TERMWORK 6.A

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6.2) Implement the following inheritance hierarchy.

Shape (Abstract class)

area,perimeter: float

type: String

abstract computeArea()

abstract computePerimeter()

Rectangle

(Concrete class)

length, width: float

Circle

(Concrete class)

radius: float

Triangle

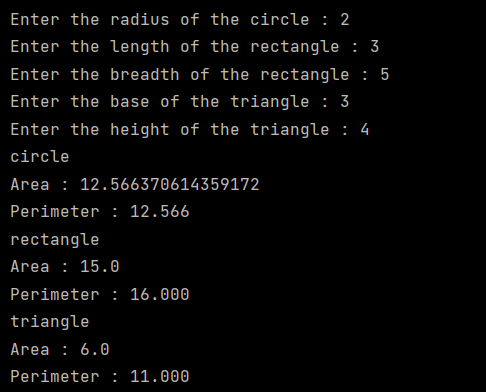
(Concrete class)

base, height: float

CODE:

*package* practice;  
  
*import* java.util.Scanner;  
  
*abstract class* Shape {  
 *double* area, perimeter;  
 String type;  
  
 *public abstract void* computeArea();  
  
 *public abstract void* computePerimeter();  
  
 *public void* display() {  
 System.out.println(type);  
 System.out.println("Area : " + area);  
 System.out.printf("Perimeter : %.3f\n", perimeter);  
 }  
}  
  
*class* SixCircle *extends* Shape {  
 *double* radius;  
  
 *public* SixCircle() {  
 Scanner sc = *new* Scanner(System.in);  
 System.out.print("Enter the radius of the circle : ");  
 radius = sc.nextDouble();  
 *super*.type = "circle";  
 }  
  
 *public void* computeArea() {  
 area = Math.PI \* radius \* radius;  
 }  
  
 *public void* computePerimeter() {  
 perimeter = 2 \* Math.PI \* radius;  
 }  
}  
  
*class* SixRectangle *extends* Shape {  
 *double* length, breadth;  
  
 *public* SixRectangle() {  
 Scanner sc = *new* Scanner(System.in);  
 System.out.print("Enter the length of the rectangle : ");  
 length = sc.nextDouble();  
 System.out.print("Enter the breadth of the rectangle : ");  
 breadth = sc.nextDouble();  
 *super*.type = "rectangle";  
 }  
  
 *public void* computeArea() {  
 area = length \* breadth;  
 }  
  
 *public void* computePerimeter() {  
 perimeter = 2 \* (length + breadth);  
 }  
}  
  
*class* SixTriangle *extends* Shape {  
 *double* base, height;  
  
 *public* SixTriangle() {  
 Scanner sc = *new* Scanner(System.in);  
 System.out.print("Enter the base of the triangle : ");  
 base = sc.nextDouble();  
 System.out.print("Enter the height of the triangle : ");  
 height = sc.nextDouble();  
 *super*.type = "triangle";  
 }  
  
 *public void* computeArea() {  
 area = 0.5 \* base \* height;  
 }  
  
 *public void* computePerimeter() {  
 perimeter = 2 \* height + base;  
 }  
}  
  
*public class* Six {  
 *public static void* main(String[] args) {  
 Shape s;  
 SixCircle c = *new* SixCircle();  
 SixRectangle r = *new* SixRectangle();  
 SixTriangle t = *new* SixTriangle();  
 s = c;  
 s.computeArea();  
 s.computePerimeter();  
 s.display();  
 System.out.println("");  
 s = r;  
 s.computeArea();  
 s.computePerimeter();  
 s.display();  
 System.out.println("");  
 s = t;  
 s.computeArea();  
 s.computePerimeter();  
 s.display();  
 }

OUTPUT :



TERMWORK 6.B

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**6.3)** Write a Java program that defines an abstract class called Account and accepts the following customer account information:  **1) Customer Name   
2) Account Number   
3) Balance**and provides below operations on customer account:   
 **1) Deposit   
2) Withdraw   
3) Display Balance   
4) Display full account details**

­There are two types of accounts – Savings and Current. The Current account has an overdraft facility limited to Rs. 75,000 per account. The following constraints hold on these accounts:

Savings Account:

1. The total number of deposits for a Savings account cannot exceed three per day.
2. The amount deposited into a savings account cannot exceed Rs.5000 in each transaction.
3. The maximum withdrawal amount is Rs.25,000 per transaction.
4. The minimum balance to be maintained is Rs. 10,000.

Current account:

1. The amount withdrawn cannot exceed the overdraft limit once the account balance is zero.
2. Maximum number of withdrawals is two.
3. No limit on the number of deposits.
4. Each deposit cannot exceed Rs. 25,000.

Test the program by creating objects of the Savings and Current Accounts.

*package* addtionaltermwork.termwork6;  
  
*import* java.util.Scanner;  
  
*abstract class* Account {  
 Scanner read = *new* Scanner(System.in);  
 *static int* accountnum = 100;  
 String customerName;  
 *double* balance;  
  
 Account() {  
 System.out.println("enter the name of the customer");  
 customerName = read.next();  
 accountnum++;  
 }  
 *void* banking() {  
 *int* choice;  
 *do* {  
 System.out.println("1.deposit 2.withdraw 3.displayBalance 4.full details");  
 choice = read.nextInt();  
 *switch* (choice) {  
 *case* 1 -> deposit();  
 *case* 2 -> withdraw();  
 *case* 3 -> displayBal();  
 *case* 4 -> fullaccountdetails();  
 }  
 } *while* (choice != 5);  
 }  
  
 *abstract void* deposit();  
 *abstract void* withdraw();  
 *abstract void* displayBal();  
 *abstract void* fullaccountdetails();  
}  
  
*class* savingAccount *extends* Account {  
 *static int* depositNumber = 0;  
 *int* depo;  
 *int* wido;  
 savingAccount() {  
 *super*();  
 System.out.println("initial balance is 10000 ");  
 System.out.println("initial balance is 10000 ");  
 balance = 10000;  
 }  
 *void* deposit() {  
 System.out.println("enter the amount to deposit");  
 depo = read.nextInt();  
 *if* (depo < 5000 && depositNumber <= 3) {  
 *super*.balance = *super*.balance + depo;  
 depositNumber++;  
 } *else* System.out.println("error deposit less than 5000");  
 }  
 *void* withdraw() {  
 System.out.println("enter the amount to withdraw");  
 wido = read.nextInt();  
 *if* (wido < balance && (balance - wido > 10000) && wido < 25000) {  
 *super*.balance = *super*.balance - depo;  
 } *else* System.out.println("error withdrawing");  
 }  
 *void* displayBal() {  
 System.out.println(balance);  
 }  
  
 *void* fullaccountdetails() {  
 System.out.println("the name of the customer is " + customerName);  
 System.out.println("the acccout number of the customer is " + accountnum);  
 System.out.println("the balance of the customer is " + balance);  
 System.out.println("the account type is Saving ");  
 }  
}  
*class* currentAccount *extends* Account {  
 *static int* withdrawnum = 0;  
 *int* depo;  
 *int* wido;  
 currentAccount() {  
 *super*();  
 balance = 25000;  
 System.out.println("initial balance is 25000 ");  
 }  
 *void* deposit() {  
 System.out.println("enter the amount to deposit");  
 depo = read.nextInt();  
 *if* (depo < 5000) {  
 *super*.balance = *super*.balance + depo;  
 } *else* System.out.println("error deposit less than 5000");  
 }  
 *void* withdraw() {  
 System.out.println("enter the amount to withdraw");  
 wido = read.nextInt();  
 *if* ((balance - wido > -75000) && withdrawnum <= 2) {  
 *super*.balance = *super*.balance - wido;  
 withdrawnum++;  
 } *else* System.out.println("error withdrawing money come after 24hr or check balance");  
 }  
 *void* displayBal() {  
 System.out.println(balance);  
 }  
 *void* fullaccountdetails() {  
 System.out.println("the name of the customer is " + customerName);  
 System.out.println("the acccout number of the customer is " + accountnum);  
 System.out.println("the balance of the customer is " + balance);  
 System.out.println("the account type is Current ");  
 }  
}  
*public class* termwork6d {  
 *public static void* main(String[] args) {  
 currentAccount parishkar = *new* currentAccount();  
 parishkar.banking();  
 savingAccount customer=*new* savingAccount();;  
 customer.banking();  
 }  
}

