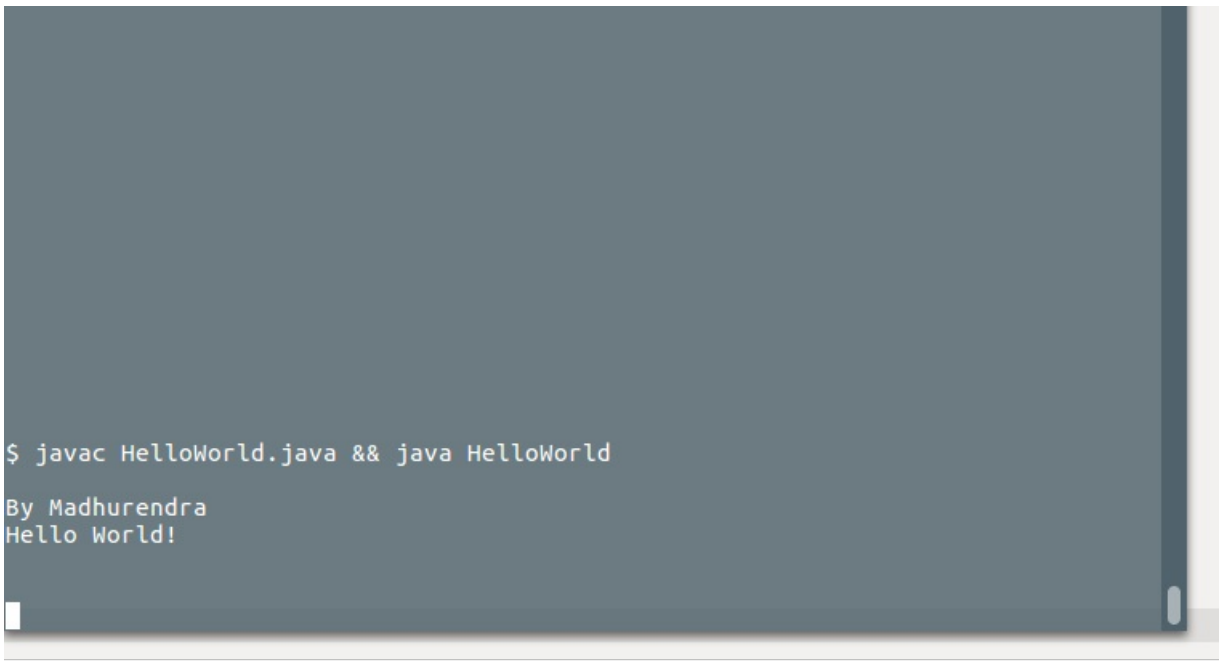
Write a program to print hello world.

HelloWorld.java

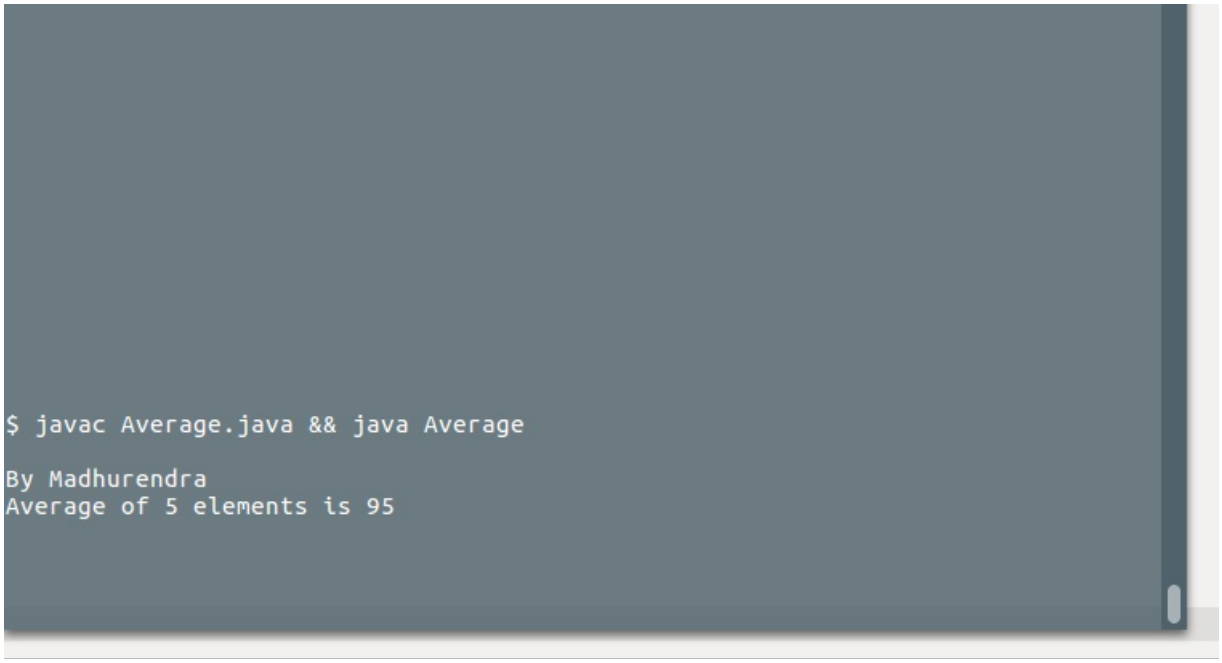
```
public class HelloWorld{
  public static void main(String[] args){
System.out.println(" By Madhurendra");
        System.out.print("Hello World!");
  }
}
```



Write a program to print average of an array

Average.java

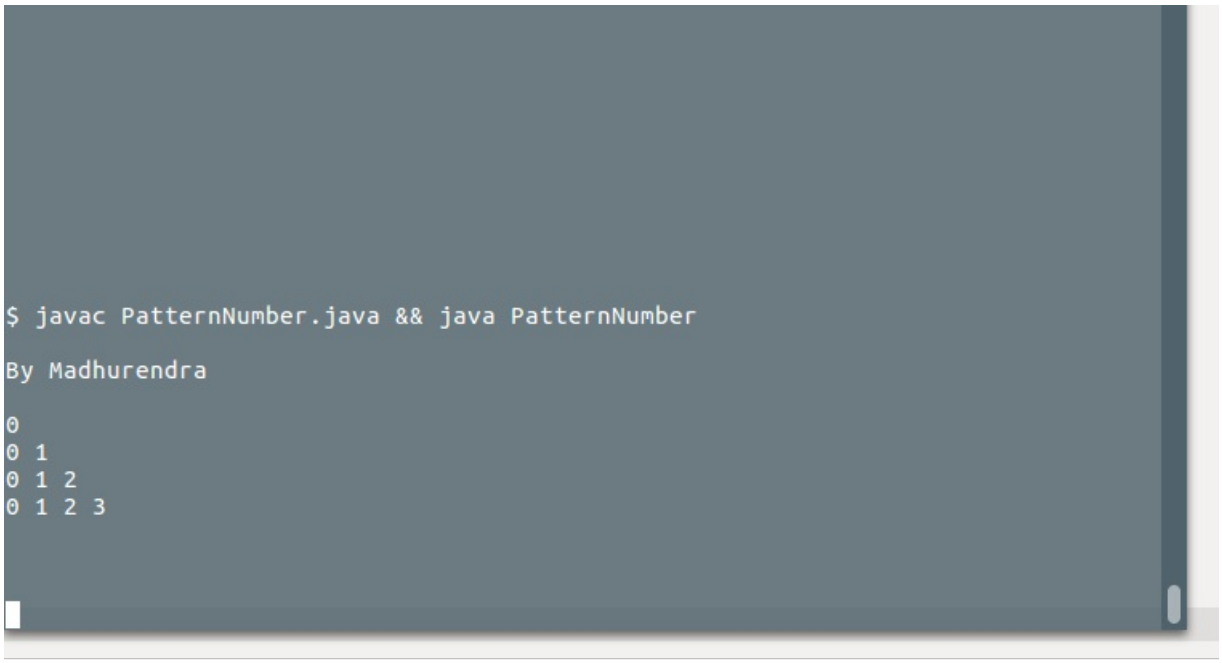
```
public class Average{
  public static void main(String[] args){
System.out.println(" By Madhurendra");
     int a[] = {1,2,4,12,456};
     int sum=0;
     for(int i=0;i<a.length;++i)
        sum+=a[i];
     int avg = sum/a.length;
     System.out.println("Average of "+a.length+" elements is "+avg);
  }

}
```



Write a program to print a pattern

PatternNumber.java

```
public class PatternNumber{
  public static void main(String[] args){
System.out.println(" By Madhurendra");
     int num = 5;
     for(int i=0;i<num;++i){
                for(int j=0;j<i;++j)
                   System.out.print(j+" ");
            System.out.print("\n");
     }

  }

}
```



Write a program to print a pattern

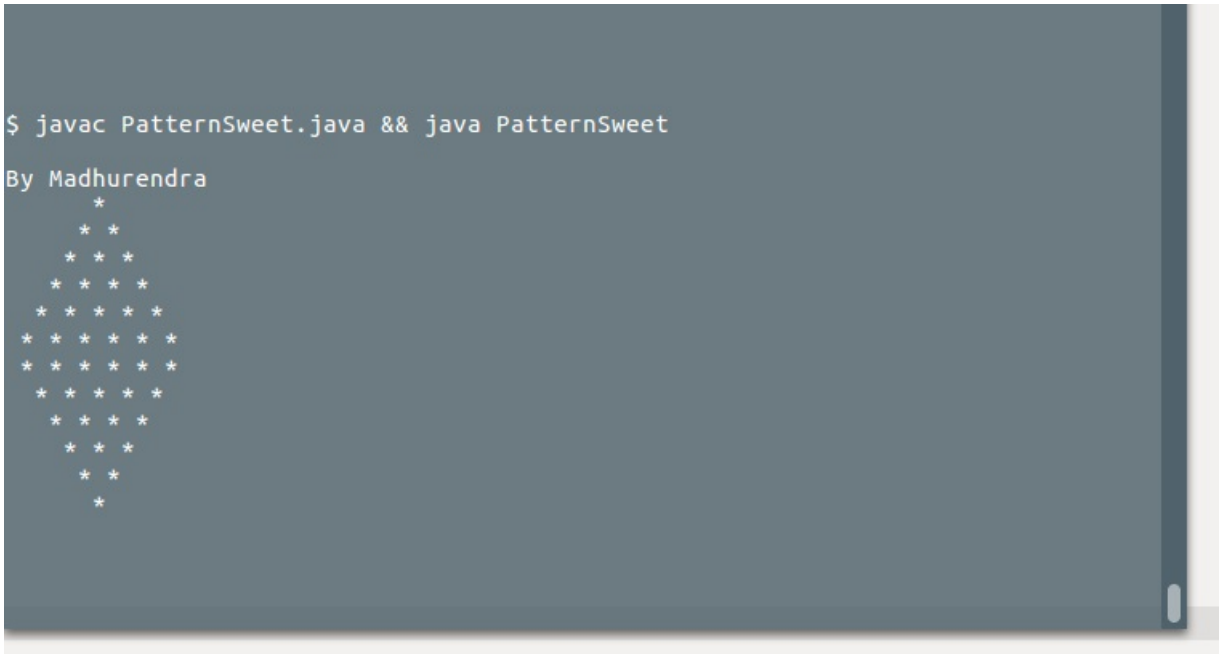
PatternStar.java

```
public class PatternStar{
  public static void main(String[] args){
System.out.println(" By Madhurendra");
     int num = 5;
     for(int i=0;i<num;++i){
                for(int j=0;j<i;++j)
                   System.out.print("*");
            System.out.print("\n");
     }

  }

}
```

Write a program to print a pattern

PatternSweet.java

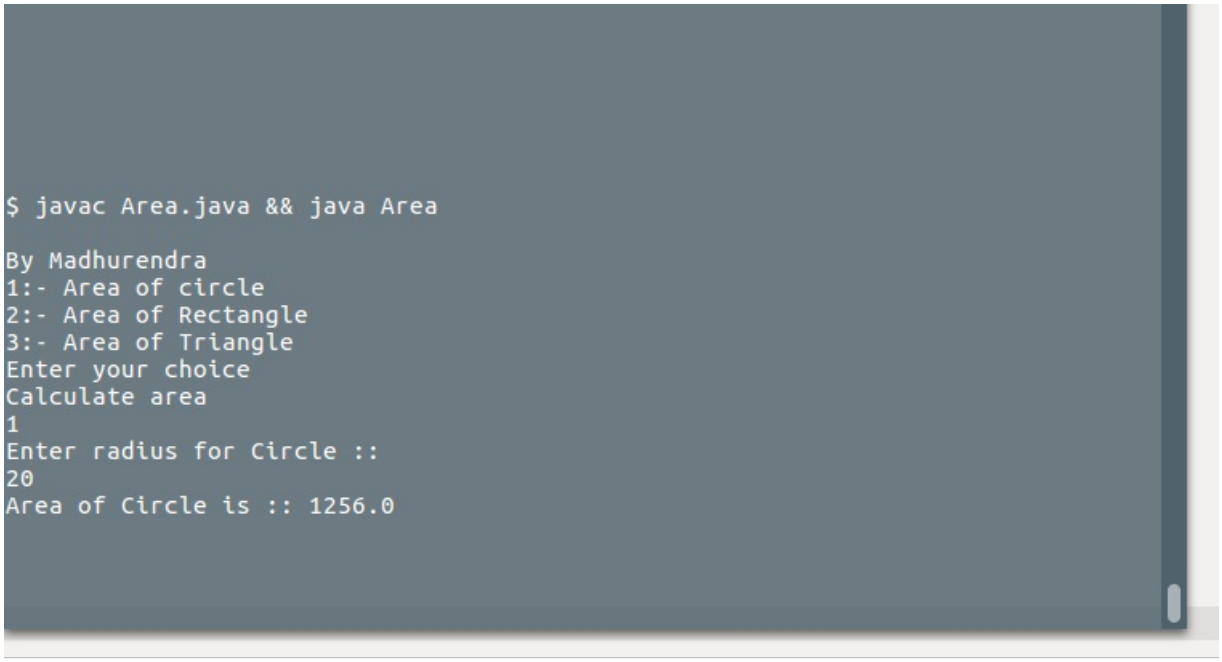
```
public class PatternSweet{
  public static void main(String[] args){
System.out.println(" By Madhurendra");
     int c = 6;
     for(int i=0;i<c;++i){
      for(int j=0;j<(c-i);++j)
        System.out.print(" ");
      for(int j=0;j<=i;++j)
        System.out.print("* ");
      System.out.println("");
     }

     for(int i=0;i<c;++i){
      for(int j=0;j<=i;++j)
        System.out.print(" ");

      for(int j=0;j<(c-i);++j)
        System.out.print("* ");
      System.out.println("");
     }
  }

}
```



Write a program to find areas.

Area.java

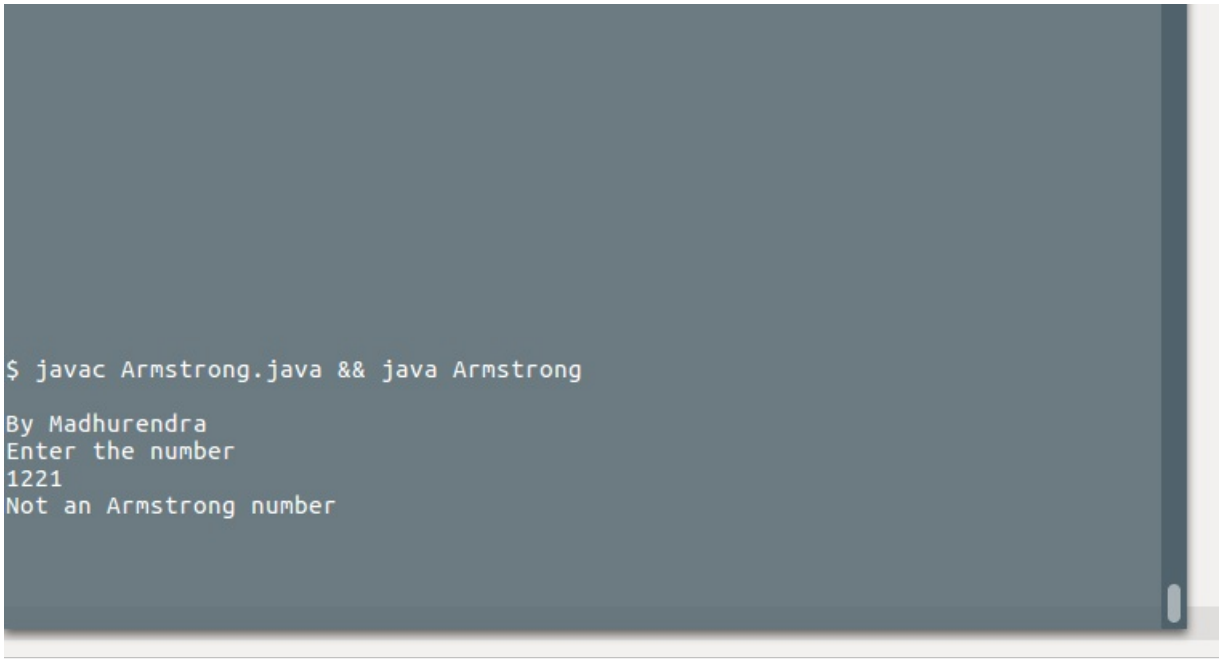
```
import java.util.*;
class Area
{
        public static void main(String args[])
        {
System.out.println(" By Madhurendra");
                Scanner sc=new Scanner(System.in);
                int choice;
                System.out.println("1:- Area of circle  \n2:- Area of Rectangle
\n3:- Area of Triangle  ");
                System.out.println("Enter your choice ");
                System.out.println("Calculate area ");
                choice=sc.nextInt();
                switch(choice)
                {
                        case 1:
                                int r;
                                double area1;
                                System.out.println("Enter radius for Circle :: ");
                                r=sc.nextInt();
                                area1=3.14*r*r;
                                System.out.println("Area of Circle is :: "+area1);
                                break;
                        case 2:
                                int l,b;
                                double area2;
                                System.out.println("Enter Length :: ");
                                l=sc.nextInt();
                                System.out.println("Enter Breadth :: ");
                                b=sc.nextInt();
                                area2=l*b;
                                System.out.println("Area of rectangle is ::
"+area2);
                                break;
                        case 3:
                                int base,h;
                                double area3;
                                System.out.println("Enter Base :: ");
                                base=sc.nextInt();
                                System.out.println("Enter Height :: ");
                                h=sc.nextInt();
                                area3=0.5*base*h;
                                System.out.println("Area of Triangle is ::
"+area3);
                                break;
                        default:
                                System.out.println("Invalid input");
                }

        }
}
```


$ javac Area.java && java Area
By Madhurendra
1:- Area of circle
2:- Area of Rectangle
3:- Area of Triangle
Enter your choice
Calculate area
1
Enter radius for Circle ::
20
Area of Circle is :: 1256.0

Write a program to find armstrong.

Armstrong.java

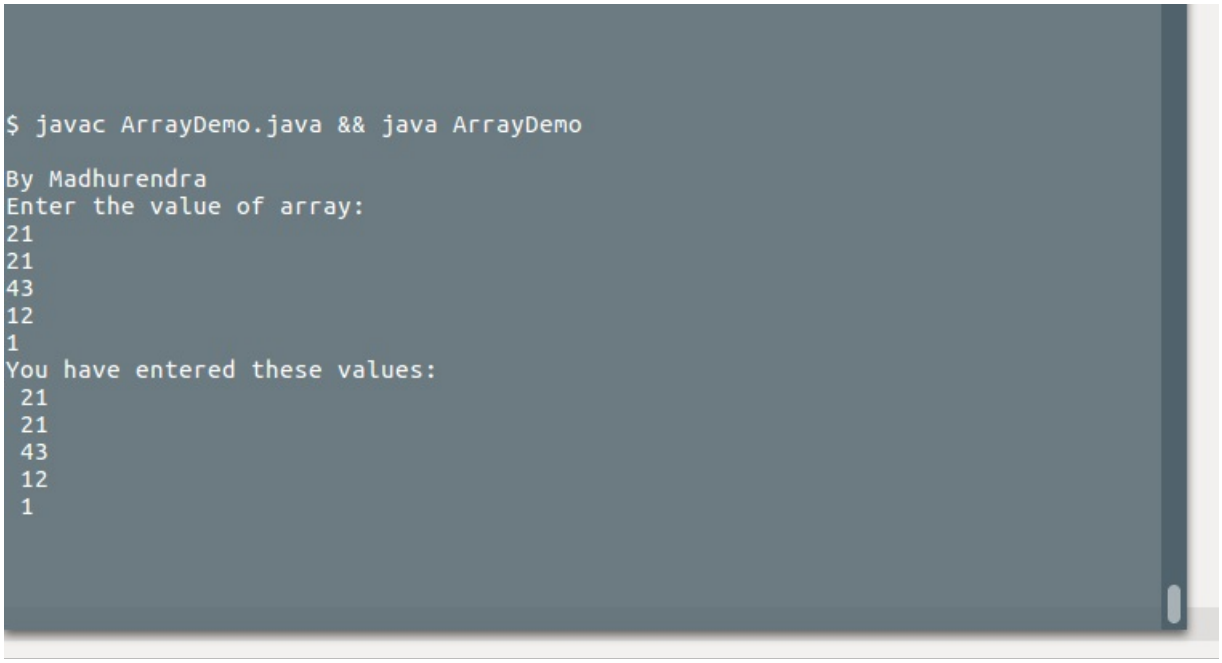
```
import java.util.Scanner;
class Armstrong
{
      public static void main(String[]args)
          {
System.out.println(" By Madhurendra");
                 int c=0,a,temp,n;
                 System.out.println("Enter the number");
                 Scanner obj=new Scanner(System.in);
                 n=obj.nextInt();

                 temp=n;
                while(n>0)
                     {
                            a=n%10;
                            n=n/10;
                            c=c+(a*a*a);
                     }
                 if(temp==c)
                    {
                            System.out.println("The number is an Armstrong
number");
                    }
                else
                    {
                            System.out.println("Not an Armstrong number");
                    }
        }
}
```


$ javac Armstrong.java && java Armstrong
By Madhurendra
Enter the number
1221
Not an Armstrong number

Write a program to demonstrate array.

ArrayDemo.java

```
import java.util.*;

public class ArrayDemo{
        public static void main(String []args){
System.out.println(" By Madhurendra");
                int [] arr=new int[5];
                System.out.println("Enter the value of array: ");
                Scanner sc=new Scanner(System.in);
                for(int i=0;i<5;i++){
                        arr[i]=sc.nextInt();
                }
                System.out.println("You have entered these values: ");
                for(int i=0;i<5;i++){
                        System.out.println(" "+arr[i]);
                }
        }
}
```



Write a program to print factorial of a number

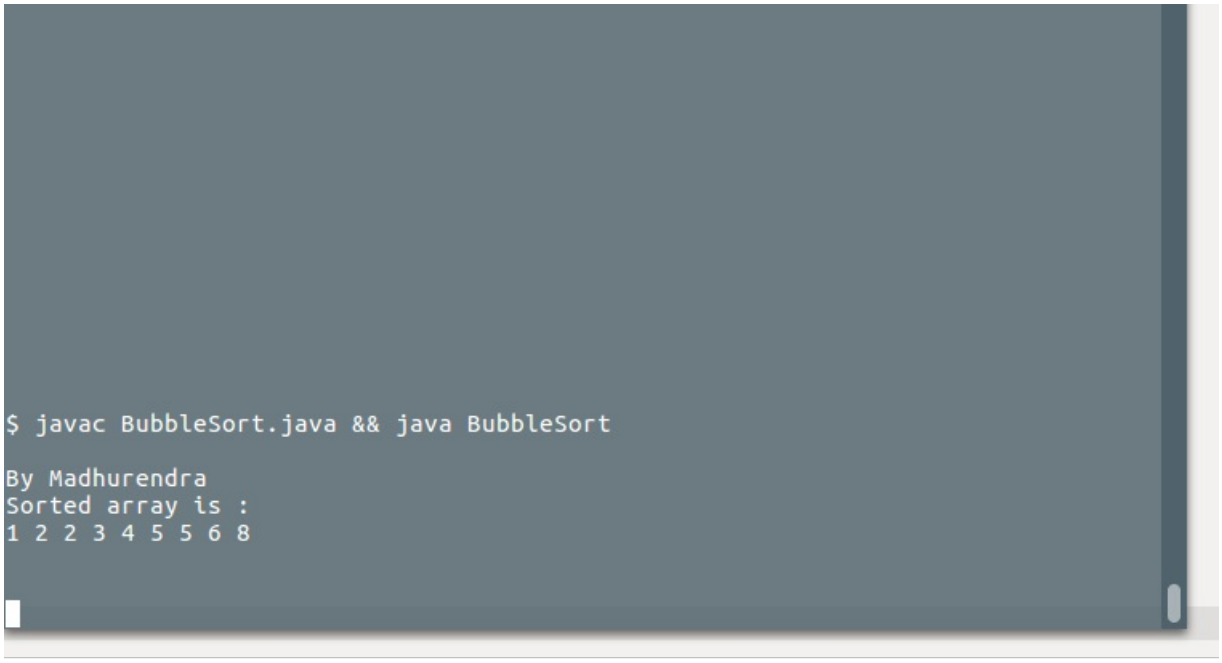
Factorial.java

```
import java.util.Scanner;
public class Factorial{
  public static void main(String[] args){
System.out.println(" By Madhurendra");
     Scanner s = new Scanner(System.in);
     System.out.println("Enter a number : ");
     int num = s.nextInt();

     int fact=1;
     for(int i=2;i<=num;++i)
        fact*=i;

     System.out.println("Factorial of "+num+" is "+fact);
  }

}
```

Write a program to sort using bubble sort

BubbleSort.java

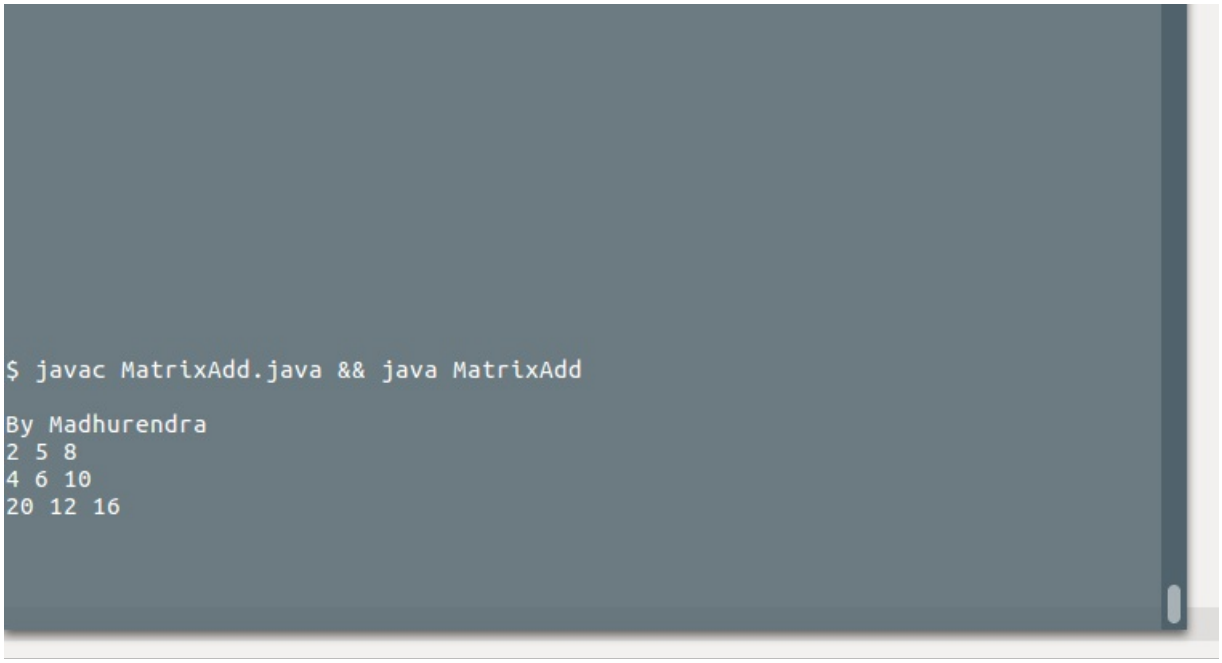
```
public class BubbleSort{
  public static void main(String[] args){
System.out.println(" By Madhurendra");
     int a[] = {1,2,4,2,3,5,5,6,8};


     for(int i=0;i<a.length;++i){
      for(int j=1;j<a.length;++j){
        if(a[j]<a[j-1]){
                        int tmp = a[j-1];
                        a[j-1]= a[j];
                        a[j] = tmp;
                }
           }
     }


     System.out.println("Sorted array is : ");
     for(int i=0;i<a.length;++i)
                System.out.print(a[i]+" ");

  }

}
```



Write a program to add two matrix

MatrixAdd.java

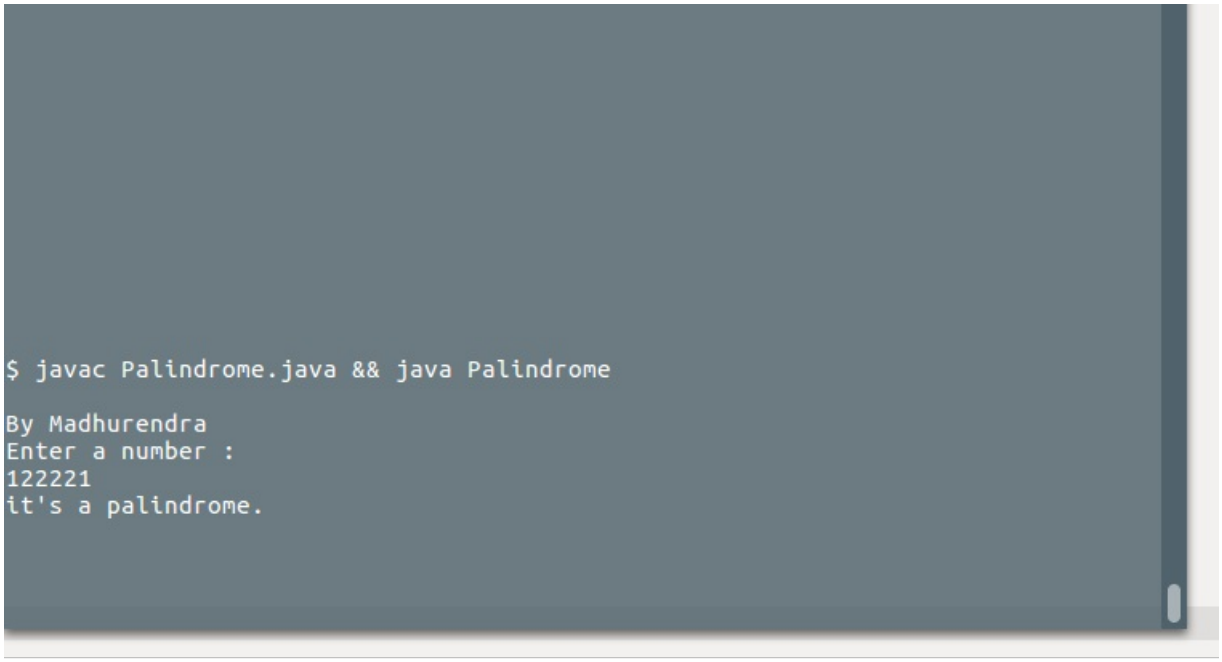
```
public class MatrixAdd{
  public static void main(String[] args){
System.out.println(" By Madhurendra");
     int a[][] = {{1,2,4},{2,3,5},{5,6,8}};
     int b[][] = {{1,3,4},{2,3,5},{15,6,8}};
     int sum[][] = new  int[a.length][a[0].length];
     for(int i=0;i<a.length;++i){
      for(int j=0;j<a[i].length;++j)
        sum[i][j]=  a[i][j]+b[i][j];
     }


     for(int i=0;i<a.length;++i){
      for(int j=0;j<a[i].length;++j)
                System.out.print(sum[i][j]+" ");
                System.out.println("");
     }
  }

}
```



Write a program to check if number is palindrome

Palindrome.java

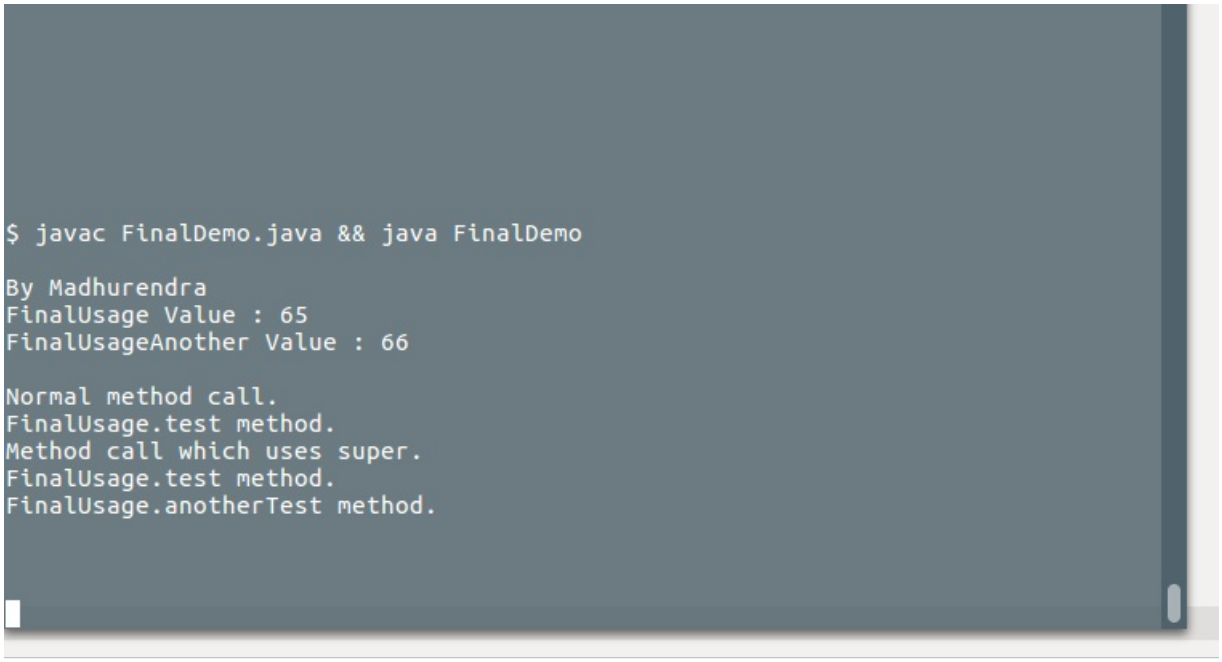
```
import java.util.Scanner;
public class Palindrome{
  public static void main(String[] args){
System.out.println(" By Madhurendra");
     Scanner s = new Scanner(System.in);
     System.out.println("Enter a number : ");
     int num = s.nextInt();

     int temp  = num,rev=0;
     while(temp>0){
                rev=rev*10+temp%10;
                temp /=10;
         }

     if(num==rev)
                System.out.println("it's a palindrome.");
         else
                System.out.println("it's not a palindrome.");
  }

}
```



Write a program to show usage of final

FinalDemo.java

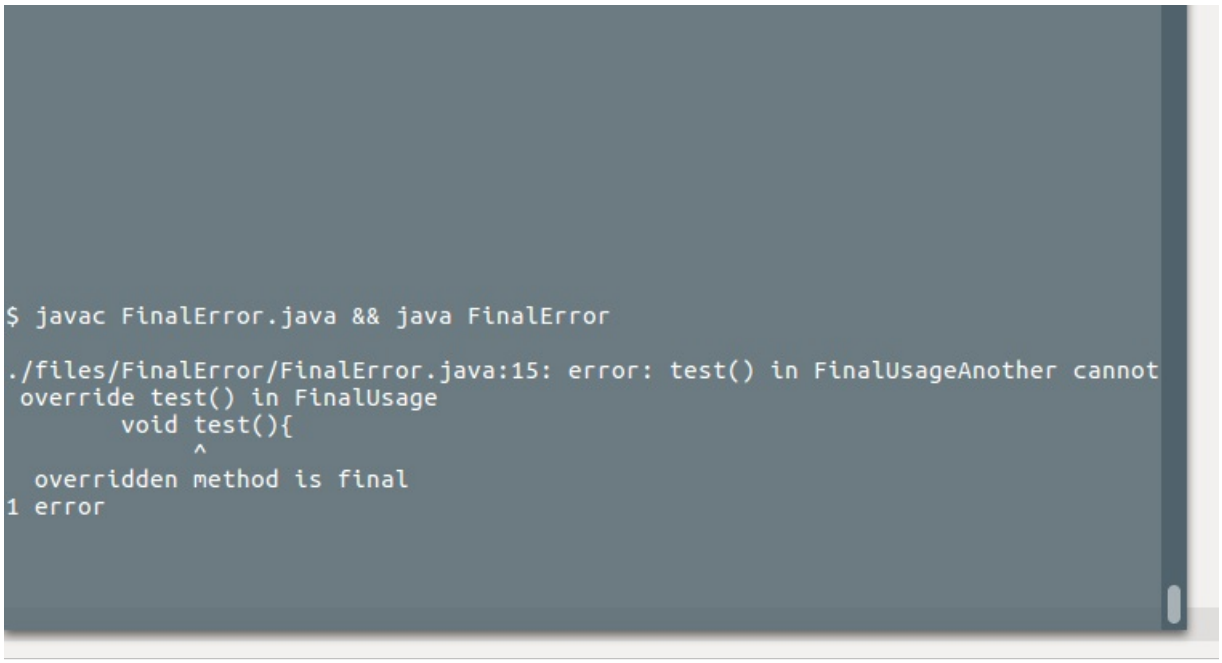
```
public class FinalDemo{

        public static void main(String[] args){
System.out.println(" By Madhurendra");
                FinalUsage f = new FinalUsage();
                FinalUsageAnother fa = new FinalUsageAnother();
                System.out.println("FinalUsage Value : "+f.UPPER_CHAR);
                System.out.println("FinalUsageAnother Value : "+fa.UPPER_CHAR);
                System.out.println("\nNormal method call.");
                f.test();
                System.out.println("Method call which uses super.");
                fa.anotherTest();
        }
}


class FinalUsage{
        //this can be overriden, but can't be modified.
        final int UPPER_CHAR = 'A';
        //this can't be overriden.
        final void test(){
                System.out.println("FinalUsage.test method.");
        }

        //called by GC
        protected void finalize() throws Throwable{
                System.out.println("Finalize called.");
        }
}

class FinalUsageAnother extends FinalUsage{

        final int UPPER_CHAR= 'B';
        void anotherTest(){
                //a test for super.
                super.test();
                System.out.println("FinalUsage.anotherTest method.");
        }
}
```


$ javac FinalDemo.java && java FinalDemo
By Madhurendra
FinalUsage Value : 65
FinalUsageAnother Value : 66
Normal method call.
FinalUsage.test method.
Method call which uses super.
FinalUsage.test method.
FinalUsage.anotherTest method.

Write a program to show final method behaviour.

FinalError.java

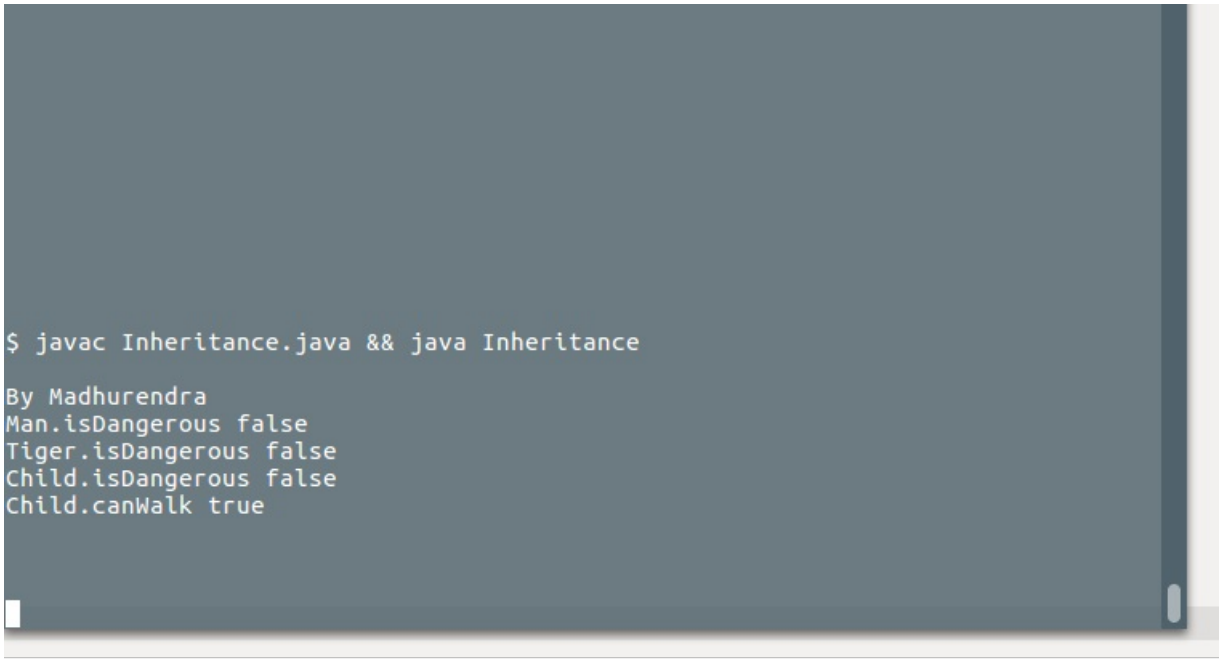
```
public class FinalError{

        public static void main(String[] args){
System.out.println(" By Madhurendra");
                //not compiled
        }
}

class FinalUsage{
        final void test(){
                System.out.println("FinalUsage.test method.");
        }
}

class FinalUsageAnother extends FinalUsage{
        void test(){
                System.out.println("FinalUsage.anotherTest method.");
        }
}
```



Write a program to demostrate inheritance

Inheritance.java

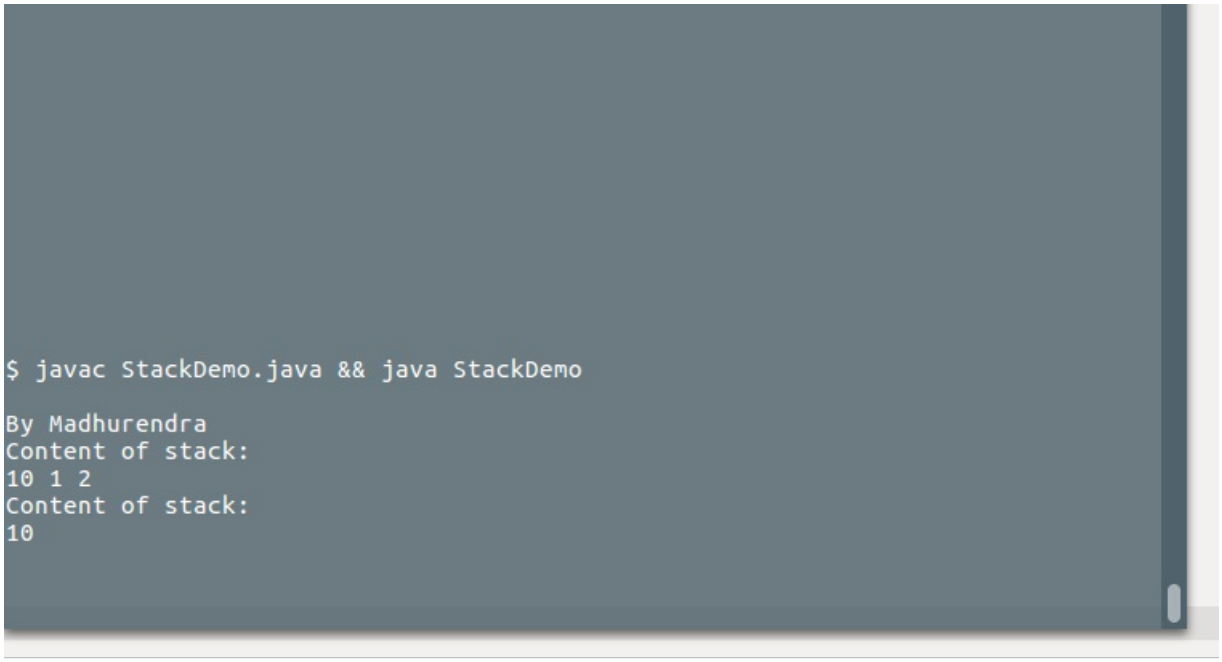
```
public class Inheritance{
                public static void main(String[] args){
System.out.println(" By Madhurendra");
                        Man m = new Man();
                        Tiger t = new Tiger();
                        Child c  = new Child();
                        System.out.println("Man.isDangerous "+(m.isDangerous()));
                        System.out.println("Tiger.isDangerous "+
(t.isDangerous()));
                        System.out.println("Child.isDangerous "+
(c.isDangerous()));
                        c.walk = true;
                        System.out.println("Child.canWalk "+(c.canWalk()));
                }

}

class Mammal{
        final boolean dangerous=false;
        int AGE = 1;
        boolean isDangerous(){
                return dangerous;
        }
}

class Human extends Mammal{
        final boolean dangerous = false;
}

class Man extends Human{
        Man(){
                AGE = 18;
        }
        boolean earn = false;
        boolean canEarn(){
                return earn;
        }
}

class Child extends Human{
        boolean walk = false;
        boolean canWalk(){
                return walk;
        }
}

class Tiger extends Mammal{
        final boolean dangerous = true;
}
```


$ javac Inheritance.java && java Inheritance
By Madhurendra
Man.isDangerous false
Tiger.isDangerous false
Child.isDangerous false
Child.canWalk true

Write a program to show implementation of stack.

StackDemo.java

```
public class StackDemo{
        public static void main(String[] args){
System.out.println(" By Madhurendra");
                Stack s = new Stack();
                s.push(10);
                s.push(1);
                s.push(2);
                System.out.println("Content of stack:");
                s.printStack();
                s.pop();
                s.pop();
                System.out.println("\nContent of stack:");
                s.printStack();
        }

}


class Stack{
        int store[] = new int[20];
        int top =-1;

        boolean push(int num){
                if(store.length-1==top){
                        System.out.println("Stack overflow.");
                        return false;
                }

                store[++top]=num;
                return true;
        }

        int pop(){
                if(top==-1){
                        System.out.println("Stack underflow");
                        return -1;
                }
                return store[top--];
        }


        void printStack(){
                if(top==-1)
                        return;
                for(int i=0;i<=top;++i)
                        System.out.print(store[i]+" ");
        }
}
```


$ javac StackDemo.java && java StackDemo
By Madhurendra
Content of stack:
10 1 2
Content of stack:
10

Write a program to demonstrate string functions.

StringFunction.java

```
import java.*;
class StringFunction
{
        public static void main(String args[])
        {
System.out.println(" By Madhurendra");
                String s1="     SHEMARK 1234567890";
                String s2="     shemark 1234567890";
                System.out.println("Replace s1() :: "+s1.replace('A','S'));
                System.out.println("Replace s2 :: "+s2.replace('a','s'));
                System.out.println("To Upper Case s2() :: "+s2.toUpperCase());
                System.out.println("To Lower Case s1() :: "+s1.toLowerCase());
                System.out.println("Sub String1 () :: "+s1.substring(3,10));
                System.out.println("Sub String2 () :: "+s2.substring(3,10));
                System.out.println("ReplaceCharSequence1 () ::
"+s1.replace("SH","DE"));
                System.out.println("ReplaceCharSequence2 () ::
"+s2.replace("sh","de"));
                System.out.println("CharAt for s1 () :: "+s1.charAt(4));
                System.out.println("CharAt for s2 () :: "+s2.charAt(5));
                System.out.println(s1 + " <<Equals>> " + s2 +    s1.equals(s2));
                System.out.println("Without Trim s1 () :: "+s1);
                System.out.println("With Trim s1 () :: "+s1.trim());
                System.out.println("Without Trim s2 () :: "+s2);
                System.out.println("With Trim s2 () :: "+s2.trim());
        }
}
```

```
$ javac StringFunction.java && java StringFunction

By Madhurendra
Replace s1() ::         SHEMSRK 1234567890
Replace s2 ::   shemsrk 1234567890
To Upper Case s2() ::   SHEMARK 1234567890
To Lower Case s1() ::   shemark 1234567890
Sub String1 () :: EMARK 1
Sub String2 () :: emark 1
ReplaceCharSequence1 () ::      DEEMARK 1234567890
ReplaceCharSequence2 () ::      deemark 1234567890
CharAt for s1 () :: M
CharAt for s2 () :: a
        SHEMARK 1234567890 <<Equals>>   shemark 1234567890false
Without Trim s1 () ::   SHEMARK 1234567890
With Trim s1 () :: SHEMARK 1234567890
Without Trim s2 () ::   shemark 1234567890
With Trim s2 () :: shemark      1234567890
```

Write a program to show threads usage.

thread.java

```
//Program for Mutithread

class NewThread implements Runnable{
        String name;
        Thread t;
        boolean suspendFlag;

        NewThread(String t_name){
                name=t_name;
                t=new Thread(this,name);
                System.out.println("New Thread "+t+" has begun");
                suspendFlag=false;
                t.start();
        }

        public void run(){
                try{
                        for(int i=5;i>0;i--){
                                System.out.println(name+" : "+i);
                                Thread.sleep(1000);
                                synchronized(this){
                                        while(suspendFlag){
                                                wait();
                                        }
                                }
                        }
                }catch(InterruptedException e){
                        System.out.println("Thread Interrupted "+e);
                }
                System.out.println("Thread "+name+" has exited.");
        }
        void threadSuspend(){
                suspendFlag=true;
        }

        synchronized void threadResume(){
                suspendFlag=false;
                notify();
        }
}

class thread{
        public static void main(String args[]){
System.out.println(" By Madhurendra");
                NewThread One=new NewThread("ThreadOne");
                NewThread Two=new NewThread("ThreadTwo");

                try{
                        Thread.sleep(1000);
                        One.threadSuspend();
                        System.out.println("Thread Two Suspended");
```

```
                        Thread.sleep(1000);
                        One.threadResume();
                        System.out.println("Thread Two Resumed");

                        Thread.sleep(1000);
                        Two.threadSuspend();
                        System.out.println("Thread One Suspended");

                        Thread.sleep(1000);
                        Two.threadResume();
                        System.out.println("Thread Two Resumed");
                }catch(InterruptedException e){
                        System.out.println("Thread Interrupted "+e);
                }
                try{
                        System.out.println("Waiting for thread for finish");
                        One.t.join();
                        Two.t.join();
                }catch(InterruptedException e){
                        System.out.println("Thread Interrupted "+e);
                }
        }
}
```

```
By Madhurendra
New Thread Thread[ThreadOne,5,main] has begun
New Thread Thread[ThreadTwo,5,main] has begun
ThreadOne : 5
ThreadTwo : 5
ThreadOne : 4
ThreadTwo : 4
Thread Two Suspended
ThreadTwo : 3
ThreadOne : 3
Thread Two Resumed
ThreadTwo : 2
Thread One Suspended
ThreadOne : 2
Thread Two Resumed
Waiting for thread for finish
ThreadOne : 1
ThreadTwo : 1
Thread ThreadTwo has exited.
Thread ThreadOne has exited.
```

Write a program to demonstrate multithreading

MultiThread.java

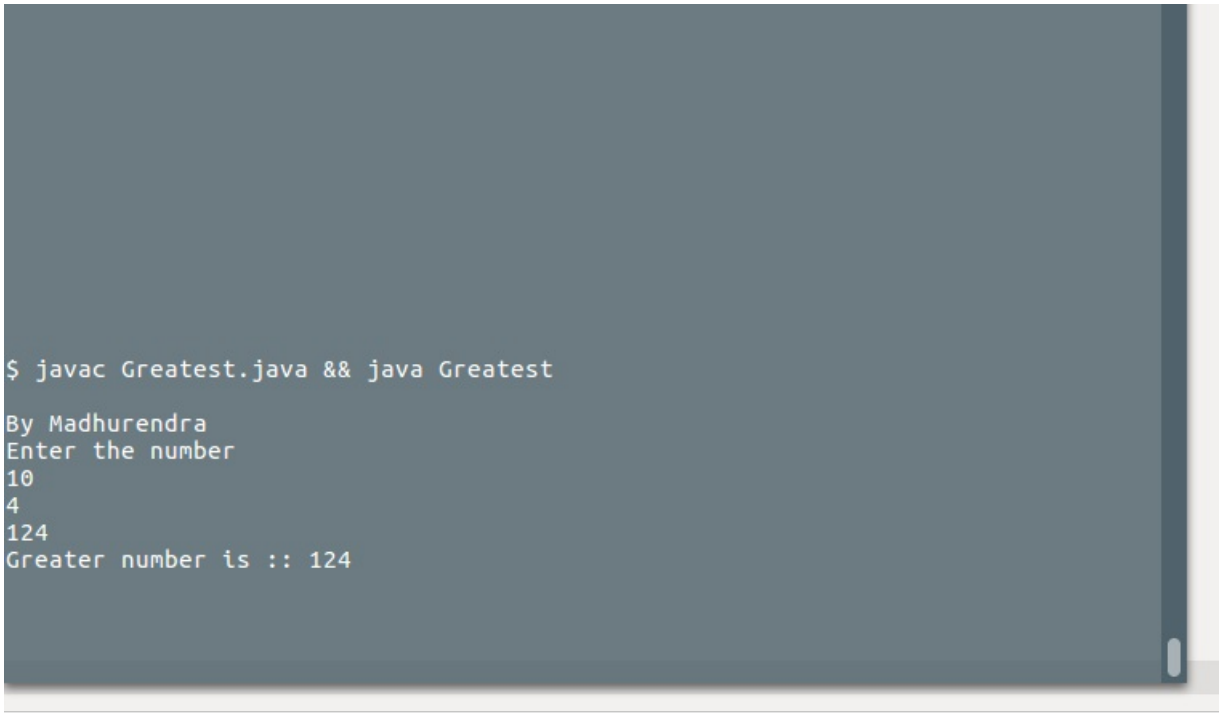
```
class A extends Thread{
        public void run(){
                int i;
                for(i=1;i<=10;i++){
                        System.out.println("i="+i+" Thred A");
                }
        }
}

class B extends Thread{
        public void run(){
                int i;
                for(i=1;i<=10;i++){
                        System.out.println("i="+i+" Thread B");
                }
        }
}

public class MultiThread{
        public static void main(String []args){
System.out.println(" By Madhurendra");
                A o1=new A();
                B o2=new B();
                o1.start();
                o2.start();
        }
}
```


By Madhurendra
i=1 Thred A
i=2 Thred A
i=1 Thread B
i=3 Thred A
i=2 Thread B
i=4 Thred A
i=3 Thread B
i=5 Thred A
i=4 Thread B
i=6 Thred A
i=5 Thread B
i=7 Thred A
i=6 Thread B
i=7 Thread B
i=8 Thread B
i=9 Thread B
i=8 Thred A
i=10 Thread B
i=9 Thred A
i=10 Thred A

Write a program to find greatest number.

Greatest.java

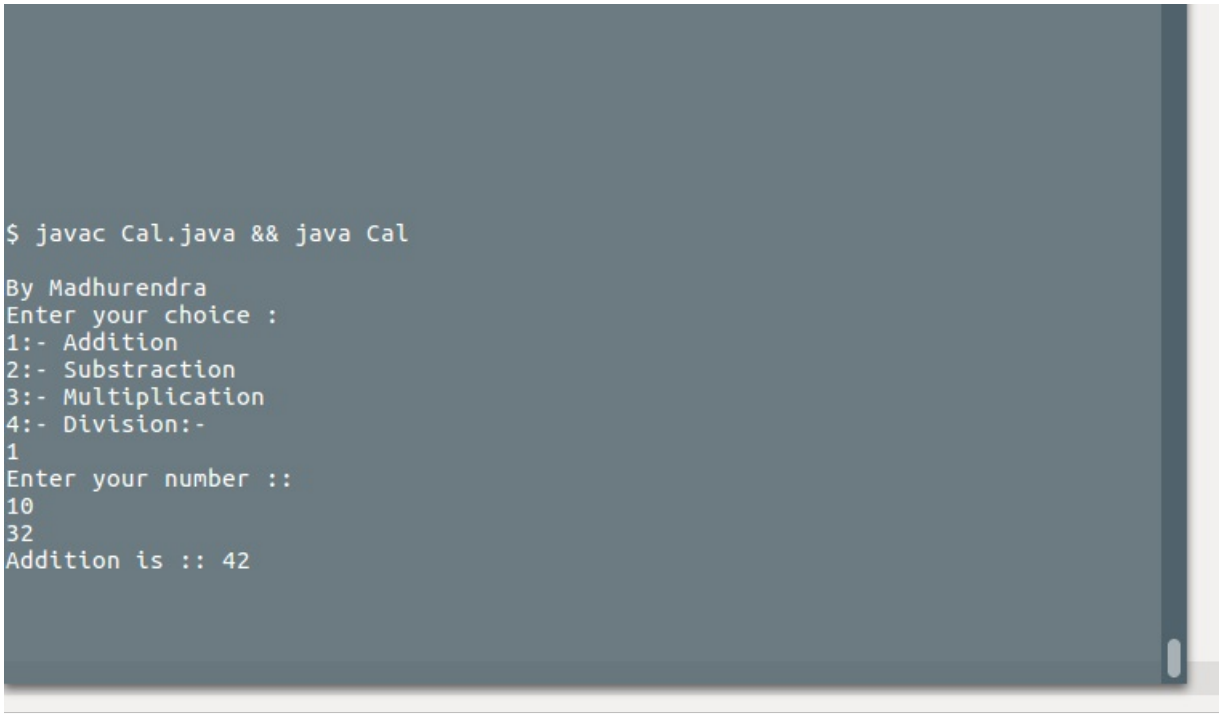
```
import java.util.*;
class Greatest
{
        public static void main(String args[])
        {
System.out.println(" By Madhurendra");
                Scanner sc=new Scanner(System.in);
                int num1,num2,num3;
                System.out.println("Enter the number");
                num1=sc.nextInt();
                num2=sc.nextInt();
                num3=sc.nextInt();
                if(num1>num2 && num1>num3)
                {
                        System.out.println("Greater number is :: "+num1);
                }
                else if(num2>num1 && num2>num3)
                {
                        System.out.println("Greater number is :: "+num2);
                }
                else
                {
                        System.out.println("Greater number is :: "+num3);
                }
        }
}
```


$ javac Greatest.java && java Greatest
By Madhurendra
Enter the number
10
4
124
Greater number is :: 124

Write a program to use switch case.

Cal.java

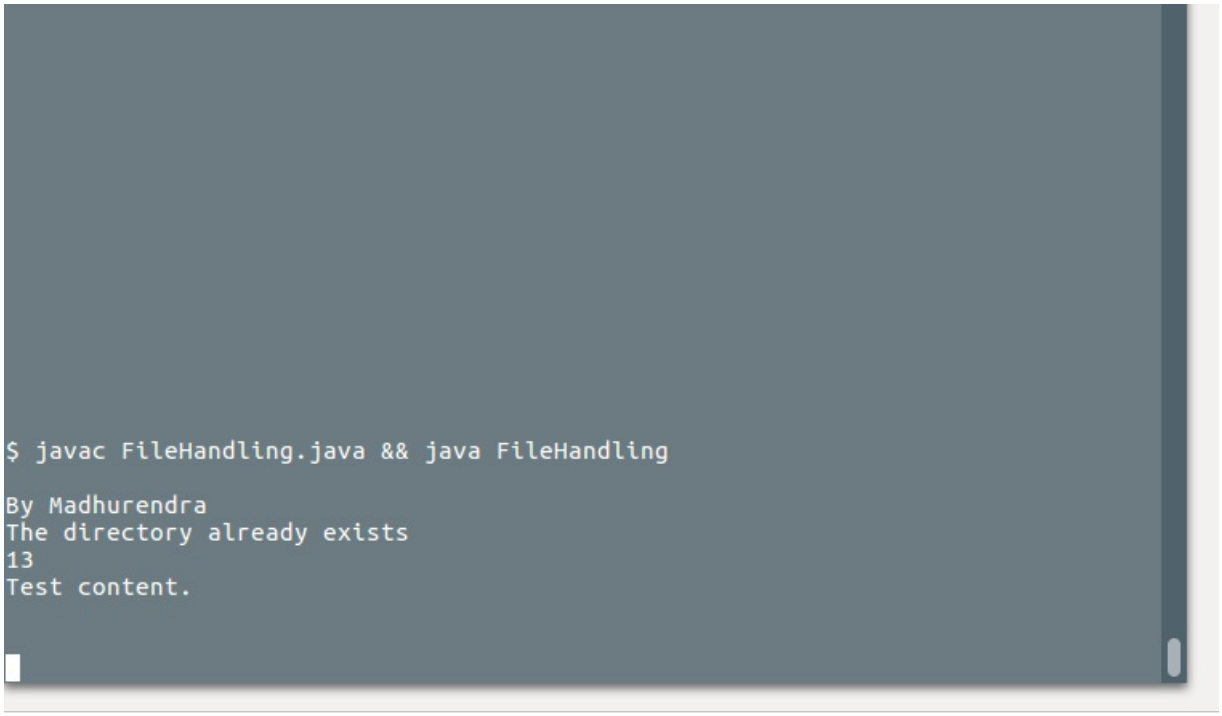
```
import java.util.*;
class Cal
{
        public static void main(String args[])
        {
System.out.println(" By Madhurendra");
                Scanner sc=new Scanner(System.in);
                int choice,num1,num2;
                System.out.println("Enter your choice : ");
                System.out.println("1:- Addition\n2:- Substraction\n3:-
Multiplication\n4:- Division:- ");
                choice=sc.nextInt();
                switch(choice)
                {
                        case 1:
                                int add;
                                System.out.println("Enter your number :: ");
                                num1=sc.nextInt();
                                num2=sc.nextInt();
                                add=num1+num2;
                                System.out.println("Addition is :: "+add);
                                break;
                        case 2:
                                int sub;
                                System.out.println("Enter your number :: ");
                                num1=sc.nextInt();
                                num2=sc.nextInt();
                                sub=num1-num2;
                                System.out.println("Subtraction is :: "+sub);
                                break;
                        case 3:
                                int mul;
                                System.out.println("Enter your number :: ");
                                num1=sc.nextInt();
                                num2=sc.nextInt();
                                mul=num1*num2;
                                System.out.println("Multiplication is :: "+mul);
                                break;
                        case 4:
                                int div;
                                System.out.println("Enter your number :: ");
                                num1=sc.nextInt();
                                num2=sc.nextInt();
                                div=num1/num2;
                                System.out.println("Division is :: "+div);
                                break;
                        default:
                                System.out.println("Invalid input");
                }
        }
}
```


$ javac Cal.java && java Cal
By Madhurendra
Enter your choice :
1:- Addition
2:- Substraction
3:- Multiplication
4:- Division:-
1
Enter your number ::
10
32
Addition is :: 42

Write a program to show File Handling.

FileHandling.java

```
import java.io.*;

class FileHandling{
        public static void main(String args[]){
System.out.println(" By Madhurendra");
                char[] in=new char[30];
                int size=0;
                try{
                        File direx=new File("Direx.txt");
                        direx.mkdir();

                        if(direx.exists()){
                                System.out.println("The directory already
exists");

                                File file=new File(direx,"Human.txt");
                                file.createNewFile();

                                FileWriter fw=new FileWriter(file);
                                BufferedWriter bw=new BufferedWriter(fw);
                                bw.write("Test content.");
                                bw.flush();
                                bw.close();

                                FileReader fr=new FileReader(file);
                                BufferedReader br=new BufferedReader(fr);
                                size=br.read(in);
                                System.out.println(size);

                                for(char c:in){
                                        System.out.print(c);
                                }
                        }else{
                                System.out.println("Sorry this directory does not
exist");
                        }

                }catch(Exception e){
                        e.printStackTrace();
                }
        }

}
```

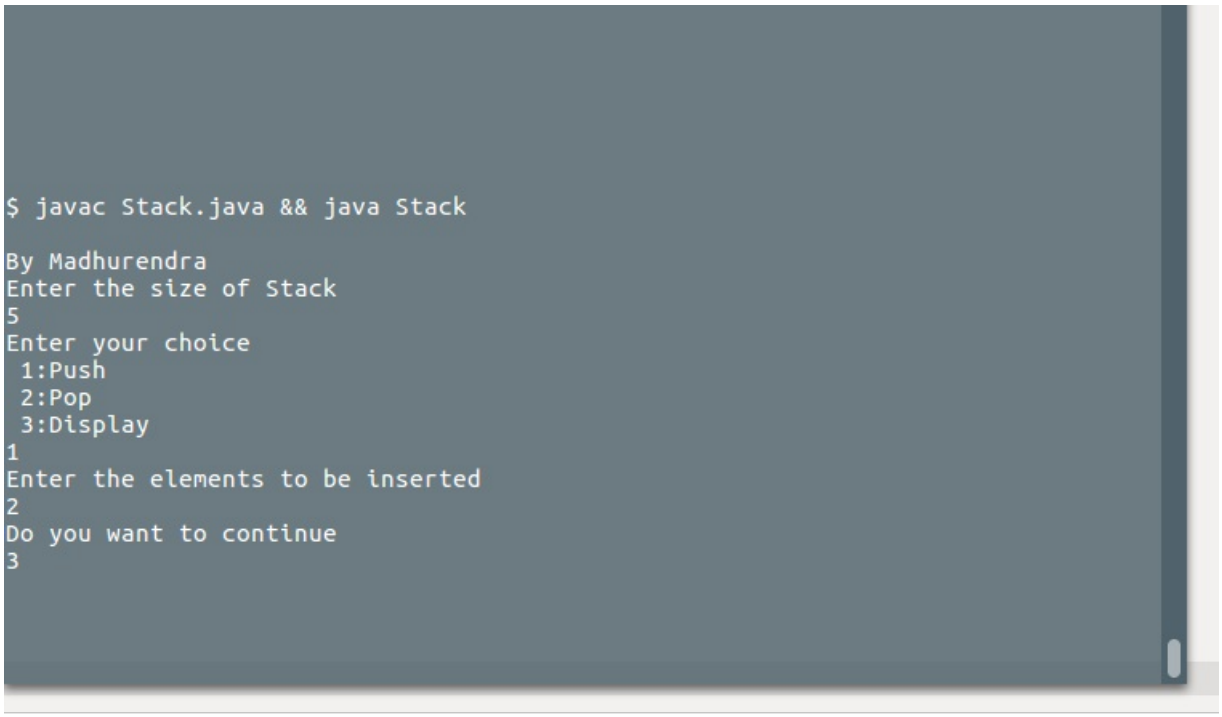

$ javac FileHandling.java && java FileHandling
By Madhurendra
The directory already exists
13
Test content.

Write a program to implement stack.

Stack.java

```
import java.util.*;
class Stack
{
        int top;
        int size=10;
        int a[]=new int[100];
        void Push()
        {
                if(top==size-1)
                {
                        System.out.println("Stack Overflow");
                }
                else
                {
                        int element;
                        Scanner sc=new Scanner(System.in);
                        System.out.println("Enter the elements to be inserted");
                        element=sc.nextInt();
                        top=top+1;
                        a[top]=element;
                }
        }
        int Pop()
        {
                if(top==-1)
                {
                        System.out.println("Stack underflow");
                        return 0;
                }
                else
                {
                        top=top-1;
                }
                return top;
        }
        void Display()
        {
                for(int i=1;i<=top;i++)
                {
                        System.out.println("Array elements="+a[i]);
                }
        }
        public static void main(String args[])
        {
System.out.println(" By Madhurendra");
                int choice;
                int ch,n;
                Stack stack=new Stack();
                Scanner sc=new Scanner(System.in);
                System.out.println("Enter the size of Stack ");
                n=sc.nextInt();
```

```
                do
                {
                        System.out.println("Enter your choice");
                        System.out.println(" 1:Push\n 2:Pop\n 3:Display");
                        choice=sc.nextInt();
                        switch(choice)
                        {
                                case 1:
                                        stack.Push();
                                        break;
                                case 2:
                                        stack.Pop();
                                        break;
                                case 3:
                                        stack.Display();
                                        break;
                                default:
                                        System.out.println("Invalid Input");
                        }
                        System.out.println("Do you want to continue");
                        ch=sc.nextInt();
                }
                while(ch==1);

        }
}
```

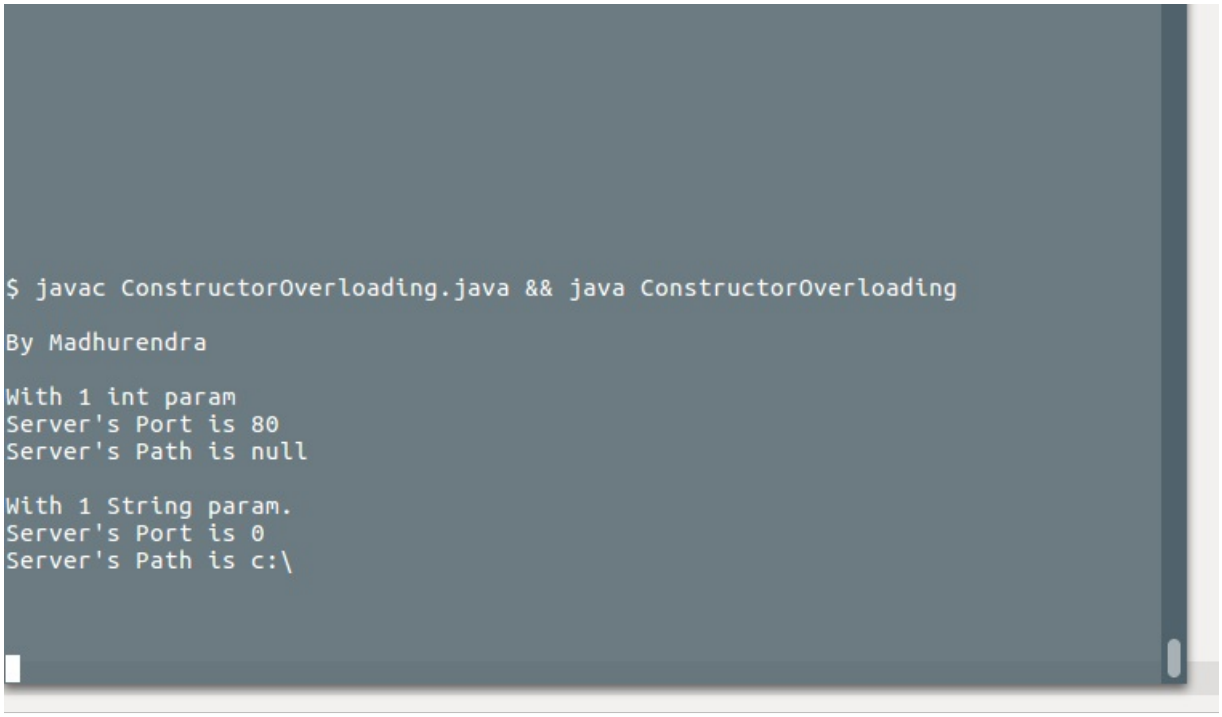


Write a program to show Constructor Overloading

ConstructorOverloading.java

```
public class ConstructorOverloading{
        public static void main(String args[]){
System.out.println(" By Madhurendra");
                        System.out.println("\nWith 1 int param");
                        (new Server(80)).print();
                        System.out.println("\nWith 1 String param.");
                        (new Server("c:\\")).print();
        }
}

class Server {
        int port;
        String path;
        public Server(){

        }

        public Server(int port){
                this.port  = port;

        }

        public Server(String path){
                this.path = path;
        }

        public Server(String path, int port){
                this.port = port;
                this.path = path;
        }

        public Server(ServerConfig serverConfig){
                this.port = serverConfig.port;
                this.path = serverConfig.path;
        }

        public void print(){
                        System.out.println("Server's Port is "+port);
                        System.out.println("Server's Path is "+path);
        }
}

class ServerConfig{
        //default constructor is being called.
        public int port; //set to 0
        public String path; //set to null

        public void print(){
                System.out.println("Port is "+port);
                System.out.println("Path is "+path);
        }
```

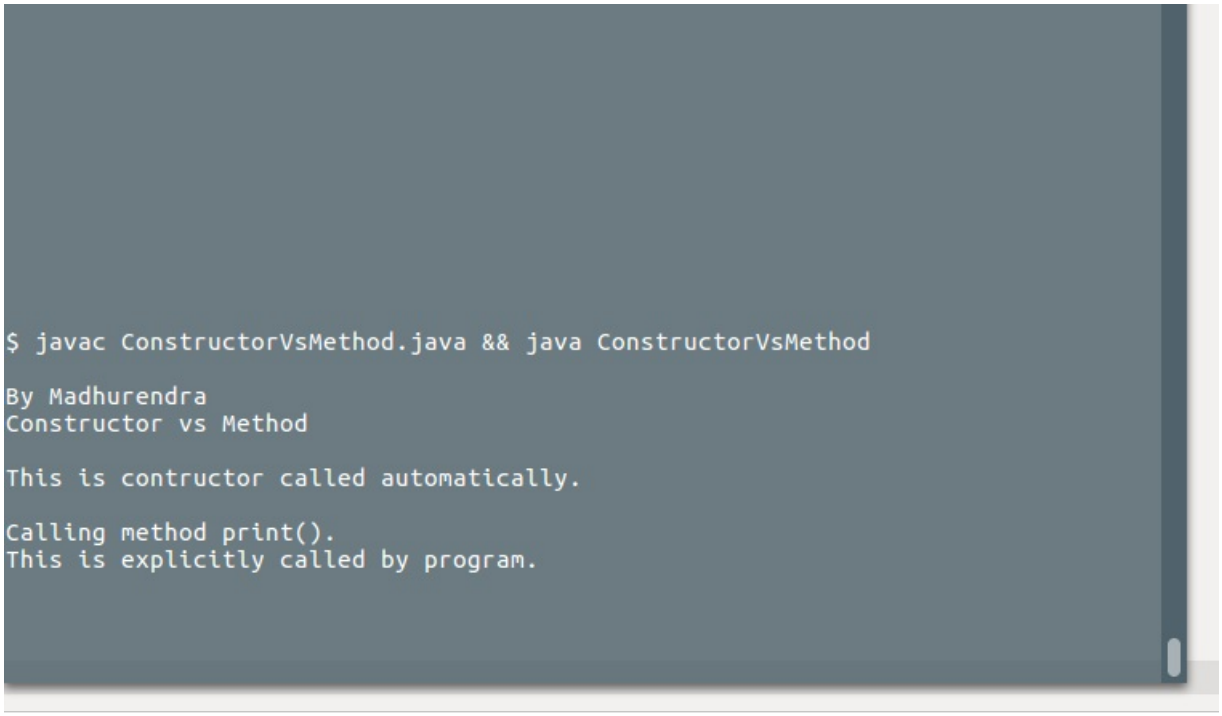
```
}
```


$ javac ConstructorOverloading.java && java ConstructorOverloading
By Madhurendra
With 1 int param
Server's Port is 80
Server's Path is null
With 1 String param.
Server's Port is 0
Server's Path is c:\

Write a program to differentiate between constructor & method.

ConstructorVsMethod.java

```
public class ConstructorVsMethod{
        public static void main(String args[]){
System.out.println(" By Madhurendra");
                        System.out.println("Constructor vs Method\n");
                        ServerHandler s= new ServerHandler();
                        System.out.println("\nCalling method print().");
                        s.print();
        }
}

class ServerHandler{
        ServerHandler(){
                System.out.println("This is contructor called automatically.");
        }

        void print(){
                System.out.println("This is explicitly called by program.");
        }

}
```



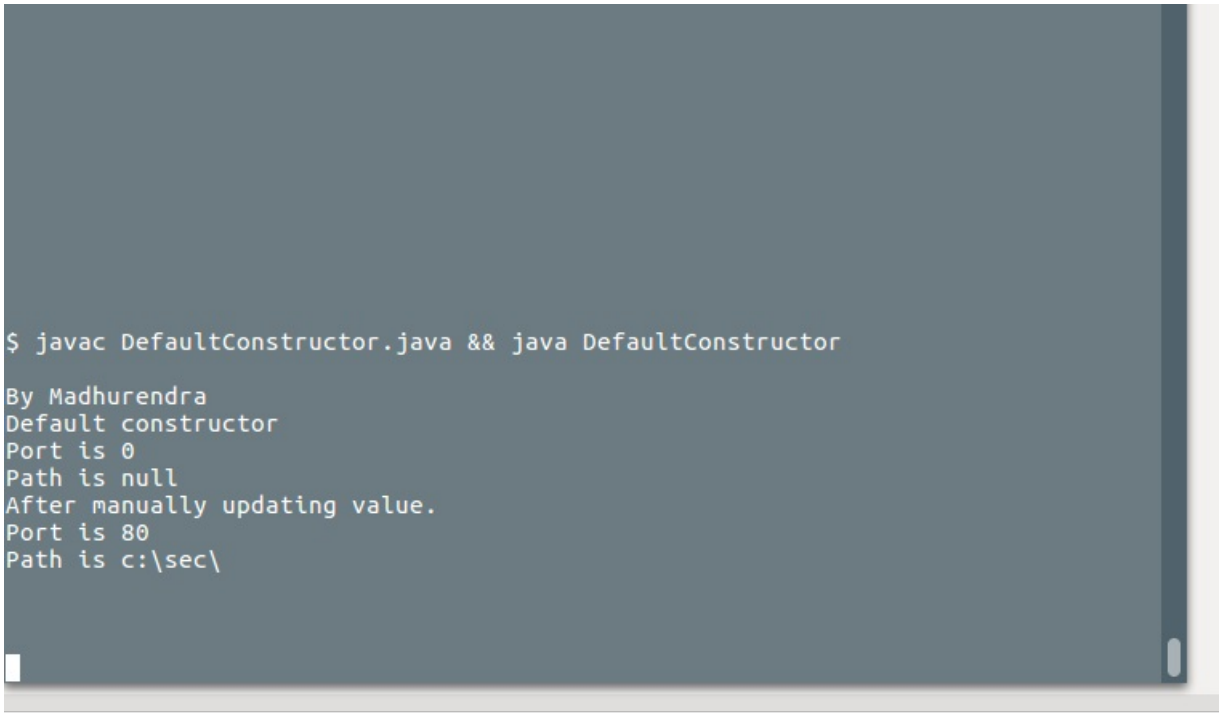
Write a program to show default contructor.

DefaultConstructor.java

```
public class DefaultConstructor{
        public static void main(String args[]){
System.out.println(" By Madhurendra");
                        System.out.println("Default constructor");
                        ServerConfig sc = new ServerConfig();
                        sc.print();
                        sc.port = 80;
                        sc.path="c:\\sec\\";
                        System.out.println("After manually updating value.");
                        sc.print();


        }
}
```

ServerConfig.java

```
public class ServerConfig{
        //default constructor is being called.
        public int port; //set to 0
        public String path; //set to null

        public void print(){
                System.out.println("Port is "+port);
                System.out.println("Path is "+path);
        }
}
```


$ javac DefaultConstructor.java && java DefaultConstructor
By Madhurendra
Default constructor
Port is 0
Path is null
After manually updating value.
Port is 80
Path is c:\sec\

Write a program to show parameterized contructor.

ServerConfig.java

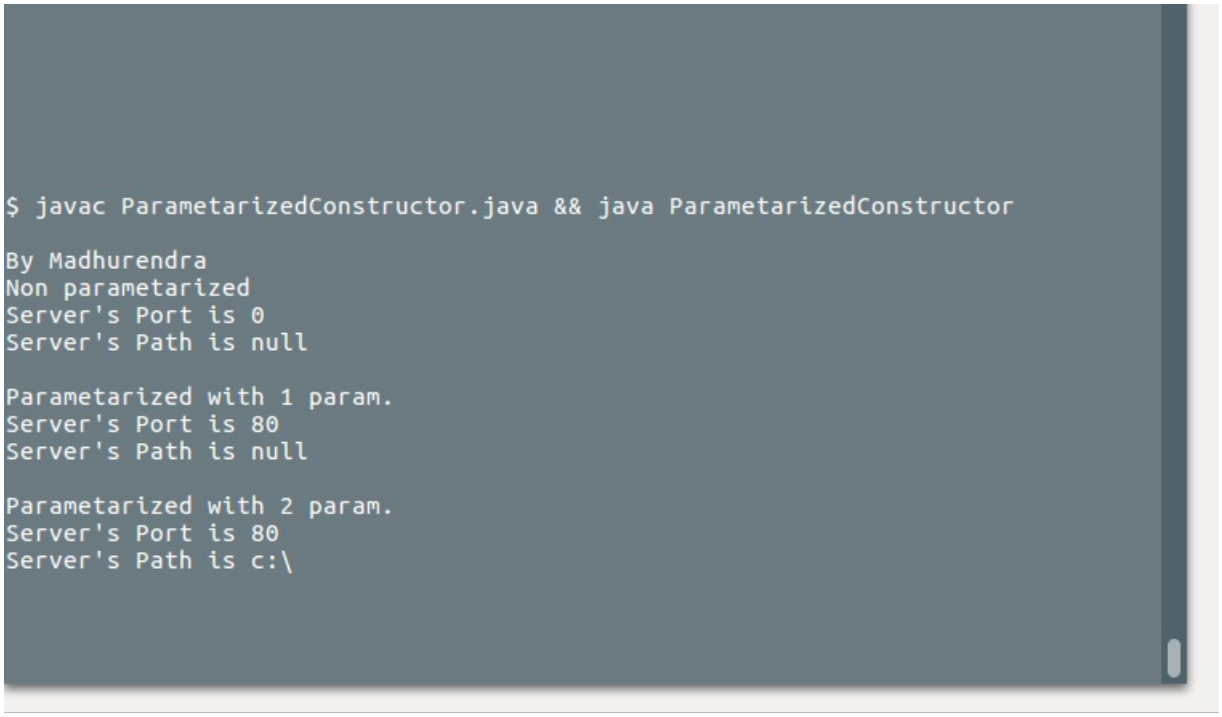
```
public class ServerConfig{
        //default constructor is being called.
        public int port; //set to 0
        public String path; //set to null

        public void print(){
                System.out.println("Port is "+port);
                System.out.println("Path is "+path);
        }
}
```

Server.java

```
public class Server {
        int port;
        String path;
        public Server(){

        }

        public Server(int port){
                this.port  = port;

        }

        public Server(String path){
                this.path = path;
        }

        public Server(String path, int port){
                this.port = port;
                this.path = path;
        }

        public Server(ServerConfig serverConfig){
                this.port = serverConfig.port;
                this.path = serverConfig.path;
        }

        public void print(){
                        System.out.println("Server's Port is "+port);
                        System.out.println("Server's Path is "+path);
        }
}
```

ParametarizedConstructor.java

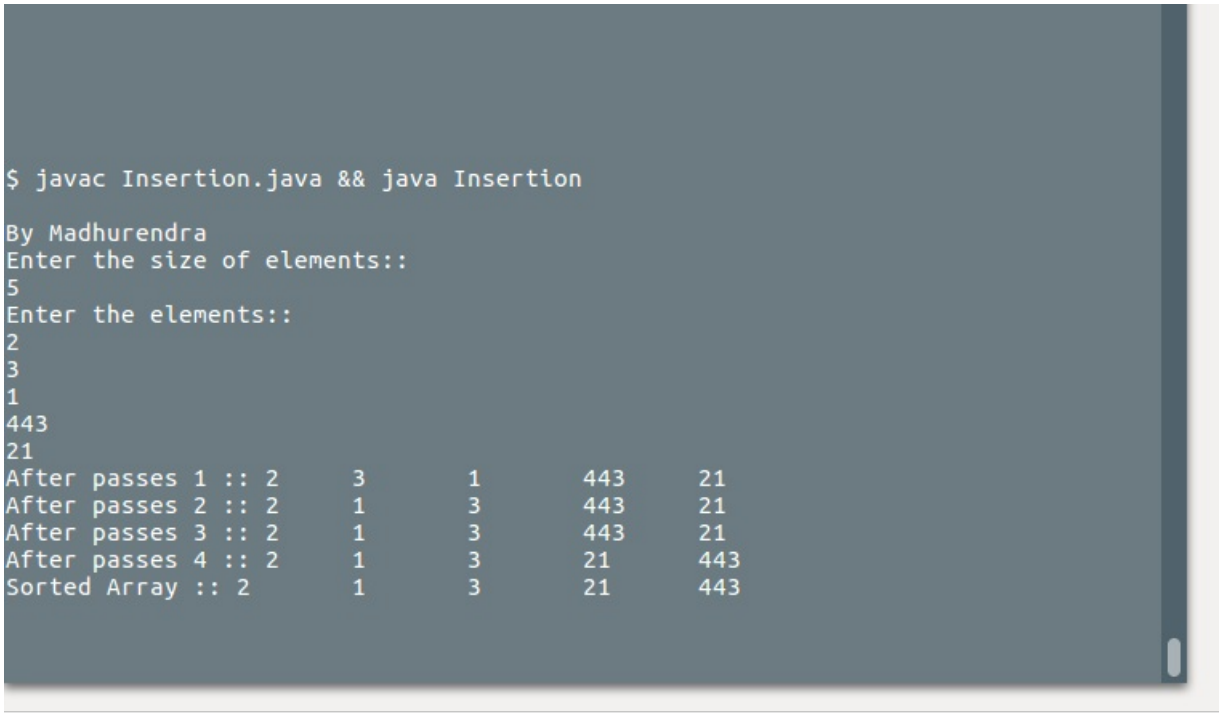
```
public class ParametarizedConstructor{
        public static void main(String args[]){
System.out.println(" By Madhurendra");

                        System.out.println("Non parametarized");
                        (new Server()).print();;
                        System.out.println("\nParametarized with 1 param.");
                        (new Server(80)).print();
                        System.out.println("\nParametarized with 2 param.");
                        (new Server("c:\\",80)).print();
        }
}
```



Write a program to implement insertion sort.

Insertion.java

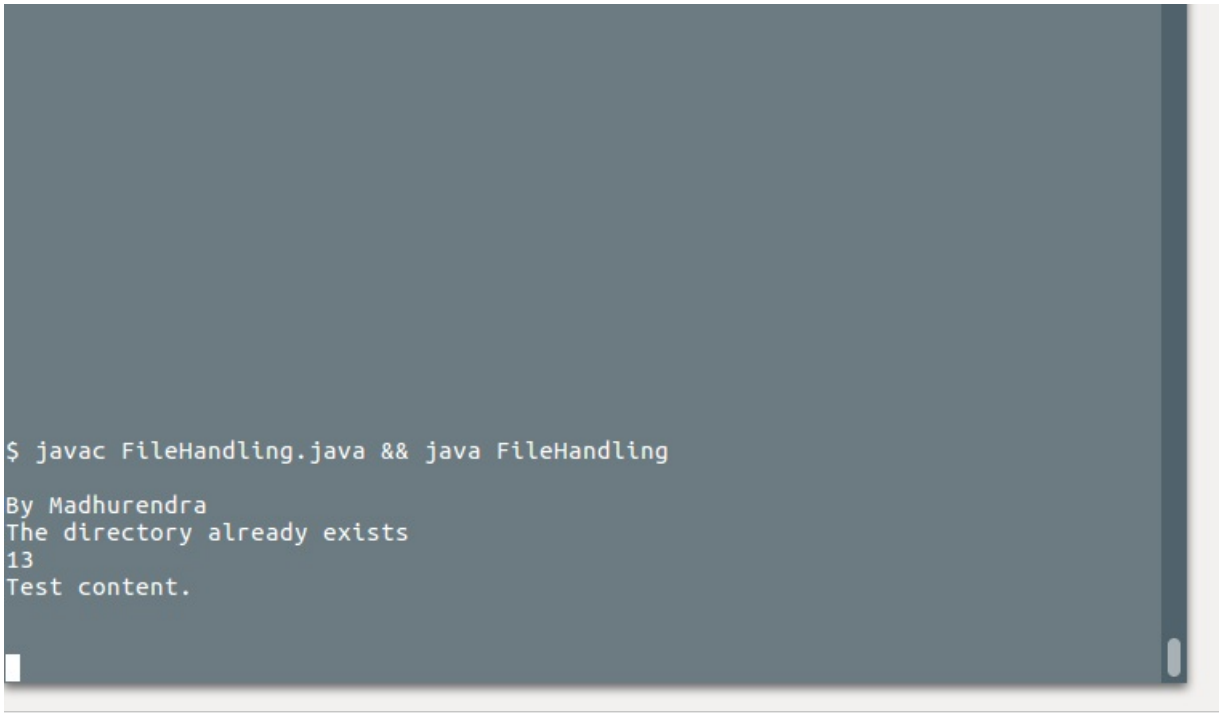
```
import java.util.*;
class Insertion
{
        public static void main(String args[])
        {
System.out.println(" By Madhurendra");
                int a[]=new int[50];
                int n,i,k,j,temp,smallest;
                Scanner sc=new Scanner(System.in);
                System.out.println("Enter the size of elements::");
                n=sc.nextInt();
                System.out.println("Enter the elements::");
                for(i=0;i<n;i++)
                {
                        a[i]=sc.nextInt();
                }
                for(i=1;i<n;i++)
                {
                        temp=a[i];
                        j=i-1;
                        while((temp<a[j]) && (j>0))
                        {
                                a[j+1]=a[j];
                                j=j-1;
                        }
                        a[j+1]=temp;
                        System.out.print("After passes "+i+" :: ");
                        for(k=0;k<n;k++)
                        {
                                System.out.print(a[k]+"\t");
                        }
                        System.out.println();
                }
                System.out.print("Sorted Array :: ");
                for(i=0;i<n;i++)
                {
                        System.out.print(a[i]+"\t");
                }
        }

}
```


$ javac Insertion.java && java Insertion
By Madhurendra
Enter the size of elements::
5
Enter the elements::
2
3
1
443
21
After passes 1 :: 2 3 1 443 21
After passes 2 :: 2 1 3 443 21
After passes 3 :: 2 1 3 443 21
After passes 4 :: 2 1 3 21 443
Sorted Array :: 2 1 3 21 443

Write a program to use FileHandling.

FileHandling.java

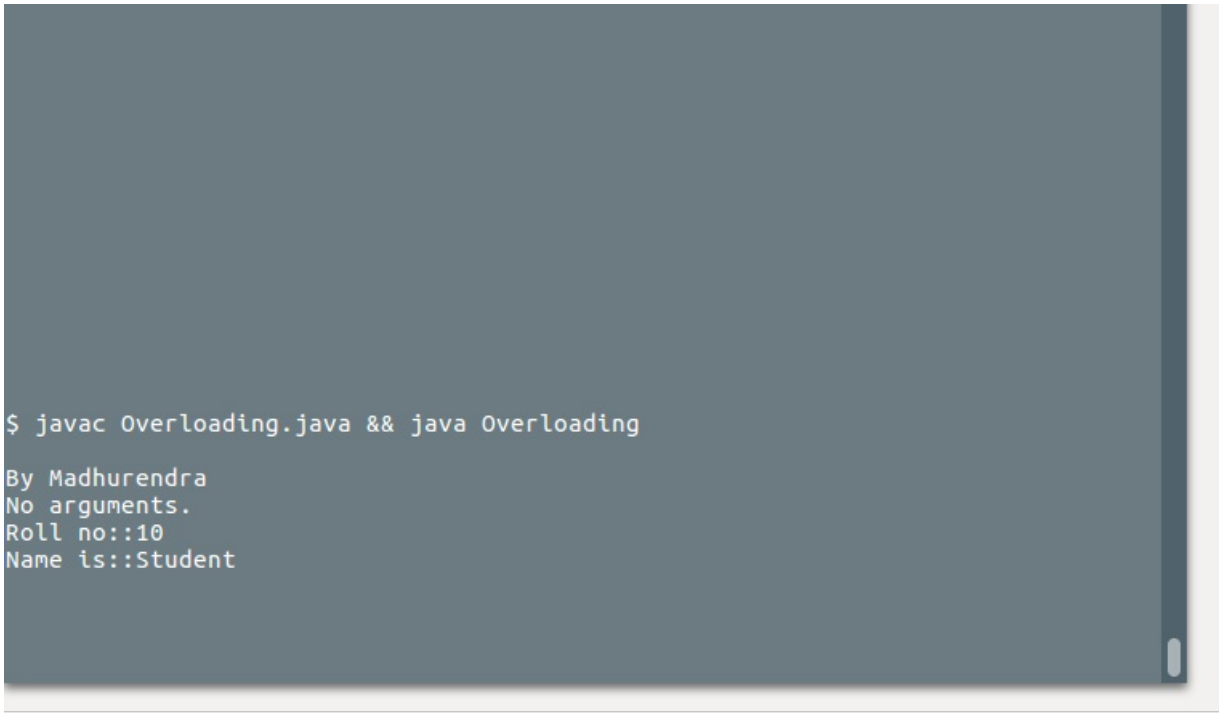
```
import java.io.*;

class FileHandling{
        public static void main(String args[]){
System.out.println(" By Madhurendra");
                char[] in=new char[30];
                int size=0;
                try{
                        File direx=new File("Direx.txt");
                        direx.mkdir();

                        if(direx.exists()){
                                System.out.println("The directory already
exists");

                                File file=new File(direx,"Human.txt");
                                file.createNewFile();

                                FileWriter fw=new FileWriter(file);
                                BufferedWriter bw=new BufferedWriter(fw);
                                bw.write("Test content.");
                                bw.flush();
                                bw.close();

                                FileReader fr=new FileReader(file);
                                BufferedReader br=new BufferedReader(fr);
                                size=br.read(in);
                                System.out.println(size);

                                for(char c:in){
                                        System.out.print(c);
                                }
                        }else{
                                System.out.println("Sorry this directory does not
exist");
                        }

                }catch(Exception e){
                        e.printStackTrace();
                }
        }

}
```


$ javac FileHandling.java && java FileHandling
By Madhurendra
The directory already exists
13
Test content.

Write a program to show method overloading.

Overloading.java

```
class Over
{
        int rollno;
        String name;
        void M1()
        {
                System.out.println("No arguments.");
                this.M1(10,"Student");
        }
        void M1(int rollno, String name)
        {
                this.rollno=rollno;
                this.name=name;
        }
        void M1(String name)
        {
                System.out.println("Name is::"+name);
        }
        void show()
        {
                System.out.println("Roll no::"+rollno);
                System.out.println("Name is::"+name);
        }
}
class Overloading
{
        public static void main(String args[])
        {
System.out.println(" By Madhurendra");
                Over obj=new Over();
                obj.M1();
                obj.show();
        }
}
```


$ javac Overloading.java && java Overloading
By Madhurendra
No arguments.
Roll no::10
Name is::Student