**ASSIGNMENT 3**

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**1. JAVA PROGRAM TO CALCULATE THE AVERAGE VALUE ARRAY ELEMENTS.**

**PROGRAM**

public class {

public static void main(String[] args) {

int[] numbers = new int[]{20, 30, 25, 35, -16, 60, -100};

//calculate sum of all array elements

int sum = 0;

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

sum = sum + numbers[i];

//calculate average value

double average = sum / numbers.length;

System.out.println("Average value of the array elements is : " + average);

}

}

**OUTPUT**

Average value of the array elements is : 7.0

**2.Find the maximum and minimum value of an array**

Program:

import java.util.Arrays;

public class Exercise10 {

static int max;

static int min;

public static void max\_min(int my\_array[]) {

max = my\_array[0];

min = my\_array[0];

int len = my\_array.length;

for (int i = 1; i < len - 1; i = i + 2) {

if (i + 1 > len) {

if (my\_array[i] > max) max = my\_array[i];

if (my\_array[i] < min) min = my\_array[i];

}

if (my\_array[i] > my\_array[i + 1]) {

if (my\_array[i] > max) max = my\_array[i];

if (my\_array[i + 1] < min) min = my\_array[i + 1];

}

if (my\_array[i] < my\_array[i + 1]) {

if (my\_array[i] < min) min = my\_array[i];

if (my\_array[i + 1] > max) max = my\_array[i + 1];

}

}

}

public static void main(String[] args) {

int[] my\_array = {25, 14, 56, 15, 36, 56, 77, 18, 29, 49};

max\_min(my\_array);

System.out.println(" Original Array: "+Arrays.toString(my\_array));

System.out.println(" Maximum value for the above array = " + max);

System.out.println(" Minimum value for the above array = " + min);

}

}

**Output**

Original Array: [25, 14, 56, 15, 36, 56, 77, 18, 29, 49]

Maximum value for the above array = 77

Minimum value for the above array = 14

# 3.Java Program to find Second Largest Number in an Array

# Program:

1. **import** java.util.Arrays;
2. **public** **class** SecondLargestInArrayExample1{
3. **public** **static** **int** getSecondLargest(**int**[] a, **int** total){
4. Arrays.sort(a);
5. **return** a[total-2];
6. }
7. **public** **static** **void** main(String args[]){
8. **int** a[]={1,2,5,6,3,2};
9. **int** b[]={44,66,99,77,33,22,55};
10. System.out.println("Second Largest: "+getSecondLargest(a,6));
11. System.out.println("Second Largest: "+getSecondLargest(b,7));
12. }}

**Output:**

Second Largest: 5

Second Largest: 77

**4. java program to add two matrices**

**Program:**

1. **public** **class** MatrixAdditionExample{
2. **public** **static** **void** main(String args[]){
3. //creating two matrices
4. **int** a[][]={{1,3,4},{2,4,3},{3,4,5}};
5. **int** b[][]={{1,3,4},{2,4,3},{1,2,4}};
7. //creating another matrix to store the sum of two matrices
8. **int** c[][]=**new** **int**[3][3];  //3 rows and 3 columns
10. //adding and printing addition of 2 matrices
11. **for**(**int** i=0;i<3;i++){
12. **for**(**int** j=0;j<3;j++){
13. c[i][j]=a[i][j]+b[i][j];    //use - for subtraction
14. System.out.print(c[i][j]+" ");
15. }
16. System.out.println();//new line
17. }
18. }}

**Output:**

2 6 8

4 8 6

4 6 9

**5.JAVA PROGRAM TO DISPLAY THE CUBE OF AN INTEGER**

**PROGRAM:**

import java.util.Scanner;

public class CubeCalculator {

public static void main(String[] args) {

Scanner scanner = new Scanner(System.in);

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

int number = scanner.nextInt();

int cube = number \* number \* number;

System.out.println("The cube of " + number + " is: " + cube);

scanner.close();

}

}

**6. LEAP YEAR GET YEAR FROM USER**

import java.util.Scanner;

public class LeapYearChecker {

public static void main(String[] args) {

Scanner scanner = new Scanner(System.in);

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

int year = scanner.nextInt();

boolean isLeapYear = isLeapYear(year);

if (isLeapYear) {

System.out.println(year + " is a leap year.");

} else {

System.out.println(year + " is not a leap year.");

}

scanner.close();

}

public static boolean isLeapYear(int year) {

if ((year % 4 == 0 && year % 100 != 0) || year % 400 == 0) {

return true;

} else {

return false;

}

}

}

**7. N TERMS OF NATURAL NUMBERS**

import java.util.Scanner;

public class MultiplicationTable {

public static void main(String[] args) {

Scanner scanner = new Scanner(System.in);

System.out.print("Enter a number to generate its multiplication table: ");

int number = scanner.nextInt();

System.out.println("Multiplication table for " + number + ":");

for (int i = 1; i <= 10; i++) {

int result = number \* i;

System.out.println(number + " \* " + i + " = " + result);

}

scanner.close();

}

}

**8.TO DISPAY MULTIPLICATION TABLE OF GIVEN INTEGER**

import java.util.Scanner;

public class SumOfNaturalNumbers {

public static void main(String[] args) {

Scanner scanner = new Scanner(System.in);

System.out.print("Enter the value of 'n': ");

int n = scanner.nextInt();

int sum = n \* (n + 1) / 2;

System.out.println("Sum of the first " + n + " natural numbers: " + sum);

scanner.close();

}

}