Week 8 lab programs

/\*Develop a Java program to create an abstract class named Shape that contains two integers and

an empty method named printArea( ). Provide three classes named Rectangle, Triangle and

Circle such that each one of the classes extends the class Shape. Each one of the classes contain

only the method printArea( ) that prints the area of the given shape.\*/

import java.util.\*;

abstract class shape

{

int a,b;

abstract void printArea();

}

class rectangle extends shape

{

float area\_rec;

void printArea()

{

area\_rec=a\*b;

System.out.println("area of rectangle = "+area\_rec);

}

}

class triangle extends shape

{

float area\_tri;

void printArea()

{

area\_tri=0.5f\*a\*b;

System.out.println("area of triangle = "+area\_tri);

}

}

class circle extends shape

{

float area\_cir;

void printArea()

{

area\_cir=3.14f\*a\*a;

System.out.println("area of circle = "+area\_cir);

}

}

class area\_shapes

{

public static void main(String args[])

{

Scanner sc=new Scanner(System.in);

rectangle a1=new rectangle();

System.out.println("enter length and breath of rectangle");

a1.a=sc.nextInt();

a1.b=sc.nextInt();

a1.printArea();

triangle a2=new triangle();

System.out.println("enter base and height of triangle");

a2.a=sc.nextInt();

a2.b=sc.nextInt();

a2.printArea();

circle a3=new circle();

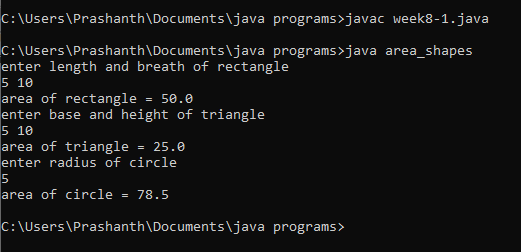
System.out.println("enter radius of circle");

a3.a=sc.nextInt();

a3.printArea();

}

}



/\*Develop a Java program to create a class Bank that maintains two kinds of account for its

customers, one called savings account and the other current account. The savings account

provides compound interest and withdrawal facilities but no cheque book facility. The current

account provides cheque book facility but no interest. Current account holders should also

maintain a minimum balance and if the balance falls below this level, a service charge is

imposed. Create a class Account that stores customer name, account number and type of

account. From this derive the classes Curr-acct and Sav-acct to make them more specific to

their requirements. Include the necessary methods in order to achieve the following tasks: •

Accept deposit from customer and update the balance. • Display the balance. • Compute and

deposit interest • Permit withdrawal and update the balance • Check for the minimum balance,

impose penalty if necessary and update the balance\*/

import java.util.\*;

class account

{

String cust\_name;

long acc\_no;

double balance;

int type\_acc;

void input()

{

Scanner sc=new Scanner(System.in);

System.out.println("-----enter account details-----");

System.out.println("enter customer name ");

cust\_name=sc.nextLine();

System.out.println("enter customer account number");

acc\_no=sc.nextLong();

System.out.println("enter customer's account type 1.savings account 2.current account");

type\_acc=sc.nextInt();

System.out.println("enter customer's balance amount in account");

balance=sc.nextDouble();

}

void display()

{

System.out.println("-----customer's account details-----");

System.out.println("customer name\t"+cust\_name);

System.out.println("customer account number\t"+acc\_no);

System.out.println("customer's account type\t"+type\_acc);

System.out.println("customer's balance amount in account\t"+balance);

}

void deposit()

{

Scanner sc=new Scanner(System.in);

double amt;

System.out.println("enter amount to be deposited ");

amt=sc.nextDouble();

balance=balance+amt;

System.out.println("customer's balance amount in account\t"+balance);

}

}

class Sav\_acct extends account

{

double interest;

void compute\_interest()

{

Scanner sc=new Scanner(System.in);

int rate,time;

System.out.println("enter rate and time period ");

rate=sc.nextInt();

time=sc.nextInt();

interest=balance\*Math.pow(1+rate/100.0,time)-balance;

System.out.println("compound interest = "+interest);

balance=balance+interest;

System.out.println("customer's balance amount in account\t"+balance);

}

void withdrawal()

{

Scanner sc=new Scanner(System.in);

double with;

System.out.println("enter amount to be withdrawn");

with=sc.nextDouble();

if(with>balance)

System.out.println("withdrawal not possible due to insufficiant balance");

else

{

balance=balance-with;

System.out.println("customer's balance amount in account\t"+balance);

}

}

void check()

{

double penalty;

if(balance<2000.0)

{

penalty=200.0;

balance=balance - penalty;

System.out.println("balance amount lesser than minimum balance");

System.out.println("penalty of Rs.200");

System.out.println("customer's balance amount in account\t"+balance);

}

}

}

class Curr\_acct extends account

{

void withdrawal()

{

Scanner sc=new Scanner(System.in);

double with;

System.out.println("enter amount to be withdrawn");

with=sc.nextDouble();

if(with>balance)

System.out.println("withdrawal not possible due to insufficiant balance");

else

{

balance=balance-with;

System.out.println("customer's balance amount in account\t"+balance);

}

}

void check()

{

double penalty;

if(balance<2000.0)

{

penalty=200.0;

balance=balance - penalty;

System.out.println("balance amount lesser than minimum balance");

System.out.println("penalty of Rs.200");

System.out.println("customer's balance amount in account\t"+balance);

}

else

System.out.println(" balance amount greater than minimum balance \n no penalty");

}

}

class bank

{

public static void main(String args[])

{

Sav\_acct o1=new Sav\_acct();

Curr\_acct o2=new Curr\_acct();

Scanner sc=new Scanner(System.in);

System.out.println("enter customer's account type 1.savings account 2.current account");

int ch=sc.nextInt();

int n=0;

if(ch==1)

{

o1.input();

o1.display();

while(n!=3)

{

System.out.println("enter 1.deposit 2.withdrawal 3.exit");

n=sc.nextInt();

if(n==1)

o1.deposit();

if(n==2)

o1.withdrawal();

}

o1.compute\_interest();

o1.check();

}

else if(ch==2)

{

o2.input();

o2.display();

while(n!=3)

{

System.out.println("enter 1.deposit 2.withdrawal 3.exit");

n=sc.nextInt();

if(n==1)

o2.deposit();

if(n==2)

o2.withdrawal();

}

o2.check();

}

}

}

