***1.circle using polymorphism***

import java.util.Scanner;

class poly1

{

double l,b,A,r, h;

void cal\_area()

{

Scanner sc=new Scanner(System.in);

System.out.println("Enter l & b");

l=sc.nextDouble();

b=sc.nextDouble();

A=l\*b;

System.out.println("Arae of rect="+A);

}

void cal\_area(double r)

{

this.r=r;

A=3.14\*r\*r;

System.out.println("Area of circle="+A);

}

double cal\_area(double b,double h)

{

this.b=b;

this.h=h;

A=0.5\*b\*h;

return(A);

}

}

public class Main

{

public static void main(String[] args)

{

double r,h,b;

Scanner sc=new Scanner(System.in);

poly1 v1= new poly1();

v1.cal\_area();

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

r=sc.nextDouble();

v1.cal\_area(r);

System.out.println("Enter b & h ");

b=sc.nextDouble();

h=sc.nextDouble();

double A=v1.cal\_area(b, h);

System.out.println("Area="+A);

}

}

***Output:***

Enter l & b

2

3

Arae of rect=6.0

Enter r

4

Area of circle=50.24

Enter b & h

5

6

Area=15.0

***2.max 2 number number using method overloading***

import java.util.Scanner;

class MaxTwoNumbers {

public int max(int a, int b) {

return (a > b) ? a : b;

}

}

class MaxThreeNumbers extends MaxTwoNumbers {

public int max(int a, int b, int c) {

return max(max(a, b), c);

}

}

public class Main {

public static void main(String[] args) {

Scanner scanner = new Scanner(System.in); System.out.print("Enter first number: ");

int num1 = scanner.nextInt();

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

int num2 = scanner.nextInt();

MaxTwoNumbers maxTwo = new MaxTwoNumbers();

int maxTwoResult = maxTwo.max(num1, num2);

System.out.println("Maximum of two numbers: " + maxTwoResult);

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

int num3 = scanner.nextInt();

MaxThreeNumbers maxThree = new MaxThreeNumbers();

int maxThreeResult = maxThree.max(num1, num2, num3);

System.out.println("Maximum of three numbers: " + maxThreeResult);

}

}

***Output:***

Enter first number: 2

Enter second number: 9

Maximum of two numbers: 9

Enter third number: 5

Maximum of three numbers: 9

***3. add 2 number & Add3 number using method overloading***

import java.util.Scanner;

class addTwoNumbers {

int add1;

public int max(int a, int b) {

add1=a+b;

return add1;

}

}

class addThreeNumbers extends addTwoNumbers {

int add2;

public int max(int a, int b, int c) {

add2=a+b+c;

return add2;

}

}

public class Main {

public static void main(String[] args) {

Scanner scanner = new Scanner(System.in);

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

int num1 = scanner.nextInt();

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

int num2 = scanner.nextInt();

addTwoNumbers addTwo = new addTwoNumbers();

int addTwoResult = addTwo.max(num1, num2);

System.out.println("Maximum of two numbers: " + addTwoResult);

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

int num3 = scanner.nextInt();

addThreeNumbers addThree = new addThreeNumbers();

int addThreeResult = addThree.max(num1, num2, num3);

System.out.println("Maximum of three numbers: " + addThreeResult);

}

}

***Output:***

Enter first number: 23

Enter second number: 34

Maximum of two numbers: 57

Enter third number: 67

Maximum of three numbers: 124

***4.method overrriding***

class Animal {

public void animalSound() {

System.out.println("The animal makes a sound");

}

}

class cat extends Animal {

public void animalSound() {

System.out.println("The cat says: mew mew");

}

}

class Dog extends Animal {

public void animalSound() {

System.out.println("The dog says: bow wow");

}

}

class Main {

public static void main(String[] args) {

Animal myAnimal = new Animal();

Animal myCat = new cat();

Animal myDog = new Dog();

myAnimal.animalSound();

myCat.animalSound();

myDog.animalSound();

}

}

***Output:***

The animal makes a sound

The cat says: mew mew

The dog says: bow wow

***5.method overriding***

class shape {

public void show() {

System.out.println("any shapes");

}

}

class rectangle extends shape {

public void show() {

System.out.println("rectangle....");

}

}

class circle extends shape {

public void show() {

System.out.println("circle....");

}

}

class Main {

public static void main(String[] args) {

shape s = new shape();

shape rect = new rectangle();

shape cir = new circle();

s.show();

rect.show();

cir.show();

}

}

***Output:***

any shapes

rectangle....

circle....

***6.inheritance with polymorphisam***

import java.util.Scanner;

class Area1

{

double r,A;

Area1(double r)

{

this.r=r;

}

void cal\_area()

{

A=3.14\*r\*r;

System.out.println("Radius="+r+"\nArae="+A);

}

}

class Volume11 extends Area1

{

double h,v;

Volume11(double r,double h)

{

super(r);

this.h=h;

}

void cal\_area()

{

super.cal\_area();

v=A\*h;

System.out.println("H="+h+"\nVolume="+v);

}

}

public class Main

{

public static void main(String[] args)

{

double r,h;

Scanner sc=new Scanner(System.in);

System.out.println("Enter r & h");

r=sc.nextDouble();

h=sc.nextDouble();

Volume11 v1= new Volume11(r, h);

v1.cal\_area();

}

}

***Output:***

Enter r & h

3

5

Radius=3.0

Arae=28.259999999999998

H=5.0

Volume=141.29999999999998