

}

Output:

Sum is: 203

1. Swap two numbers using third variable

Code:

package Practice\_assign;

class Swap

{

void swapnos(int a,int b)

{

int temp=0;

System.***out***.println("Before swapping : "+a+" "+b);

temp=a;

a=b;

b=temp;

System.***out***.println("After swapping : "+a+" "+b);

}

}

public class Assign\_3 {

public static void main(String[] args) {

Swap s= new Swap();

s.swapnos(3,9);

}

}

Output:

Before swapping : 3 9

After swapping : 9 3

1. Calculate area of rectangle

Code:

package Practice\_assign;

import java.util.Scanner;

public class Assign\_4 {

public static void main(String[] args) {

Scanner sc = new Scanner(System.***in***);

// Input length and width

System.***out***.print("Enter length of rectangle: ");

double length = sc.nextDouble();

System.***out***.print("Enter width of rectangle: ");

double width = sc.nextDouble();

// Calculate area

double area = length \* width;

// Output result

System.***out***.println("Area of the rectangle = " + area);

sc.close();

}

}

Output:

Enter length of rectangle: 5

Enter width of rectangle: 5

Area of the rectangle = 25.0

1. Calculate simple interest

**String:**

1. Count number of vowels in a string(input=”Programming”, output=3 Vowels)

Code:

public class VowelCount {

public static void main(String[] args) {

String input = "Programming";

int count = 0;

for (char ch : input.toLowerCase().toCharArray()) {

if ("aeiou".indexOf(ch) != -1) {

count++;

}

}

System.out.println("Number of vowels: " + count);

}

}

Output:

Number of vowels: 3

1. Replace all Spaces with Hyphens

Code:

public class ReplaceSpaces {

public static void main(String[] args) {

String str = "Java is fun";

String result = str.replace(" ", "-");

System.out.println(result);

}

}

Output:

Java-is-fun

1. Check if a string is Palindrome

Code:

public class PalindromeCheck {

public static void main(String[] args) {

String str = "madam";

String rev = new StringBuilder(str).reverse().toString();

if (str.equalsIgnoreCase(rev)) {

System.out.println("Palindrome");

} else {

System.out.println("Not Palindrome");

}

}

}

Output:

Palindrome

4.Count words in a Sentence

Code:

public class WordCount {

public static void main(String[] args) {

String sentence = "Java is powerful";

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

System.out.println("Number of words: " + words.length);

}

}

Output:

Number of words: 3

5.Check if String starts with “j” and end with “a” . eg. “java”

Code:

public class StartEndCheck {

public static void main(String[] args) {

String str = "java";

if (str.toLowerCase().startsWith("j") && str.toLowerCase().endsWith("a")) {

System.out.println("Yes");

} else {

System.out.println("No");

}

}

}

Output:

Yes

6.Split a sentence into words

Code:

public class SplitSentence {

public static void main(String[] args) {

String sentence = "I love Java";

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

for (String word : words) {

System.out.println(word);

}

}

}

Output:

I

love

Java

7.Write a program to find the frequency of each character in a string

Code:

public class CharFrequency {

public static void main(String[] args) {

String str = "hello";

int[] freq = new int[256];

for (char ch : str.toCharArray()) {

freq[ch]++;

}

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

if (freq[i] > 0) {

System.out.println((char) i + " : " + freq[i]);

}

}

}

}

Output:

h : 1

e : 1

l : 2

o : 1

8.Write a program to remove all white Spaces from string

Code:

public class RemoveSpaces {

public static void main(String[] args) {

String str = "Java is fun";

System.out.println(str.replaceAll("\\s+", ""));

}

}

Output:

Javaisfun

9.Write a Program to count digits, letters, spaces and Special characters

Code:

public class CountCharacters {

public static void main(String[] args) {

String str = "Hello 123!";

int letters = 0, digits = 0, spaces = 0, special = 0;

for (char ch : str.toCharArray()) {

if (Character.isLetter(ch)) letters++;

else if (Character.isDigit(ch)) digits++;

else if (Character.isSpaceChar(ch)) spaces++;

else special++;

}

System.out.println("Letters: " + letters);

System.out.println("Digits: " + digits);

System.out.println("Spaces: " + spaces);

System.out.println("Special: " + special);

}

}

Output:

Letters: 5

Digits: 3

Spaces: 1

Special: 1

10.Write a program to sort characters of a String Alphabetically

Code:

import java.util.Arrays;

public class SortCharacters {

public static void main(String[] args) {

String str = "java";

char[] arr = str.toCharArray();

Arrays.sort(arr);

System.out.println(new String(arr));

}

}

Output:

aajv

**Array**

1.Write a program to find the sum of all elements in an integer array

Code:

public class ArraySum {

public static void main(String[] args) {

int[] arr = {10, 20, 30, 40, 50};

int sum = 0;

for (int num : arr) {

sum += num;

}

System.out.println("Sum of elements: " + sum);

}

}

Output:

Sum of elements: 150

2. Write a program to count even and odd numbers from an array

Code:

public class CountEvenOdd {

public static void main(String[] args) {

int[] arr = {1, 2, 3, 4, 5, 6};

int evenCount = 0, oddCount = 0;

for (int num : arr) {

if (num % 2 == 0) evenCount++;

else oddCount++;

}

System.out.println("Even numbers: " + evenCount);

System.out.println("Odd numbers: " + oddCount);

}

}

Output:

Even numbers: 3

Odd numbers: 3

3. Find maximum and minimum elements from an array.

Code:

public class MaxMin {

public static void main(String[] args) {

int[] arr = {5, 7, 2, 9, 1};

int max = arr[0], min = arr[0];

for (int num : arr) {

if (num > max) max = num;

if (num < min) min = num;

}

System.out.println("Maximum: " + max);

System.out.println("Minimum: " + min);

}

}

Output:

Maximum: 9

Minimum: 1

4.write a program to find out second highest element from an array

Code:

public class SecondHighest {

public static void main(String[] args) {

int[] arr = {10, 20, 4, 45, 99};

int first = Integer.MIN\_VALUE, second = Integer.MIN\_VALUE;

for (int num : arr) {

if (num > first) {

second = first;

first = num;

} else if (num > second && num != first) {

second = num;

}

}

System.out.println("Second highest: " + second);

}

}

Output:

Second highest: 45

5.write a program to search for a number entered by the user in an array

Code:

import java.util.Scanner;

public class SearchElement {

public static void main(String[] args) {

int[] arr = {5, 10, 15, 20, 25};

Scanner sc = new Scanner(System.in);

System.out.print("Enter number to search: ");

int search = sc.nextInt();

boolean found = false;

for (int num : arr) {

if (num == search) {

found = true;

break;

}

}

if (found) System.out.println(search + " found in array.");

else System.out.println(search + " not found in array.");

}

}

Ouput:

Enter number to search: 15

1. ound in array.
2. write a program to print an array in reverse order

code:

public class ReverseArray {

public static void main(String[] args) {

int[] arr = {1, 2, 3, 4, 5};

System.out.println("Array in reverse:");

for (int i = arr.length - 1; i >= 0; i--) {

System.out.print(arr[i] + " ");

}

}

}

Output:

Array in reverse:

5 4 3 2 1

1. remove duplicate elements from an array

code:

import java.util.LinkedHashSet;

public class RemoveDuplicates {

public static void main(String[] args) {

int[] arr = {1, 2, 2, 3, 4, 4, 5};

LinkedHashSet<Integer> set = new LinkedHashSet<>();

for (int num : arr) {

set.add(num);

}

System.out.println("Array without duplicates: " + set);

}

}

Output:

Array without duplicates: [1, 2, 3, 4, 5]

8.Copy all elements from one array to another.

Code:

public class CopyArray {

public static void main(String[] args) {

int[] arr1 = {1, 2, 3, 4, 5};

int[] arr2 = new int[arr1.length];

for (int i = 0; i < arr1.length; i++) {

arr2[i] = arr1[i];

}

System.out.print("Copied array: ");

for (int num : arr2) {

System.out.print(num + " ");

}

}

}

Output:

Copied array: 1 2 3 4 5

9.Sort an array in ascending order

Code:

import java.util.Arrays;

public class SortArray {

public static void main(String[] args) {

int[] arr = {5, 1, 4, 2, 8};

Arrays.sort(arr);

System.out.print("Sorted array: ");

for (int num : arr) {

System.out.print(num + " ");

}

}

}

Output:

Sorted array: 1 2 4 5 8

10.print only prime numbers from array

Code:

public class PrimeFromArray {

public static void main(String[] args) {

int[] arr = {2, 4, 5, 6, 7, 9, 11};

System.out.print("Prime numbers: ");

for (int num : arr) {

if (isPrime(num)) {

System.out.print(num + " ");

}

}

}

static boolean isPrime(int n) {

if (n <= 1) return false;

for (int i = 2; i <= Math.sqrt(n); i++) {

if (n % i == 0) return false;

}

return true;

}

}

Output:

Prime numbers: 2 5 7 11

11. find out frequency of each element

Code:

public class FrequencyOfElements {

public static void main(String[] args) {

int[] arr = {1, 2, 2, 3, 4, 3, 1, 5};

boolean[] visited = new boolean[arr.length];

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

if (visited[i]) continue;

int count = 1;

for (int j = i + 1; j < arr.length; j++) {

if (arr[i] == arr[j]) {

visited[j] = true;

count++;

}

}

System.out.println(arr[i] + " occurs " + count + " times");

}

}

}

Output:

1 occurs 2 times

2 occurs 2 times

3 occurs 2 times

4 occurs 1 times

5 occurs 1 times

12. Rotate array elements(left or right)

Code:

public class RotateArrayLeft {

public static void main(String[] args) {

int[] arr = {1, 2, 3, 4, 5};

int first = arr[0];

for (int i = 0; i < arr.length - 1; i++) {

arr[i] = arr[i + 1];

}

arr[arr.length - 1] = first;

System.out.print("Array after left rotation: ");

for (int num : arr) {

System.out.print(num + " ");

}

}

}

Output:

Array after left rotation: 2 3 4 5 1

13. merge two arrays and sort them

Code:

import java.util.Arrays;

public class MergeAndSortArrays {

public static void main(String[] args) {

int[] arr1 = {5, 1, 9};

int[] arr2 = {8, 2, 6};

int[] merged = new int[arr1.length + arr2.length];

System.arraycopy(arr1, 0, merged, 0, arr1.length);

System.arraycopy(arr2, 0, merged, arr1.length, arr2.length);

Arrays.sort(merged);

System.out.print("Merged and sorted array: ");

for (int num : merged) {

System.out.print(num + " ");

}

}

}

Output:

Merged and sorted array: 1 2 5 6 8 9

14. check if array is palindrome or not

Code:

public class PalindromeArray {

public static void main(String[] args) {

int[] arr = {1, 2, 3, 2, 1};

boolean isPalindrome = true;

for (int i = 0; i < arr.length / 2; i++) {

if (arr[i] != arr[arr.length - 1 - i]) {

isPalindrome = false;

break;

}

}

if (isPalindrome)

System.out.println("Array is Palindrome");

else

System.out.println("Array is not Palindrome");

}

}

Output:

Array is Palindrome

15 segregate even and odd numbers

Code:

public class SegregateEvenOdd {

public static void main(String[] args) {

int[] arr = {12, 17, 70, 15, 22, 65, 21, 90};

int left = 0, right = arr.length - 1;

while (left < right) {

while (arr[left] % 2 == 0 && left < right) left++;

while (arr[right] % 2 == 1 && left < right) right--;

if (left < right) {

int temp = arr[left];

arr[left] = arr[right];

arr[right] = temp;

}

}

System.out.print("Array after segregation: ");

for (int num : arr) {

System.out.print(num + " ");

}

}

}

Output:

Array after segregation: 12 90 70 22 15 65 21 17