**class** Circle **extends** Shape{

**private** **int** radius;

**public** Circle(String name,**int** radius)

{

**super**(name);

**this**.name = name;

**this**.radius=radius;

}

**public** **int** getRadius() {

**return** radius;

}

**public** **void** setRadius(**int** radius) {

**this**.radius = radius;

}

**public** **float** calculateArea()

{

**float** area = (**float**)(3.14 \* radius\*radius);

**return** area;

}

}

import java.io.BufferedReader;

import java.io.IOException;

import java.io.InputStreamReader;

import java.text.DecimalFormat;

class Main {

public static void main(String[] args)throws IOException {

// TODO Auto-generated method stub

System.out.println("Circle");

System.out.println("Square");

System.out.println("Rectangle");

System.out.println("Enter the shape name");

BufferedReader br = new BufferedReader(new InputStreamReader(System.in));

String name =br.readLine();

DecimalFormat df = new DecimalFormat("0.00");

switch(name)

{

case "Circle" :System.out.println("Enter the radius");

int radius = Integer.parseInt(br.readLine());

Circle c = new Circle(name,radius);

System.out.println("Area of Circle is "+ df.format(c.calculateArea()));

break;

case "Square" :System.out.println("Enter the side");

Integer side = Integer.parseInt(br.readLine());

Square s =new Square(name,side);

System.out.println("Area of Square is "+df.format(s.calculateArea()));

break;

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

Integer length = Integer.parseInt(br.readLine());

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

Integer breadth = Integer.parseInt(br.readLine());

Rectangle r = new Rectangle(name,length,breadth);

System.out.println("Area of Rectangle is "+df.format(r.calculateArea()));

break;

default : System.exit(0);

}

}

}

**class** Rectangle **extends** Shape{

**private** Integer length;

**private** Integer breadth;

**public** Integer getLength() {

**return** length;

}

**public** **void** setLength(Integer length) {

**this**.length = length;

}

**public** Integer getBreadth() {

**return** breadth;

}

**public** **void** setBreadth(Integer breadth) {

**this**.breadth = breadth;

}

Rectangle(String name,Integer length,Integer breadth)

{

**super**(name);

**this**.name =name;

**this**.length = length;

**this**.breadth = breadth;

}

**public** **float** calculateArea()

{

**float** area = (**float**)(length\*breadth);

**return** area;

}

}

**abstract** **class** Shape {

**protected** String name;

**public** Shape(String name)

{

**this**.name = name;

}

**public** String getName() {

**return** name;

}

**public** **void** setName(String name) {

**this**.name = name;

}

**abstract** **float** calculateArea();

}

**class** Square **extends** Shape{

**private** Integer side;

**public** Integer getSide() {

**return** side;

}

**public** **void** setSide(Integer side) {

**this**.side = side;

}

**public** Square(String name,Integer side)

{

**super**(name);

**this**.name=name;

**this**.side=side;

}

**public** **float** calculateArea()

{

**float** area=(**float**)(side\*side);

**return** area;

}

}

**abstract** **class** Card {

**protected** String holderName;

**protected** String cardNumber;

**protected** String expiryDate;

**public** String getHolderName() {

**return** holderName;

}

**public** **void** setHolderName(String holderName) {

**this**.holderName = holderName;

}

**public** String getCardNumber() {

**return** cardNumber;

}

**public** **void** setCardNumber(String cardNumber) {

**this**.cardNumber = cardNumber;

}

**public** String getExpiryDate() {

**return** expiryDate;

}

**public** **void** setExpiryDate(String expiryDate) {

**this**.expiryDate = expiryDate;

}

**public** Card(String holderName, String cardNumber, String expiryDate) {

**super**();

**this**.holderName = holderName;

**this**.cardNumber = cardNumber;

**this**.expiryDate = expiryDate;

}

}

**import** java.util.Scanner;

**class** Main {

**private** **static** Scanner *ip*;

**public** **static** **void** main(String[] args) {

// **TODO** Auto-generated method stub

*ip*= **new** Scanner(System.***in***);

System.***out***.println("Select the Card");

System.***out***.println("1.Payback Card\n2.Membership Card");

**int** card\_num = *ip*.nextInt();

*ip*.nextLine();

System.***out***.println("Enter the card Details");

String c\_name =*ip*.next();

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

**int** c\_num = *ip*.nextInt();System.***out***.print("|");

**if**(card\_num ==1)

{

System.***out***.println("Enter points in card");

**int** points = *ip*.nextInt();

*ip*.nextLine();

System.***out***.println("Enter Amount");

**int** amount = *ip*.nextInt();

System.***out***.println(c\_name+" Payback Card Details:");

System.***out***.println("Card Number "+c\_num);

System.***out***.println("Points Earned "+points);

System.***out***.println("Total Amount "+amount);

}

**else** **if**(card\_num == 2)

{

System.***out***.println("Enter rating in card");

**int** rate = *ip*.nextInt();

System.***out***.println(c\_name+" Membership Card Details:");

System.***out***.println("Card Number "+c\_num);

System.***out***.println("Rating "+rate);

}

}

}

**class** MembershipCard **extends** Card{

**private** Integer rating;

**public** Integer getRating() {

**return** rating;

}

**public** **void** setRating(Integer rating) {

**this**.rating = rating;

}

**public** MembershipCard(String holderName, String cardNumber, String expiryDate,Integer rating) {

**super**(holderName,cardNumber,expiryDate);

**this**.rating = rating;

}

}

**class** PaybackCard **extends** Card {

**private** Integer pointsEarned;

**private** Double totalAmount;

**public** Integer getPointsEarned() {

**return** pointsEarned;

}

**public** **void** setPointsEarned(Integer pointsEarned) {

**this**.pointsEarned = pointsEarned;

}

**public** Double getTotalAmount() {

**return** totalAmount;

}

**public** **void** setTotalAmount(Double totalAmount) {

**this**.totalAmount = totalAmount;

}

**public** PaybackCard(String holderName, String cardNumber, String expiryDate,Integer pointsEarned, Double totalAmount) {

**super**(holderName,cardNumber,expiryDate);

**this**.pointsEarned = pointsEarned;

**this**.totalAmount = totalAmount;

}

}