**EXPERIMENT NO. 1**

**1)**

**PROBLEM STATEMENT :**

**Write a program for arithmetic operation using Arithmetic Promotion .**

import java.util.Scanner;

public class Arithmetic {

public static void main(String[] args) {

Scanner sc=new Scanner(System.in);

int a , b ;

String ch;

do {

System.out.println("\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* YOUR CHOICES \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*");

System.out.println("1 .ADDITION");

System.out.println("2 .SUBTRACTION");

System.out.println("3 .MULTIPLICATION");

System.out.println("4 .DIVISION");

System.out.println("Enter your choice :");

int choice =sc.nextInt();

System.out.println("Enter First number :");

a=sc.nextInt();

System.out.println("Enter Second number :");

b=sc.nextInt();

switch(choice)

{

case 1:System.out.println("Addition of two numbers : "+(a+b));

break;

case 2:System.out.println("Subtraction of two numbers : "+(a-b));

break;

case 3:System.out.println("Multiplication of two numbers : "+(a\*b));

break;

case 4:System.out.println("Division of two numbers : "+(a/b));

break;

default :System.out.println("Enter valid choice");

}

System.out.println("Do you want to continue :");

ch =sc.nextLine();

}while(ch=="yes");

}

}

**\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*OUTPUT\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* YOUR CHOICES \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

1 .ADDITION

2 .SUBTRACTION

3 .MULTIPLICATION

4 .DIVISION

Enter your choice :

1

Enter First number :

14

Enter Second number :

31

Addition of two numbers : 45

Do you want to continue : yes

**2)**

**PROBLEM STATEMENT:**

**Write a program for area and perimeter of Triangle ,rectangle and circle through method calling .**

import java.util.Scanner;

public class Shapes {

double pi=3.14;

public double areatri(int base,int height) {

return 0.5\*base\*height;

}

public double arearec(int length,int breadth) {

return length\*breadth;

}

public double areacircle(int radius) {

return pi\*radius\*radius;

}

public double peritri(int a,int b,int c) {

return a+b+c;

}

public double perirec(int l,int h) {

return 2\*(l+h);

}

public double circumOfCircle(int r) {

return 2\*pi\*r;

}

public static void main(String[]args) {

Scanner in=new Scanner(System.in);

shapes s=new shapes();

System.out.println("Area of Triangle :"+s.areatri(5,7));

System.out.println("Perimeter of Triangle :"+s.peritri(5,8,10));

System.out.println("Area of Rectangle :"+s.arearec(15,20));

System.out.println("Perimeter of Rectangle :"+s.perirec(15,20));

System.out.println("Area of Circle :"+s.areacircle(20));

System.out.println("Circumference of Circle :"+s.circumOfCircle(20));

}

}

**\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* OUTPUT \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

Area of Triangle :17.5

Perimeter of Triangle :23.0

Area of Rectangle :300.0

Perimeter of Rectangle :70.0

Area of Circle :1256.0

Circumference of Circle :125.60000000000001

**EXPERIMENT NO. 2**

**1)**

**PROBLEM STATEMENT :**

**To perform a program for Math Calculations like max() ,min() ,round(),avg() and abs() using Java class**

**with methods .**

import java.util.Scanner;

public class Mathcalculation {

public static void main(String[] args) {

int a,b,e ;

double d,c;

Scanner sc=new Scanner(System.in);

System.out.println("Enter the value of a");

a=sc.nextInt();

System.out.println("Enter the value of b");

b=sc.nextInt();

System.out.println("Enter the value of c");

c=sc.nextDouble();

System.out.println("Enter the value of d");

d=sc.nextDouble();

System.out.println("Enter the value of e");

e=sc.nextInt();

System.out.println("Maximum no is :"+Math.max(a, b));

System.out.println("Minimum no is :"+Math.min(a, b));

System.out.println("Round no is :"+Math.round(c));

System.out.println("Squre root of no is :"+Math.sqrt(e));

System.out.println("Absolute no is :"+Math.abs(d));

}

}

**\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* OUTPUT\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

Enter the value of a

2

Enter the value of b

5

Enter the value of c

0.7

Enter the value of d

25

Enter the value of e

8

Maximum no is : 5

Minimum no is : 2

Round no is : 1

Squre root of no is : 5.0

Absolute no is : 8

**2)**

**PROBLEM STATEMENT :**

**To perform a program to illustrate different constructors and methods using String Classes**

public class StringClass {

public static void main(String[] args) {

String s=”Java Programming";

System.out.println("Upper case of name is : "+s.toUpperCase());

System.out.println("Lower case of name is : "+s.toLowerCase());

System.out.println("Length of the name is : "+s.length());

System.out.println("Trim of the name is : "+s.trim());

System.out.println("String of the name is : "+s.toString());

System.out.println("Substring of the name is : "+s.substring(0,4));

}

}

**\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* OUTPUT \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

Upper case of name is : JAVA PROGRAMMING

Lower case of name is : java programming

Length of the name is : 16

Trim of the name is : Java Programming

String of the name is : Java Programming

Substring of the name is : Java

**EXPERIMENT NO. 3**

**1)**

**PROBLEM STATEMENT :**

**Write a program to method overloading allows developers to create multiple methods in a class with the same name but different parameter lists .**

public class Addition {

int add(int a,int b)

{

int sum;

sum=a+b;

return sum;

}

int add(int a,int b,int c)

{

int sum;

sum=a+b+c;

return sum;

}

double add(double a,double b,double c)

{

double sum;

sum=a+b+c;

return sum;

}

public static void main(String[] args) {

addition obj=new addition();

System.out.println("Sum method overloading:"+obj.add(17,86));

System.out.println("Sum method overloading:"+obj.add(64,76,78));

System.out.println("Sum method overloading:"+obj.add(64.5,76.01,78.5));

}

}

**---------------------------output-----------------------------**

Sum method overloading:103

Sum method overloading:218

Sum method overloading:219.01

**2)**

**PROBLEM STATEMENT :**

**Write a program to declare class Student with data members Roll no.,name, marks different type of constructors.**

class Student{

int roll\_no;

String name;

int english,maths,CAO;

Student(String name,int roll\_no,int english,int maths,int CAO){

this.name=name;

this.roll\_no=roll\_no;

this.english=english;

this.maths=maths;

this.CAO=CAO;

}

void display() {

System.out.println("Name: "+name);

System.out.println("Roll no: "+roll\_no );

System.out.println("Marks of English: "+english);

System.out.println("Marks of Maths: "+maths);

System.out.println("Marks of CAO: "+CAO);

}

}

public class Constructor {

public static void main(String[] args) {

Student b=new Student("Krushna",18,89,78,90);

b.display();

}

}

**\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* OUTPUT \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

Name: Krushna

Roll no: 18

Marks of English: 89

Marks of Maths: 78

Marks of CAO: 90

**EXPERIMENT NO. 4**

**1)**

**PROBLEM STATEMENT :**

**Write a program accepts three numbers from user and find largest number.**

import java.util.Scanner;

public class largeNum{

public static void main(String[] args) {

Scanner sc=new Scanner(System.in);

System.out.println("Enter First Number(A):");

int a=sc.nextInt();

System.out.println("Enter Second Number(B):");

int b=sc.nextInt();

System.out.println("Enter Third Number(C):");

int c=sc.nextInt();

if(a>b && a>c) {

System.out.println("A is greater");

}

else if(b>a && b>c) {

System.out.println("B is greater");

}

else {

System.out.println("C is greater");

}

}

}

**-------------------------------------------------------OUTPUT-------------------------------------------------------------**

Enter First Number(A):

20

Enter Second Number(B):

30

Enter Third Number(C):

10

B is greater

**2)**

**PROBLEM STATEMENT :**

**Write a program accept number from user and calculate factorial of given number.**

import java .util.Scanner;

public class Factorialno {

public static void main(String[] args) {

int num,fact=1,i;

Scanner sc=new Scanner(System.in);

System.out.println("Enter the no :");

num=sc.nextInt();

for(i=1;i<=num;i++)

{

fact=fact\*i;

}

System.out.println("Facorial of the no is :"+fact);

}

}

**\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* OUTPUT\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

Enter the no :

5

Facorial of the no is :120

**3)**

**PROBLEM STATEMENT :**

**Write a program accept number from user and check number is palindrome or not.**

import java.util.Scanner;

public class Palindrome {

public static void main(String[] args) {

int r,sum=0,temp,num;

Scanner sc=new Scanner(System.in);

System.out.println("Enter the no : ");

num=sc.nextInt();

temp=num;

while(num>0)

{

r=num%10;

sum=(sum\*10)+r;

num=num/10;

}

if(temp==sum)

{

System.out.println("Palindrome no");

}

else

{

System.out.println("it is not palindrome no");

}

}

}

**\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*OUTPUT\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

Enter the no : 454

Palindrome no

**4)**

**PROBLEM STATEMENT :**

**Write a program accepts number from user and check number is Armstrong or not.**

import java.util.Scanner;

public class Armstrongno {

public static void main(String[] args) {

int num,org\_no,r,res=0;

Scanner sc=new Scanner(System.in);

System.out.println("Enter the no");

num=sc.nextInt();

org\_no=num;

while(org\_no!=0)

{

r=org\_no%10;

res+=Math.pow(r,3);

org\_no/=10;

}

if(res==num)

{

System.out.println("No is armstrong");

}

else

{

System.out.println("No is not armstrong");

}

}

}

**\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* OUTPUT\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

Enter the no

153

No is armstrong

**5)**

**PROBLEM STATEMENT :**

**Write a program accepts number from user and check number is prime or not.**

import java.util.Scanner;

public class PrimeOrNot {

public static void main(String[] args) {

Scanner sc=new Scanner(System.in);

System.out.println("Enter Number :");

int n =sc.nextInt();

int count = 0;

if (n <= 1) {

System.out.println("The number is not prime");

return;

}

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

if (n % i == 0) {

count++;

}

}

if (count > 2) {

System.out.println("The number is not prime");

}

else {

System.out.println("The number is prime");

}

}

}

**\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* OUTPUT\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

Enter Number :

5

The number is prime

**EXPERIMENT NO. 5**

**1)**

**PROBLEM STATEMENT :**

**Write a program accepts n numbers from user , store in array and find largest**

import java.util.Scanner;

public class MaxOfArray {

public static void main(String[] args) {

Scanner sc=new Scanner(System.in);

int[] arr=new int[5];

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

{

System.out.println("Enter Array Element of index "+i);

arr[i]=sc.nextInt();

}

int max=arr[0];

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

{

if(max<arr[i])

{

max=arr[i];

}

}

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

}

}

**\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* OUTPUT\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

Enter Array Element of index 0

36

Enter Array Element of index 1

87

Enter Array Element of index 2

98

Enter Array Element of index 3

24

Enter Array Element of index 4

84

Maximum Number of Array : 98

**2)**

**PROBLEM STATEMENT :**

**Write a program accepts n nummbers from user ,store in array and perform**

**linear search.**

import java.util.\*;

public class LinearSearch {

public static void main(String[] args) {

Scanner in=new Scanner(System.in);

int i,search ,a[]=new int[5];

System.out.println("Enter elements in array :");

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

a[i]=in.nextInt();

}

System.out.println("Enter Element you want to search :");

search=in.nextInt();

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

if(a[i]==search){

System.out.println("Entered element "+search+" is present in Array at Index "+i);

}

}

}

}

**\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* OUTPUT\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

Enter elements in array :

1

2

3

4

5

Enter Element you want to search :

4

Entered element 4 is present in Array at Index 3

**3)**

**PROBLEM STATEMENT :**

**Write a program to accept n numbers ,store in array and perform intersection**

**of two sets.**

import java.util.Scanner;

public class IntersectionOfTwoArrays {

public static void main(String[] args) {

Scanner in=new Scanner(System.in);

int array1[] =new int[3];

int array2[] =new int[3];

System.out.println("Array 1 : ");

for(int i = 0; i<array1.length; i++ ) {

array1[i]= in.nextInt();

}

System.out.println("Array 2 : ");

for(int j = 0; j<array2.length; j++ ) {

array2[j]=in.nextInt();

}

System.out.println("Intersection of two Arrays: ");

for(int i = 0; i<array1.length; i++ ) {

for(int j = 0; j<array2.length; j++) {

if(array1[i]==array2[j]) {

System.out.println(array2[j]);

}

}

}

}

}

**\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* OUTPUT\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

Array 1 :

54

24

85

Array 2 :

24

87

35

Intersection of two Arrays:

24

**4)**

**PROBLEM STATEMENT :**

**Write a program to declare class Employee having data members empId ,Name**

**and Salary .Accepts records for five Employees and Display that records**

**whose salary is greater than 50000.**

import java.util.Scanner;

public class Employee {

public static void main(String[] args) {

Scanner in=new Scanner(System.in);

int[] id=new int[5];

String[] name=new String[5];

double[] salary=new double[5];

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

{

System.out.println("Enter id of Employee "+(i+1));

id[i]=in.nextInt();

in.nextLine();

System.out.println("Enter name of Employee "+(i+1));

name[i]=in.nextLine();

System.out.println("Enter salary of Employee "+(i+1));

salary[i]=in.nextDouble();

}

System.out.println("Employees data whose salary is graeter than 50000");

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

{

if(salary[i]>5000)

{

System.out.println("ID of Employee: "+id[i]);

System.out.println("Name of Employee: "+name[i]);

System.out.println("Salary of Employee: "+salary[i]);

}

}

}

}

**\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* OUTPUT\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

Enter id of Employee 1

1010

Enter name of Employee 1

Jony Dixit

Enter salary of Employee 1

50000

Enter id of Employee 2

1020

Enter name of Employee 2

Seema Choudhary

Enter salary of Employee 2

75000

Enter id of Employee 3

1030

Enter name of Employee 3

Neha Jadhav

Enter salary of Employee 3

55000

Enter id of Employee 4

1040

Enter name of Employee 4

Sanjeev Satpute

Enter salary of Employee 4

40000

Enter id of Employee 5

1050

Enter name of Employee 5

Jivan Reddy

Enter salary of Employee 5

50000

Employees data whose salary is greater than 50000

ID of Employee: 1010

Name of Employee: Jony Dixit

Salary of Employee: 50000.0

ID of Employee: 1020

Name of Employee: Seema Choudhary

Salary of Employee: 75000.0

ID of Employee: 1030

Name of Employee: Neha Jadhav

Salary of Employee: 55000.0

ID of Employee: 1040

Name of Employee: Sanjeev Satpute

Salary of Employee: 40000.0

ID of Employee: 1050

Name of Employee: Jivan Reddy

Salary of Employee: 50000.0

**EXPERIMENT NO. 6**

**1)**

**PROBLEM STATEMENT :**

**Write a program of single inheritance with base class is animal and derived is dog class .**

class Animal{

void base() {

System.out.println("Animal class is base class !!!");

}

}

class Dog extends Animal{

void derived() {

System.out.println("Dog class inherits properties of Animal class !!!");

}

}

public class SingleInheritance {

public static void main(String[] args) {

Dog obj=new Dog();

obj.base();

obj.derived();

}

}

**\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* OUTPUT\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

Animal class is base class !!!

Dog class inherits properties of Animal class !!!

**2)**

**PROBLEM STATEMENT :**

**Write a program of Multilevel Inheritance with base class is Animal class and Derived class name and BabyDog using method overriding .**

class Animal{

void info() {

System.out.println("Animal class is base class !!!");

}

}

class Dog extends Animal{

void info() {

super.info();

System.out.println("Dog class inherits properties of Animal class and it is base class for BabyDog class!!!");

}

}

class BabyDog extends Dog{

void info() {

super.info();

System.out.println("BabyDog class inherits properties of Dog class !!!");

}

}

public class MultilevelInheritance {

public static void main(String[] args) {

BabyDog obj=new BabyDog();

obj.info();

}

}

**\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*OUTPUT\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

Animal class is base class !!!

Dog class inherits properties of Animal class and it is base class for BabyDog class!!!

BabyDog class inherits properties of Dog class !!!

**3)**

**PROBLEM STATEMENT:**

**Write a program of hierarchical inheritance with base class is animal class and derived classes are Dog class and cat class .**

class Animal{

void m1() {

System.out.println("Animal class is base class for Dog and Cat class.");

}

}

class Dog extends Animal{

void m2() {

System.out.println("Dog class is derived class of Animal Class .");

}

}

class Cat extends Animal{

void m3() {

System.out.println("Cat class is derived class of Animal Class .");

}

}

public class Hierarchical\_Inheritance {

public static void main(String[] args) {

Dog d=new Dog();

Cat c=new Cat();

d.m2();

d.m1();

c.m3();

c.m1();

}

}

**\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* OUTPUT \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

Dog class is derived class of Animal Class .

Animal class is base class for Dog and Cat class.

Cat class is derived class of Animal Class .

Animal class is base class for Dog and Cat class.