1. Exercise:Create a package called shapes. Create some classes in the package representing some common geometric shapes like Square, Triangle, Circle and so on.

Create a class called TestShapes and create objects for all the shapes and print corresponding messages.Execute the TestShapes class.

Circle.java

package Shapes;

public class Circle {

final double pi=3.14;

int radius;

Circle(int radius)

{

this.radius=radius;

}

public void areaOfCircle()

{

System.out.println("Area of Circle is: "+(pi\*radius\*radius));

}

public void perimeterOfCircle()

{

System.out.println("Perimeter of the Circle is: "+(2\*pi\*radius));

}

}

Rectangle.java

package Shapes;

public class Rectangle {

int length,breadth;

public void perimeterOfRectangle(int length,int breadth)

{

System.out.println("Perimeter of Rectangle is: "+(2\*(length+breadth)));

}

public void areaOfRectangle(int length,int breadth)

{

System.out.println("Area of the Rectangle is: "+(length\*breadth));

}

}

Square.java

package Shapes;

public class Square {

int length;

Square(int length)

{

this.length=length;

}

public void areaOfSquare()

{

System.out.println("Area of Square is: "+(length\*length));

}

public void perimeterOfSquare()

{

System.out.println("Perimeter of the Square is: "+(4\*length));

}

}

TestClass.java //main class

package Shapes;

import java.util.Scanner;

public class TestClass {

public static void main(String[] args) {

Scanner sc=new Scanner(System.in);

System.out.println("Enter the length/Radius:");

int length=sc.nextInt();

System.out.println("Enter the breadth:");

int breadth=sc.nextInt();

Circle circle=new Circle(length);

Square square=new Square(length);

Rectangle rectangle=new Rectangle();

circle.areaOfCircle();

circle.perimeterOfCircle();

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

square.areaOfSquare();

square.perimeterOfSquare();

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

rectangle.areaOfRectangle(length, breadth);

rectangle.perimeterOfRectangle(length, breadth);

}

}

Output:

Enter the length/Radius:

10

Enter the breadth:

15

Area of Circle is: 314.0

Perimeter of the Circle is: 62.800000000000004

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Area of Square is: 100

Perimeter of the Square is: 40

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Area of the Rectangle is: 150

Perimeter of Rectangle is: 50

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2. Exercise:Create a class called shape with the following methods

1. area

2. perimeter

Overload the area and perimeter method to calculate for both square and rectangle.

Create a main class and invoke the area method to calculate the area of the square and rectangle.

Also invoke the perimeter method to calculate the perimeter of the square and rectangle.

package Assignment\_Day\_04;

import java.util.Scanner;

class Square{

public void area(int length)

{

System.out.println("Area of Square is: "+(length\*length));

}

public void perimeter(int length)

{

System.out.println("Perimeter of the Square is: "+(4\*length));

}

}

class Rectangle extends Square{

public void perimeter(int length,int breadth)

{

System.out.println("Perimeter of Rectangle is: "+(2\*(length+breadth)));

}

public void area(int length,int breadth)

{

System.out.println("Area of the Rectangle is: "+(length\*breadth));

}

}

public class Shape {

public static void main(String[] args) {

// TODO Auto-generated method stub

Scanner sc=new Scanner(System.in);

System.out.println("Enter the length:");

int length=sc.nextInt();

System.out.println("Enter the breadth:");

int breadth=sc.nextInt();

Rectangle rect=new Rectangle();

rect.area(length);

rect.area(length,breadth);

rect.perimeter(length);

rect.perimeter(length, breadth);

}

}

Output:

Enter the length:

10

Enter the breadth:

8

Area of Square is: 100

Area of the Rectangle is: 80

Perimeter of the Square is: 40

Perimeter of Rectangle is: 36

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3. :Create a class called Calculator which has 4 different methods add, diff, mul and div which accepts two numbers as parameters.

Overload the methods such that the parameters can be of the following pattern.

1. Both are of int data type.

2. Both are of double data type.

3. First parameter is of int data type and second parameter is of double data type.

4. First parameter is of double data type and second parameter is of int data type.

Create anobject to access these methods and invoke these methods with different type of numbers and display the result in the corresponding methods.

package Assignment\_Day\_04;

class Operations{

public void add(int number1,int number2)

{

System.out.println("The Addition of 2 numbers is: "+(number1+number2));

}

public void add(double number1,double number2)

{

System.out.println("The Addition of 2 numbers is: "+(number1+number2));

}

public void add(double number1,int number2)

{

System.out.println("The Addition of 2 numbers is: "+(number1+number2));

}

public void add(int number1,double number2)

{

System.out.println("The Addition of 2 numbers is: "+(number1+number2));

}

public void sub(int number1,int number2)

{

System.out.println("The Subtraction of 2 numbers is: "+(number1-number2));

}

public void sub(double number1,double number2)

{

System.out.println("The Subtraction of 2 numbers is: "+(number1-number2));

}

public void sub(double number1,int number2)

{

System.out.println("The Subtraction of 2 numbers is: "+(number1-number2));

}

public void sub(int number1,double number2)

{

System.out.println("The Subtraction of 2 numbers is: "+(number1-number2));

}

public void mul(int number1,int number2)

{

System.out.println("The Multiplication of 2 numbers is: "+(number1\*number2));

}

public void mul(double number1,double number2)

{

System.out.println("The Multiplication of 2 numbers is: "+(number1\*number2));

}

public void mul(double number1,int number2)

{

System.out.println("The Multiplication of 2 numbers is: "+(number1\*number2));

}

public void mul(int number1,double number2)

{

System.out.println("The Multiplication of 2 numbers is: "+(number1\*number2));

}

public void div(int number1,int number2)

{

System.out.println("The Division of 2 numbers is: "+(number1/number2));

}

public void div(double number1,double number2)

{

System.out.println("The Division of 2 numbers is: "+(number1/number2));

}

public void div(double number1,int number2)

{

System.out.println("The Division of 2 numbers is: "+(number1/number2));

}

public void div(int number1,double number2)

{

System.out.println("The Division of 2 numbers is: "+(number1/number2));

}

}

public class Calculator {

public static void main(String[] args) {

Operations op=new Operations();

op.add(5,3);

op.add(56.1, 3);

op.add(50,31.5);

op.add(56.5, 17.8);

op.sub(5,3);

op.sub(56.1, 3);

op.sub(50,31.5);

op.sub(56.5, 17.8);

op.mul(5,3);

op.mul(56.1, 3);

op.mul(50,31.5);

op.mul(56.5, 17.8);

op.div(5,3);

op.div(56.1, 3);

op.div(50,31.5);

op.div(56.5, 17.8);

}

}

Output:

The Addition of 2 numbers is: 8

The Addition of 2 numbers is: 59.1

The Addition of 2 numbers is: 81.5

The Addition of 2 numbers is: 74.3

The Subtraction of 2 numbers is: 2

The Subtraction of 2 numbers is: 53.1

The Subtraction of 2 numbers is: 18.5

The Subtraction of 2 numbers is: 38.7

The Multiplication of 2 numbers is: 15

The Multiplication of 2 numbers is: 168.3

The Multiplication of 2 numbers is: 1575.0

The Multiplication of 2 numbers is: 1005.7

The Division of 2 numbers is: 1

The Division of 2 numbers is: 18.7

The Division of 2 numbers is: 1.5873015873015872

The Division of 2 numbers is: 3.1741573033707864

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4. Exercise: Create a class called Vehicle. Create subclasses like Truck, Bus, Car etc. Add common methods in the base class and specific methods in the corresponding class. Create a class called Road.and create objects for the Truck, Car, Bus etc and display the appropriate message

package Assignmet\_Day\_04;

class Vechicle{

String name;

String number;

String color;

Vechicle(String name, String number, String color)

{

this.name=name;

this.number=number;

this.color=color;

System.out.println("Name of the Vechicle:"+name+"\nNumber of the Vechicle: "+number+"\nColour of the Vechicle: "+color);

}

}

class Truck extends Vechicle{

String name;

String number;

String color;

Truck(String name, String number, String color)

{

super(name, number, color);

}

public void VarietyOfTrucks()

{

System.out.println("Sand\_Load");

System.out.println("Grains\_Load");

System.out.println("Vechiles\_Load");

System.out.println("Stone\_Load");

System.out.println("Parcel\_Services");

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

}

}

class Bus extends Vechicle{

String name,number,color;

Bus(String name, String number, String color)

{

super(name,number,color);

}

public void LocationToTravel()

{

System.out.println("Salem To Hyderbad" +" "+ " Hyderbad to Salem");

System.out.println("Salem To Chennai" +" "+ " Chennai to Salem");

System.out.println("Chennai To Hyderbad" +" "+ " Hyderbad to Chennai");

System.out.println("Banglore To Chennai" +" "+ " Chennai to Banglore");

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

}

}

class Car extends Vechicle{

String name,number,color;

Car(String name,String number,String color)

{

super(name,number,color);

}

public void varietyOfSeaters()

{

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

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

System.out.println("5 Seaters");

System.out.println("7 Seaters");

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

}

}

class Bike extends Vechicle{

Bike(String name, String number, String color) {

super(name, number, color);

}

public void varientOfBikes()

{

System.out.println("v2");

System.out.println("v3");

System.out.println("v4");

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

}

}

public class Road {

public static void main(String[] args) {

Truck obj=new Truck("Saro","TN54A5543","Red");

obj.VarietyOfTrucks();

Bus obj1=new Bus("JTS","TN54A2345","Merron");

System.out.print(obj1.color);

obj1.LocationToTravel();

Car obj2=new Car("NANO","TN54Q8473","Black");

obj2.varietyOfSeaters();

Bike obj3=new Bike("R15","TN54U8473","Silver");

obj3.varientOfBikes();

}

}

Output:

Name of the Vechicle:Saro

Number of the Vechicle: TN54A5543

Colour of the Vechicle: Red

Sand\_Load

Grains\_Load

Vechiles\_Load

Stone\_Load

Parcel\_Services

==========================================================================

Name of the Vechicle:JTS

Number of the Vechicle: TN54A2345

Colour of the Vechicle: Merron

Salem To Hyderbad Hyderbad to Salem

Salem To Chennai Chennai to Salem

Chennai To Hyderbad Hyderbad to Chennai

Banglore To Chennai Chennai to Banglore

==========================================================================

Name of the Vechicle:NANO

Number of the Vechicle: TN54Q8473

Colour of the Vechicle: Black

2 Seaters

4 Seaters

5 Seaters

7 Seaters

==========================================================================

Name of the Vechicle:R15

Number of the Vechicle: TN54U8473

Colour of the Vechicle: Silver

v2

v3

v4

==========================================================================

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