EXPERIMENT NUMBER: 8

AIM

Area of different shapes using overloaded functions.

ALGORITHM

PROGRAM CODE

```
import java.util.*;
class Area
{
int a,b;
double r,area;
void calculateArea(int a)
{
area=a*a;
System.out.println("Area of Square= "+area+" sq.cm");
}
void calculateArea(int a,int b)
{
area= a*b;
System.out.println("Area of Rectangle= "+area+" sq.cm");
}
void calculateArea(double r)
{
area=3.14d*r*r;
System.out.println("Area of circle= "+area+" sq.cm");
}
}
class AreaMain
{
public static void main(String args[])
{
int a,b,ch;
double r;
```

```
Scanner sc= new Scanner(System.in);
System.out.println("AREA-METHOD OVERLOADING");
System.out.println("_____");
Area ar=new Area();
System.out.println("Enter your choice->\n1.Square\n2.Rectangle\n3.Circle\n4.Exit");
while (true)
{
System.out.println("Enter Here.....");
ch=sc.nextInt();
switch(ch)
{
case 1:System.out.println("Read the side of square");
a=sc.nextInt();
ar.calculateArea(a);
break;
case 2:System.out.println("Read the sides of rectangle");
a=sc.nextInt();
b=sc.nextInt();
ar.calculateArea(a,b);
break;
case 3:System.out.println("Read the radius of circle");
r=sc.nextDouble();
ar.calculateArea(r);
break;
case 4:return;
default:System.out.println("Invalid choice!!!!!!!!!!!!!");
}
} } }
```

OUTPUT

```
developer@ccfl6-pc24:~/24mcas2/oops$ javac AreaMain.java
developer@ccfl6-pc24:~/24mcas2/oops$ java AreaMain
AREA-METHOD OVERLOADING
_____________________
Enter your choice->
1.Square
2.Rectangle
3.Circle
4.Exit
Enter Here.....
1
Read the side of square
2
Area of Square= 4.0 sq.cm
Enter Here.....
2
Read the sides of rectangle
23
21
Area of Rectangle= 483.0 sq.cm
Enter Here.....
3
Read the radius of circle
1
Area of circle= 3.14 sq.cm
Enter Here.....
4
developer@ccfl6-pc24:~/24mcas2/oops$
```

EXPERIMENT NUMBER: 9

AIM

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 contain constructors and methods to display the data members. Use array of objects to display details of N teachers.

ALGORITHM

PROGRAM CODE

```
import java.util.*;
class Person
{
String name,gender,address;
int age;
Person(String name,String gender,String address,int age)
{
this.name=name;
this.gender=gender;
this.address=address;
this.age=age;
}
void display()
{
System.out.println("-->Name: "+name);
System.out.println("-->Gender: "+gender);
System.out.println("-->Address: "+address);
System.out.println("-->Age: "+age);

}
}
class Employee extends Person
{
String qual,cname;
int empid,salary;
Employee(String name,String gender,String address,int age,int empid,int salary,String
cname,String qual)
```

```
{
super(name,gender,address,age);
this.empid=empid;
this.salary=salary;
this.cname=cname;
this.qual=qual;
}
void display()
{
super.display();
System.out.println("-->EmpID: "+empid);
System.out.println("-->Salary: "+salary);
System.out.println("-->Company Name: "+cname);
System.out.println("-->Qualification: "+qual);
}
}
class Teacher extends Employee
{
String sub,dept;
int tid;
Teacher(String name,String gender,String address,int age,int empid,int salary,String
cname,String qual,int tid,String sub,String dept)
{
super(name,gender,address,age,empid,salary,cname,qual);
this.tid=tid;
this.sub=sub;
this.dept=dept;
```

```
}
void display()
{
super.display();
System.out.println("-->Teacher ID: "+tid);
System.out.println("-->Subject: "+sub);
System.out.println("-->Department: "+dept+"\n\n");
}
}
class PerMain
{
public static void main(String args[])
{
int i,n,age,empid,salary,tid;
String name,gender,address,cname,qual,sub,dept;
Scanner sc=new Scanner(System.in);
System.out.println("Enter the no of Teachers");
n=sc.nextInt();
Teacher teacher[]=new Teacher[n];
for (i=0;i<n;i++)
{
System.out.println("\nRead Details");
System.out.print("Name: ");
name=sc.next();
System.out.print("Gender: ");
gender=sc.next();
System.out.print("Address: ");
address=sc.next();
```

```
System.out.print("Age: ");
age=sc.nextInt();
System.out.print("Empid: ");
empid=sc.nextInt();
System.out.print("Salary: ");
salary=sc.nextInt();
System.out.print("Company Name: ");
cname=sc.next();
System.out.print("Qualification: ");
qual=sc.next();
System.out.print("Teacher id: ");
tid=sc.nextInt();
System.out.print("Subject: ");
sub=sc.next();
System.out.print("Department: ");
dept=sc.next();
Teacher t=new Teacher(name,gender,address,age,empid,salary,cname,qual,tid,sub,dept);
teacher[i]=t;
}
System.out.println("\n- - - - - - \nTeachers Detailss\n_____\n");
for (i=0;i<n;i++)
{
teacher[i].display();
}
}
}
```

OUTPUT

```
developer@ccfl6-pc24:~/24mcas2/oops$ javac PerMain.java
developer@ccfl6-pc24:~/24mcas2/oops$ java PerMain
Enter the no of Teachers
3

Read Details
Name: Rita
Gender: Female
Address: THrissur
Age: 28
Empid: 567
Salary: 50000
Company Name: TCS
Qualification: MCA
Teacher id: 4567
Subject: CS
Department: MCA

Read Details
Name: Madhav
Gender: Male
Address: Thrissur
Age: 29
Empid: 678
Salary: 50000
Company Name: CISCO
Qualification: MCA
Teacher id: 6756
Subject: EE
Department: EEE
```

```
Read Details
Name: Vandhana
Gender: FEmale
Address: Idukki
Age: 25
Empid: 675
Salary: 50000
Company Name: TCS
Qualification: MCA
Teacher id: 4567
Subject: CS
Department: MCA

- - - - - - -
Teachers Detailss
_____________

-->Name: Rita
-->Gender: Female
-->Address: THrissur
-->Age: 28
-->EmpID: 567
-->Salary: 50000
-->Company Name: TCS
-->Qualification: MCA
-->Teacher ID: 4567
-->Subject: CS
-->Department: MCA
```

```
-->Name: Madhav
-->Gender: Male
-->Address: Thrissur
-->Age: 29
-->EmpID: 678
-->Salary: 50000
-->Company Name: CISCO
-->Qualification: MCA
-->Teacher ID: 6756
-->Subject: EE
-->Department: EEE


-->Name: Vandhana
-->Gender: FEmale
-->Address: Idukki
-->Age: 25
-->EmpID: 675
-->Salary: 50000
-->Company Name: TCS
-->Qualification: MCA
-->Teacher ID: 4567
-->Subject: CS
-->Department: MCA
```

EXPERIMENT NUMBER: 10

AIM

Create an interface having prototypes of functions area() and perimeter(). Create two classes Circle and Rectangle which implements the above interface. Create a menu driven program to find area and perimeter of objects.

ALGORITHM

PROGRAM CODE

```
import java.util.*;
interface Shape
{
void area();
void perimeter();
}
class Rectangle implements Shape
{
double l,b,perimeter,area;
Rectangle( double l,double b)
{
this.l=l;
this.b=b;
}
public void perimeter()
{
perimeter=2*(l+b);
System.out.println("Perimeter of Rectangle:"+perimeter);
}
public void area()
{
area=l*b;
System.out.println("Area of Rectangle:"+area);
}
}

class Circle implements Shape
```

```
{
double r,perimeter,area;
Circle(double r)
{
this.r=r;
}
public void perimeter()
{
perimeter=2*3.14*r;
System.out.println("Perimeter of circle:"+perimeter);
}
public void area()
{
area=3.14*r*r;
System.out.println("Area of Circle:"+area);
}
}
class ShapeMain
{
public static void main(String[] args)
{
double rad,l,b;
int ch;
System.out.println("Interface Implementation\n_____");
Scanner sc=new Scanner(System.in);
System.out.println("Select choice\n1.Rectangle\n2.Circle\n3.Exit");
while(true)
{
```

```
System.out.println("Enter Choice:");
ch=sc.nextInt();
switch(ch)
{
case 1:System.out.println("Enter the length and Breadth of Rectangle:");
l=sc.nextFloat();
b=sc.nextFloat();
Rectangle r=new Rectangle(l,b);
r.area();
r.perimeter();
break;
case 2:System.out.println("Enter the radius:");
rad=sc.nextDouble();
Circle c =new Circle(rad);
c.area();
c.perimeter();
break;
case 3:return;
default:System.out.println("Invalid Choice!!!!!!!!!!");
}
}
}
```

OUTPUT

```
^[[A^[[A^Cdeveloper@ccfl9-pc1:~/Desktop$ javac ShapeMain.java
developer@ccfl9-pc1:~/Desktop$ java ShapeMain
Interface Implementation
_____________________
Select choice
1.Rectangle
2.Circle
3.Exit
Enter Choice:
1
Enter the length and Breadth of Rectangle:
1
2
Area of Rectangle:2.0
Perimeter of Rectangle:6.0
Enter Choice:
2
Enter the radius:
1
Area of Circle:3.14
Perimeter of circle:6.28
Enter Choice:
3
developer@ccfl9-pc1:~/Desktop$
```