**Concepts of Programming**

**Assignment 3: Date: 17-Sep-2022**

1. **Write a Java program to add all the values of an integers array.**

package cdac.in;

import java.util.\*;

import java.util.Iterator;

public class ArrayAdd {

public static void main(String[] args) {

int n,sum = 0;

Scanner scan=new Scanner(System.in);

System.out.println("Enter the numbers of additions");

n=scan.nextInt();

int[] num =new int[n];

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

System.out.println("Enter the numbers");

num[i]=scan.nextInt();

}

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

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

sum = sum + num[i];

}

System.out.println("");

System.out.println(sum);

}

1. **Write a Java program to print the maximum and minimum value of an integer array.**

package cdac.in;

import java.util.\*;

public class MaxMin {

public static void main(String[] args) {

Scanner scan = new Scanner(System.in);

int num;

System.out.println("Enter the amount of number you want to compare");

num = scan.nextInt();

int[] array = new int[num];

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

System.out.println("Enter " + i + " number");

array[i] = scan.nextInt();

}

int Max = array[0];

int Min = array[0];

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

if (array[i] > Max) {

Max = array[i];

}

if (array[i] < Min) {

Min = array[i];

}

}

System.out.println(Max);

System.out.println(Min);

}}

1. **Write a Java program to print the pyramid like below:**

**1**

**2 2**

**3 3 3**

**4 4 4 4**

**5 5 5 5 5**

package cdac.in;

public class PrintPyramid {

public static void main(String[] args) {

for (int i = 0; i <=5; i++) {

for (int j = 0; j < i; j++) {

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

}

System.out.println(" ");

}

}

}

1. **Write a Java program to print the pyramid like below:**

**\***

**\* \* \***

**\* \* \* \* \***

**\* \* \* \* \* \* \***

package cdac.in;

public class Epyramid {

public static void main(String[] args) {

for (int i = 0; i < 5; i++) {

for (int j = 5 - i; j > 1; j--) {

System.out.print(" ");

}

for (int j = 0; j <= i; j++) {

System.out.print("\* ");

}

System.out.println();

}

}

}

1. **Write a java program calculates the grade of a student based on the marks entered by user in 5 different subjects. Program prints the grade based on this logic.**

**If the average of marks is >= 80 then prints Grade ‘A’**

**If the average is <80 and >=60 then prints Grade ‘B’**

**If the average is <60 and >=40 then prints Grade ‘C’**

**else prints Grade ‘D’**

**Assume maximum marks of each subject is 100.**

**Hint: use array concept store the subjects of marks in an integer array.**

package cdac.in;

import java.util.\*;

public class Student {

public static void main(String[] args) {

int sum = 0, Average=0;

Scanner scan = new Scanner(System.in);

int[] student1 = new int[5];

for (int i = 0; i < student1.length; i++) {

System.out.println("Enter marks of subject" + (i + 1));// NOT COMPLETED

student1[i] = scan.nextInt();

if (student1[i] > 100) {

System.out.println("Invalid marks");

scan.close();

}

}

System.out.println("All the marks are");

for (int i = 0; i < student1.length; i++) {

System.out.print(student1[i] + " ");

}

System.out.println("");

for (int i = 0; i < student1.length; i++) {

sum = sum + student1[i];

Average = sum / 5;

}

System.out.println("Total marks are " + sum);

System.out.println("Average marks are " + Average);

if (Average >= 80) {

System.out.println("A Grade");

}

else if (Average < 80 && Average >= 60) {

System.out.println("B Grade");

} else if (Average < 60 && Average >= 40) {

System.out.println(" C Grade");

} else {

System.out.println("D Grade");

}

}

}

1. **Write a Java Program to Calculate Compound Interest.**

package cdac.in;

import java.util.\*;

class Entry{

public void Calculations() {

double Amount,Principal,interest,years,time,decimal = 0;

Scanner scan=new Scanner(System.in);

System.out.println("Enter the principal amount");

Principal=scan.nextDouble();

System.out.println("Enter interest ");

decimal=scan.nextDouble();

System.out.println("Enter compound times ");

time=scan.nextDouble();

System.out.println("Enter the time period");

years=scan.nextDouble();

interest=decimal/100;

Amount= (Principal\*Math.pow(1+(interest/time),years));

System.out.println(Amount);

}

}

public class Compoundinterest {

public static void main(String[] args) {

Entry compoundinterest=new Entry();

compoundinterest.Calculations();

}

}

1. **Write a java program to check whether a character is a Vowel or Consonant using Switch Case.**

package cdac.in;

import java.util.\*;

public class Vowels {

public static void main(String[] args) {

Scanner scan=new Scanner(System.in);

char Alphabet;

System.out.println("Enter the alphabet");

Alphabet=scan.next().charAt(0);

switch (Alphabet) {

case 'a':

System.out.println(Alphabet+" is a vowel");

break;

case 'e':

System.out.println(Alphabet+" is a vowel");

break;

case 'i':

System.out.println(Alphabet+" is a vowel");

break;

case 'o':

System.out.println(Alphabet+" is a vowel");

break;

case 'u':

System.out.println(Alphabet+" is a vowel");

break;

case 'A':

System.out.println(Alphabet+" is a vowel");

break;

case 'E':

System.out.println(Alphabet+" is a vowel");

break;

case 'I':

System.out.println(Alphabet+"is a vowel");

break;

case 'O':

System.out.println(Alphabet+" is a vowel");

break;

case 'U':

System.out.println(Alphabet+" is a vowel");

break;

default:

System.out.println(Alphabet+" is a consonent");

break;

}

}

}

1. **Write a java program to Swap two numbers like below:**

**Input:**

**a = 10**

**b = 20**

**Output:**

**a = 20**

**b = 10**

package cdac.in;

import java.util.\*;

public class Swap {

public static void main(String[] args) {

Scanner scan=new Scanner(System.in);

int num1,num2;

System.out.println("Enter first number ");

num1=scan.nextInt();

System.out.println("Enter second number ");

num2=scan.nextInt();

System.out.println("Before swapping \n A = "+num1+", B = "+num2);

num1=num1+num2;

num2=num1-num2;

num1=num1-num2;

System.out.println("After swapping \n A = "+num1+", B = "+num2);

}

}

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package cdac.in;

import java.util.\*;

public class Swapping {

public static void main(String[] args) {

Scanner scan = new Scanner(System.in);

int num1, num2, num3=0;

System.out.println("Enter first number ");

num1 = scan.nextInt();

System.out.println("Enter second number ");

num2 = scan.nextInt();

System.out.println("Before swapping \n A = " + num1 + ", B = " + num2);

num3=num1;

num1=num2;

num2=num3;

System.out.println("After swapping \n A = " + num1 + ", B = " + num2);

}

}

1. **Write a java program to find the year is a leap year or not**

package cdac.in;

import java.util.\*;

public class LeapYear {

public static void main(String[] args) {

Scanner scan=new Scanner(System.in);

System.out.println("Enter the year");

int year=scan.nextInt();

if (year%4==0 && year%100==0) {

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

} else {

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

}

}

}

1. **Write a java program to print Odd and Even Numbers from an integers array**

package cdac.in;

import java.util.\*;

public class OddEven {

public static void main(String[] args) {

int n;

Scanner scan=new Scanner(System.in);

System.out.println("Enter the number of input");

n=scan.nextInt();

int[] array=new int[n];

System.out.println("Enter the numbers in array");

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

array[i]=scan.nextInt();

}

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

if (array[i]%2==0) {

System.out.println(array[i]+" is even ");

} if(array[i]%2!=0) {

System.out.println(array[i]+" is odd ");

}

}

}

}