Assignment:7/6/2021

Question 1: Area of different shapes using overloaded functions

```
import java.util.Scanner;
public class Area
{
public static void main(String args[])
{
int n;
Scanner sc=new Scanner (System.in);
System.out.println("Shapes:Area Menu");
System.out.println("1.Circle ");
System.out.println("2.Square");
System.out.println("3.Cone");
System.out.println("4.Rectangle");
System.out.println("5.Sphere");
System.out.println("6.Cylinder");
System.out.println("Enter Your Choice");
n=sc.nextInt();
switch(n)
{
 case 1:
System.out.println("Enter the radius of circle");
double r=sc.nextDouble();
double  ac=3.14*r*r;
```

```
System.out.println("the area of the circle is:"+ac);
break;
case 2:
System.out.println("Enter The length of side of the square");
double side=sc.nextDouble();
double asq=side*side;
System.out.println("The area of the Square is:"+asq);
break;
case 3:
System.out.println("Enter The radius of cone ");
double ra=sc.nextDouble();
System.out.println("Enter The length of cone ");
double l=sc.nextDouble();
double aco=3.14*ra*l;
System.out.println("The area of the cone is:"+aco);
break;
case 4:
System.out.println("Enter The length of side of rectangle");
double le=sc.nextDouble();
System.out.println("Enter The width of side of rectangle");
double w=sc.nextDouble();
double  arec=le*w;
System.out.println("The area of the rectangle is:"+arec);
break;
```

```
case 5:
System.out.println("Enter the radius of sphere");
double radi=sc.nextDouble();
double  asp=4*3.14*radi*radi;
System.out.println("the area of the sphere is:"+asp);
break;
case 6:
System.out.println("Enter the radius of cylinder");
double rad=sc.nextDouble();
System.out.println("Enter the height of cylinder");
double h=sc.nextDouble();
double acy=((2*22*rad)/7)*(rad+h);
System.out.println("The area of the cylinder:"+acy);
break;


}
}
}
```

Output:

Question 2: Create a class 'Employee' with data members Empid, Name, Salary, Address and constructors to initialize the data members. Create another class 'Teacher' that inherit the properties of class employee and contain its own data members department, Subjects taught and constructors to initialize these data members and also include display function to display all the data members. Use array of objects to display details of N teachers.

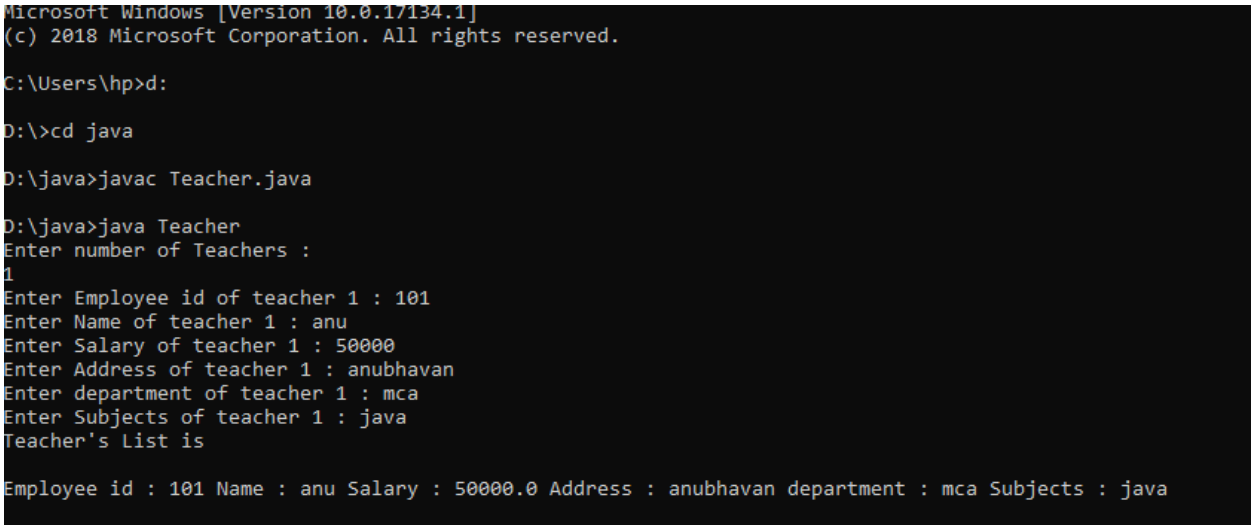
Code:

```
import java.util.*;
 class Employee {
 int empid;
 String name,address;
  double salary;
 public Employee(int empid, String name, String address, double salary) {
  this.empid = empid;
  this.name = name;
  this.address = address;
  this.salary = salary;
 }
}


public class Teacher extends Employee
{
String subject,department;


public Teacher(int empid, String name, String address, double salary,String
department,String subject ) {
```

```
 super(empid, name, address, salary);
 this.subject = subject;
 this.department = department;
}

void display()
{
   System.out.println("Employee id : "+this.empid+" Name : "+this.name+" Salary : "+this.salary+" Address : "+this.address+" department : "+this.department+" Subjects : "+this.subject);


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

 Scanner sc=new Scanner(System.in);
 int n;
 System.out.println("Enter number of Teachers : ");
 n=sc.nextInt();
 Teacher obj[]=new Teacher[n];
  for(int i=0;i<n;i++) {
        int j = i+1;
        System.out.print("Enter Employee id of teacher "+j+" : ");
        int Empid = sc.nextInt();
        System.out.print("Enter Name of teacher "+j+" : ");
```

```
        String Name = sc.next();
        System.out.print("Enter Salary of teacher "+j+" : ");
        double Salary = sc.nextDouble();
        System.out.print("Enter Address of teacher "+j+" : ");
        String Address = sc.next();
        System.out.print("Enter department of teacher "+j+" : ");
        String department =sc.next();
        System.out.print("Enter Subjects of teacher "+j+" : ");
        String Subjects =sc.next();

       obj[i] = new Teacher(Empid, Name, Address, Salary, department, Subjects);
  }

    System.out.println("Teacher's List is \n");


    for(int i=0;i<n;i++) {
       obj[i].display();
    }


}

}
```

Output:



Question 3: Create a class 'Person' with data members Name, Gender, Address, Age and a constructor to initialize the data members and another class 'Employee' that inherits the properties of class Person and also contains its own data members like Empid, Company_name, Qualification, Salary and its own constructor. Create another class 'Teacher' that inherits the properties of class Employee and contains its own data members like Subject, Department, Teacherid and also contain constructors and methods to display the data members. Use array of objects to display details of N teachers.

Code:

```
import java.util.Scanner;

class Person

{

 String name,gender,address;

 int age;

 public Person(String name, String gender, String address, int age) {
```

```
  super();
  this.name = name;
  this.gender = gender;
  this.address = address;
  this.age = age;
 }
}
class Employee extends Person {
 int empid;
 String company_name,qualification;
  double salary;
 public Employee(String name, String gender, String address, int age, int empid,
String company_name,
   String qualification, double salary) {
  super(name, gender, address, age);
  this.empid = empid;
  this.company_name = company_name;
  this.qualification = qualification;
  this.salary = salary;
 }

}

 class Teacher extends Employee
{
```

```
String subject,department;
int teacherid;
public Teacher(String name, String gender, String address, int age, int empid, String company_name,
  String qualification, double salary, String subject, String department, int teacherid) {
 super(name, gender, address, age, empid, company_name, qualification, salary);
 this.subject = subject;
 this.department = department;
 this.teacherid = teacherid;
}

void display()
{
 System.out.println("Personal details are");
    System.out.println(" Name : "+this.name+" Gender : "+this.gender+" Age :"+this.age);
 System.out.println("Employee details are");
 System.out.println("Empid : "+this.empid +" company_name : "+this.company_name+" Salary : "+this.salary+" Address : "+this.address+" qualification : "+this.qualification);
 System.out.println("Teacher's details are");
    System.out.println(" teacherid : "+this.teacherid+ " department : "+this.department+" Subjects : "+this.subject);
```

```
}



}

public class Main {

 public static void main(String[] args) {
  Scanner s=new Scanner(System.in);
  int n;
  System.out.println("Enter number of Teachers : ");
  n=s.nextInt();
  Teacher obj[]=new Teacher[n];
   for(int i=0;i<n;i++) {
    System.out.println("Enter the person name:");
    String nam1=s.next();
    System.out.println("Enter the Gender: ");
    String gen1=s.next();
    System.out.println("Enter the Address: ");
    String adr1=s.next();
    System.out.println("Enter the Age:");
    int age1=s.nextInt();
    System.out.println("Enter the Employee id: ");
    int id1=s.nextInt();
```

```
   System.out.println("Enter the Company name: ");
   String cname1=s.next();
   System.out.println("Enter the Salary:");
   double sal1=s.nextDouble();
   System.out.println("Enter the  Qualification:");
   String qu1=s.next();

   System.out.println("Enter the Teacher id: ");
   int tid1=s.nextInt();
   System.out.println("Enter the  Department:");
   String dept1=s.next();
   System.out.println("Enter the Subject:");
   String sub1=s.next();

   obj[i]=new
Teacher(nam1,gen1,adr1,age1,id1,cname1,qu1,sal1,sub1,dept1,tid1);
  }




    for(int i=0;i<n;i++) {
       obj[i].display();
    }
```

```
}
```

```
}
```

Output:

Question 4: Write a program has class Publisher, Book, Literature and Fiction. Read the information and print the details of books from either the category, using inheritance.

Code:

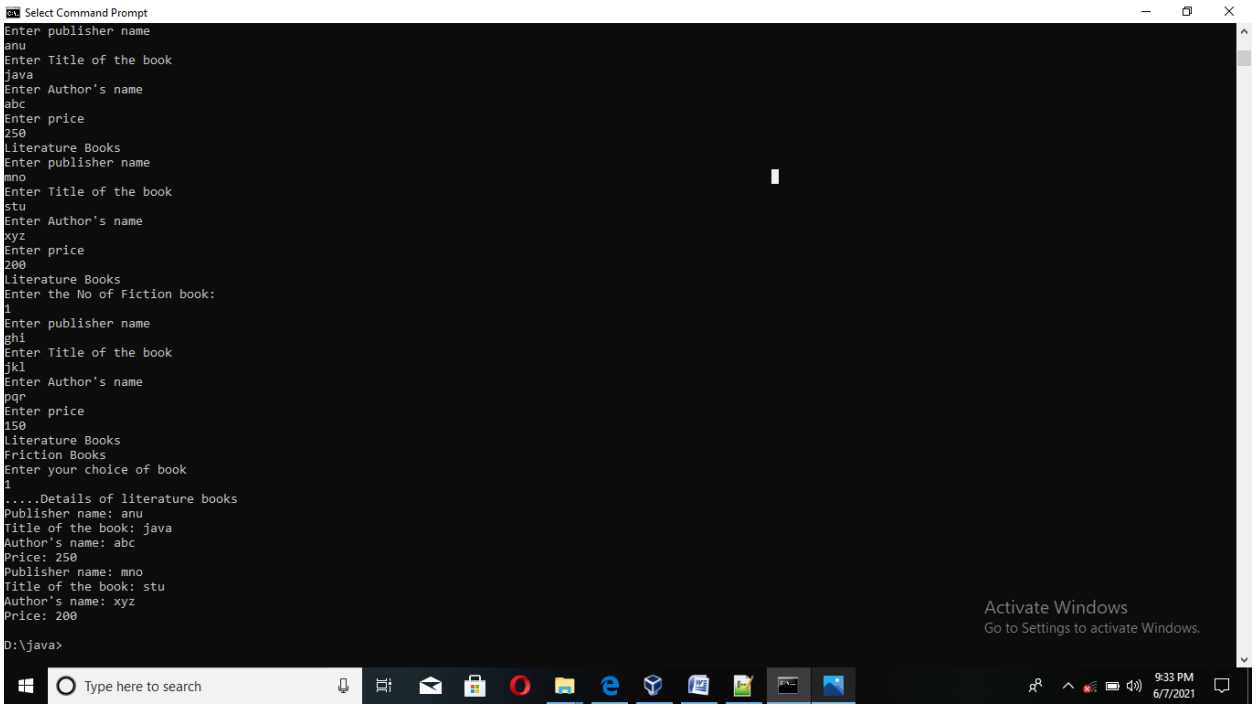
```
import java.util.Scanner;

 class Publisher {
 String Pubname;

Publisher()
{
 Scanner s=new Scanner(System.in);
 System.out.println("Enter publisher name");
 Pubname=s.next();
}
}
class Book extends Publisher
{
 String title, author;
 int price;

Book()
{
 Scanner s=new Scanner(System.in);
 System.out.println("Enter Title of the book");
 title=s.next();
 System.out.println("Enter Author's name");
 author=s.next();
```

```
  System.out.println("Enter price");
  price=s.nextInt();
 }
 }
class Literature extends Book
{
Literature()
{
  System.out.println("Literature Books");
}
 void display()
 {
  System.out.println("Publisher name: "+Pubname);
  System.out.println("Title of the book: "+title);
  System.out.println("Author's name: "+author);
  System.out.println("Price: "+price);
 }

}
 class Fiction extends Literature
 {
 Fiction()
 {
  System.out.println("Friction Books");
```

```
}
void display()
{
  super.display();
}

public static void main(String args[])
{
 int n;
 Scanner s=new Scanner(System.in);

 System.out.println("Enter the No of literature book: ");
 int a=s.nextInt();
 Literature L[]=new Literature[a];
 for(int i=0;i<a;i++)
 {
  L[i]=new Literature();
 }

 System.out.println("Enter the No of Fiction book: ");
 int b=s.nextInt();
 Fiction F[]=new Fiction[b];
 for(int i=0;i<b;i++)
 {
```

```
 F[i]=new Fiction();
 }
 int no;
 System.out.println("Enter your choice of book");
 no=s.nextInt();
 int type =no;
 switch (no)
 {
 case 1:
  System.out.println(".....Details of literature books");
  for(int i=0;i<a;i++)
  L[i].display();
  break;
 case 2:
  System.out.println(".....Details of fiction books");
  for(int i=0;i<b;i++)
  F[i].display();
  break;
 default:
  System.out.println("Wrong input");
 }
}
}
```

Output: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Enter Title of the book
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abc
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250
Literature Books
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Literature Books
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1
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Author's name: abc
Price: 250
Publisher name: mno
Title of the book: stu
Author's name: xyz
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