Method Overloading

1) Calculate Area of rectangle, circle, triangle

```
import java.util.*;
class Poly{
   double l,b,A,r,h;
   void cal_area(){
      Scanner sc=new Scanner(System.in);
      System.out.println("Enter l & b");
      l=sc.nextDouble();
      b=sc.nextDouble();
      A=l*b;
      System.out.println("Area of rectangle="+A);
   }
   void cal_area(double r){
       this.r=r;
       A=3.14*r*r;
       System.out.println("Area of circle="+A);
   }
   double cal_area(double b, double h){
       this.b=b;
       this.h=h;
       A=0.5*b*h;
       return A;
   }
}
public class Main
{
        public static void main(String[] args) {
                double r,b,h;
                Poly p=new Poly();
                p.cal_area();
                Scanner sc=new Scanner(System.in);
                System.out.println("Enter radius of circle");
                r=sc.nextDouble();
                p.cal_area(r);
                System.out.println("Enter b & h");
                b=sc.nextDouble();
                h=sc.nextDouble();
                System.out.println("Area of triangle="+p.cal_area(b,h));
        }
}
```

O/P:

```
Enter l & b
12
```

```
2
Area of rectangle=24.0
Enter radius of circle
2.2
Area of circle=15.197600000000003
Enter b & h
12
34
Area of triangle=204.0
```

2) max 2 number & max 3 number using method overloading
int max(int a,int b) void max()

```
import java.util.*;
class MaxNumber{
   int a,b;
   int max(int a,int b){
      this.a=a;
      this.b=b;
      if(a>b){
         return a;
      }
      else{
         return b;
      }
   }
   void max(){
      Scanner sc=new Scanner(System.in);
      System.out.println("Enter value of a & b");
      a=sc.nextInt();
      b=sc.nextInt();
      if(a>b){
         System.out.println(a+" is max");
      }
      else if(b>a){
         System.out.println(b+" is max");
      }
      else{
         System.out.println("Both are equal & max");
      }
   }
}
public class Main
{
        public static void main(String[] args) {
```

```
                int a,b;
                Scanner sc=new Scanner(System.in);
                System.out.println("Enter value of a & b");
                a=sc.nextInt();
                b=sc.nextInt();
                MaxNumber mn=new MaxNumber();
                System.out.println(mn.max(a,b)+" is Max");
                mn.max();
        }
}
```

O/P:

```
Enter value of a & b
12
13
13 is Max
Enter value of a & b
21
10
21 is max
```

3) Add 2 number & Add3 number using method overloading

```
import java.util.*;
class Addition{
   int a,b;
   void add(){
      Scanner sc=new Scanner(System.in);
      System.out.println("Enter value of a & b");
      a=sc.nextInt();
      b=sc.nextInt();
      System.out.println("Addition="+(a+b));
   }
   void add(int a,int b){
      this.a=a;
      this.b=b;
      System.out.println("Addition="+(a+b));
   }
}
public class Main
{
        public static void main(String[] args) {
                int a,b;
                Addition addition=new Addition();
                addition.add();
                Scanner sc=new Scanner(System.in);
```

```
                System.out.println("Enter value of a & b");
                a=sc.nextInt();
                b=sc.nextInt();
                addition.add(a,b);
        }
}
```

O/P:

```
Enter value of a & b
12
10
Addition=22
Enter value of a & b
34
32  87
Addition=121
```

Method Overriding

1) Animal

```
import java.util.*;
class Animal{
   void eat(){
      System.out.println("Eating....");
   }
}
class Dog extends Animal{
   void eat(){
      System.out.println("Dog Eating Bread");
   }
}
class Cow extends Animal{
   void eat(){
      System.out.println("Cow Eating Grass");
   }
}
public class Main
{
        public static void main(String[] args) {
           Animal a=new Animal();
           a.eat();
           Animal d=new Dog();
           d.eat();
           Cow c=new Cow();
           c.eat();
```

```
        }
}
```
O/P:
```
Eating....
Dog Eating Bread
Cow Eating Grass
```

2) Shape
```
class Shape{
    public void draw(){
        System.out.println("drawing...");
    }
}
class Rectangle extends Shape{
    public void draw(){
        //Logic(l,b);
        System.out.println("drawing rectangle...");
    }
}
class Circle extends Shape{
    public void draw(){
        //logic(r);
        System.out.println("drawing circle...");
    }
}
public class Main{
    public static void main(String[] args){
        Shape s;
        s=new Shape();
        s.draw();
        s=new Rectangle();
        s.draw();
        s=new Circle();
        s.draw();
    }
}
```
O/P:
```
drawing...
drawing rectangle...
drawing circle...
```

3) Area & volume
```
import java.util.Scanner;
class Area
```

```
{
        double r,A;
        Area(double r)
        {
                this.r=r;
        }
   void cal_area()
   {
        A=3.14*r*r;
        System.out.println("Radius="+r+"\nArea="+A);
   }
}
class Volume extends Area
{
        double h,v;
        Volume(double r,double h)
        {
                super(r);
                this.h=h;

        }
        void cal_area()
        {
                super.cal_area();
                v=A*h;
                System.out.println("H="+h+"\nVolume="+v);
        }
}
public class Main
{
        public static void main(String[] args)
        {
           double r,h;
           Scanner sc=new Scanner(System.in);
           System.out.println("Enter r & h");
        r=sc.nextDouble();
           h=sc.nextDouble();
           Volume v= new Volume(r, h);
           v.cal_area();
        }
}
```

O/P:

```
Enter r & h
12
```

3.5
Radius=12.0
Arae=452.15999999999997
H=3.5
Volume=1582.56

4) Date, Employee, Manager, SalesManager

```
class Date {
   int dd; int mm; int yy;
   public Date(){ dd=mm=yy=0; }
   public Date(int d,int m,int y){
      dd=d; mm=m; yy=y;
   }
   public String toString() {
      return dd+"/"+mm+"/"+yy;
   }
}
class Employee {
   int empID; String ename; Date bdate;
   int wdays;// working days in month
   double rate; //rate per day
   public Employee() {}
   public Employee(int eid,String n, Date d, int wd,double r){
   empID=eid; ename=n; bdate=d; wdays=wd; rate=r;
   }
}
class Manager extends Employee {
   double salary;
   Manager() {
      super(); salary=0;
   }
   Manager(int eid, String s,Date d,int wd, double rate) {
      super(eid,s,d,wd,rate);
   }
   public double computesal(){
      return (wdays*rate);
   }
   public String toString() {
      return empID+"\n"+ename+"\n"+bdate+"\n"+wdays+"\n"+rate+"\n"+this.computesal();
   }
}
class SalesManager extends Manager{
   double sales; double comm;
   SalesManager(){
```

```
        super();
        sales=0;
        comm=0;
    }
    SalesManager(int eid,String n, Date d,int wd,double r,double s,double c)
    {
        super(eid,n,d,wd,r);
        sales=s; comm=c;
    }
    public double computesal(){
    if (sales > 1000)
        return(super.computesal()+sales*comm);
    else
        return(super.computesal());
    }
    public String toString(){
        return empID+"\n"+ename+"\n"+bdate+"\n"+wdays+"\n"+rate+"\n"+this.computesal();
    }
}
 public class Main{
    public static void main(String[] args)
    {
        Date d1=new Date(14,7,1979);
        Employee e1=new Employee(10,"A",d1,23,100.50);
        Manager m1=new Manager(10,"B",d1,23,200.50);
        System.out.println(m1);
        Date d2=new Date(12,4,2000);
        SalesManager sm1=new SalesManager(20,"C",d2,27,150,1500,10.5);
        System.out.println(sm1);
    }
}
```

O/P:

```
10
B
14/7/1979
23
200.5
4611.5
20
C
12/4/2000
27
150.0
19800.0
```