

WEEK 8

LP#4:

Develop a java program to create an abstract class named Shape that contains 2 integers and an empty method named PrintArea(). Provide 3 classes named Rectangle, Triangle, and Circle such that each one of these classes extends the class Shape. Each one of the classes contain only the method printArea() that prints the area of the given shape.

```
abstract class Shape {
```

```
    int dim1;
```

```
    int dim2;
```

```
    Shape(int a, int b)
```

```
    {
```

```
        dim1 = a;
```

```
        dim2 = b;
```

```
    }
```

```
    Shape(int a)
```

```
    { dim1 = a; }
```

```
    abstract double PrintArea();
```

```
}
```

```
class Rectangle extends Shape {
```

```
    Rectangle(int a, int b)
```

```
    { super(a, b); }
```

```
    double PrintArea() {
```

```
        System.out.println("Inside area of Rectangle : ");
```

```
        return dim1 * dim2;
```


}

}

```
class Triangle extends Shape {
```

```
    Triangle (int a, int b) { super (a, b); }
```

```
    double PrintArea () {
```

```
        System.out.println ("Inside area of triangle : ");
```

```
        return dim1 * dim2 / 2;
```

```
    }
```

```
}
```

```
class Circle extends Shape {
```

```
    Circle (int a) { super (a); }
```

```
    double PrintArea () {
```

```
        System.out.println ("Inside area of circle : ");
```

```
        return 3.14 * dim1 * dim1;
```

```
    }
```

```
}
```

```
class Main {
```

```
    public static void main (String ss[]) {
```

```
        Rectangle r = new Rectangle (9, 5);
```

```
        Triangle t = new Triangle (10, 8);
```

```
        Circle c = new Circle (5);
```

```
        System.out.println ("area of rectangle is " + r.PrintArea());
```

```
        System.out.println ("area of triangle is " + t.PrintArea());
```

```
        System.out.println ("area of circle is " + c.PrintArea());
```

```
    }
```

```
}
```


LP #5: Develop a program to create a class Bank that maintains 2 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 facilities. The current account provides cheque book facility but no interest. Current account holders should also maintain a minimum of balance and if the balance falls below this level, a service charge is imposed.

Create a class Account that stores customer name, account number & type of account. From this derive the classes Cur-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 & update the balance.

• Display the balance • Compute and deposit interest • Permit withdrawal and update the balance • Check for minimum balance, impose penalty if necessary and update the balance

```
import java.util.Scanner
```

```
class Account {
```

```
    String name, type;
```

```
    int accno;
```

```
    float bal = 0; float pen = 100;
```

```
    Account () {
```

```
        Scanner ss = new Scanner(System.in);
```



```
System.out.println("Enter name, account type number and type  
of account:");
```

```
name = ss.next();
```

```
accno = ss.nextInt();
```

```
type = ss.next();
```

```
}
```

```
}
```

```
class cur_acc extends Account {
```

```
float dep, wit;
```

```
void deposit() {
```

```
Scanner ss = new Scanner(System.in);
```

```
System.out.println("Enter amount to be deposited:");
```

```
dep = ss.nextInt();
```

```
bal = bal + dep;
```

```
System.out.println("updated balance after deposit: " + bal);
```

```
}
```

```
void withdraw() {
```

```
Scanner ss = new Scanner(System.in);
```

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

```
wit = ss.nextInt();
```

```
bal = bal - wit;
```

```
System.out.println("Updated balance after withdrawal: " + bal);
```


}

```
void penalty() {
```

```
if (bal < 500)
```

```
{
```

```
    bal = bal - pen;
```

```
    System.out.println("Updated balance after imposing penalty : "+bal);
```

```
}
```

```
else
```

```
    System.out.println("No penalty imposed, balance : "+bal);
```

```
}
```

```
}
```

```
class sav_acc extends Account {
```

```
    float dep, wit, r, t, n, ci;
```

```
    void deposit() {
```

```
        Scanner ss = new Scanner(System.in);
```

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

```
        dep = ss.nextFloat();
```

```
        System.out.println("enter rate %, time in years and number  
of times interest is compounded per year : ");
```

```
        r = ss.nextFloat();
```

```
        t = ss.nextInt();
```

```
        n = ss.nextInt();
```



```

ci = dep * ((float) Math.pow ((1 + (r/100 + n))), (n + t)));
bal = bal + ci;
System.out.println ("Updated balance after computing ci: " + bal);
}

```

```

void withdraw (C) {
    Scanner ss = new Scanner (System.in);
    System.out.println ("enter amount to be withdrawn: ");
    wit = ss.nextInt();
    bal = bal - wit;
    System.out.println ("Updated balance after withdrawal: " + bal);
}
}

```

```

class Bank {
    public static void main (String sss []) {
        Scanner ss = new Scanner (System.in);
        int opt; int ch;
        System.out.println ("choose type of account: ");
        System.out.println ("1. savings account\n2. current account\n");
        opt = ss.nextInt();
        if (opt == 1) {
            System.out.println ("****SAVINGS ACCOUNT****");
            System.out.println ("_____ no chequebook facilities available_____");
            sav_accs = new sav_accs();

```



```
System.out.println("1. deposit with compound interest\n2. with-  
draw\n3. exit\n");
```

```
do
```

```
{
```

```
System.out.println("enter choice");
```

```
ch = ss.nextInt();
```

```
switch (ch)
```

```
{
```

```
case 1 : s.depositC(); break
```

```
case 2 : s.withdrawC(); break;
```

```
case 3: break;
```

```
}
```

```
} while (ch != 3);
```

```
}
```

```
if (opt == 2) {
```

```
System.out.println("**** CURRENT ACCOUNT ****");
```

```
System.out.println("_____chequebook services available _____");
```

```
curr_acct c = new curr_acct();
```

```
System.out.println("1. deposit\n2. withdraw\n3. check minim-  
um balance / penalty\n4. exit\n");
```

```
do
```

```
{
```

```
System.out.println("enter choice");
```

```
ch = ss.nextInt();
```

```
switch (ch)
```

```
{
```

```
case 1 : c-deposit(); break;
```

```
case 2 : c-withdraw(); break;
```

```
case 3 : c-penalty(); break;
```

```
}
```

```
{ while ch != 4;
```

```
{
```

```
}
```

```
}
```