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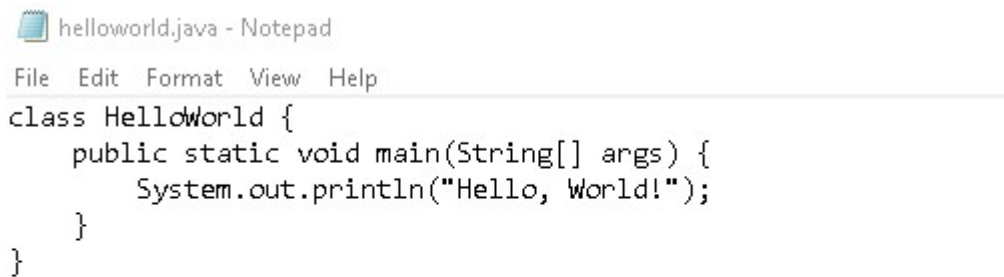
## OOPS THROUGH JAVA LAB

### Week-I

DATE - 22-03-2020

1. Write a Java program print “Hello World”

Program:



helloworld.java - Notepad

File Edit Format View Help

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

---

Output:



Command Prompt

```
C:\Users\Manasamaanu\Desktop\B161254\OOPS\Week_1>java HelloWorld  
Hello, World!
```

2. Write a Java program that prints all real and imaginary solutions to the quadratic equation  $ax^2 + bx + c = 0$ .

Read in a, b, c and use the quadratic formula

## Program:

 Quadratic.java - Notepad

File Edit Format View Help

```
import java.util.*;
class Quadratic{
    public static void main(String args[])
    {

        double det,r1,r2;
        System.out.println("enter the a,b,c values");
        Scanner s=new Scanner(System.in);
        double a=s.nextDouble();
        double b=s.nextDouble();
        double c=s.nextDouble();
        det=b*b-4*a*c;

        if(det==0)
        {
            r1=-b/(2*a);
            System.out.println("The roots are"+r1+" "+r1);

        }
        else if(det>0)
        {
            r1=(-b-Math.sqrt(det))/(2*a);
            r2=(-b+Math.sqrt(det))/(2*a);
            System.out.println("The roots are"+r1+" "+r2);

        }

    }

    }
    else if(det<0)
    {
        det=-det;
        r1=-b;
        r2=2*a;

        System.out.println("The roots are"+r1+" "+"i"+det+"/"+"r2+", "+r1+" -"+"i"+det
        +"/"+"r2);

    }

}
```

## Output:

```
Command Prompt

C:\Users\Manasamaanu\Desktop\B161254\OOPS\Week_1>java HelloWorld
Hello, World!

C:\Users\Manasamaanu\Desktop\B161254\OOPS\Week_1>javac Quadratic.java

C:\Users\Manasamaanu\Desktop\B161254\OOPS\Week_1>java Quadratic
enter the a,b,c values
5
6
1
The roots are-1.0 -0.2
```

3. Write a Java program to implement calculator operations  
Program:

```
class Calculator{
public static void main(String args[])
{
    int res;
    System.out.println("enter the operands");
    Scanner s=new Scanner(System.in);
    int a=s.nextInt();
    int b=s.nextInt();
    System.out.println("enter the operator");
    char c=s.next().charAt(0);

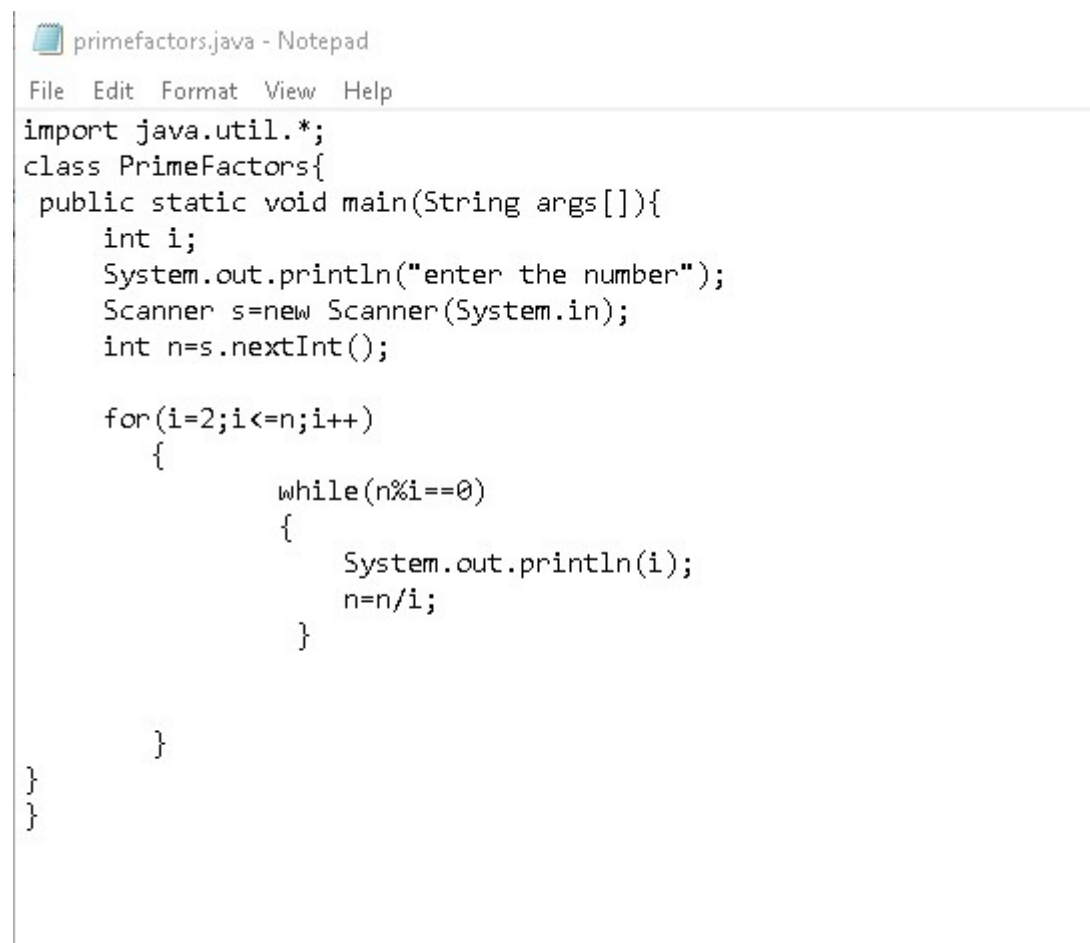
    if(c=='+')
    {
        res=a+b;
        System.out.println(res);
    }
    if(c=='-')
    {
        res=a-b;
        System.out.println(res);
    }
    if(c=='*')
    {
        res=a*b;
        System.out.println(res);
    }
    if(c=='/')
    {
        res=a/b;
        System.out.println(res);
    }
}
}
```

Output:

```
C:\Users\Manasamaanu\Desktop\B161254\00PS\Week_1>java Calculator
enter the operands
3
4
enter the operator
+
7
```

4 .Write a java program to find prime factors of given number

Program:



The screenshot shows a Notepad window titled 'primefactors.java - Notepad'. The menu bar includes 'File', 'Edit', 'Format', 'View', and 'Help'. The code is as follows:

```
import java.util.*;
class PrimeFactors{
    public static void main(String args[]){
        int i;
        System.out.println("enter the number");
        Scanner s=new Scanner(System.in);
        int n=s.nextInt();

        for(i=2;i<=n;i++)
        {
            while(n%i==0)
            {
                System.out.println(i);
                n=n/i;
            }
        }
    }
}
```

Output:

```
Command Prompt
C:\Users\Manasamaanu\Desktop\B161254\00PS\Week_1>java PrimeFactors
enter the number
12
2
2
2
3
```

5. Write a java program to find whether given number is Palindrome or not

Program:

```
palindrome.java - Notepad
File Edit Format View Help
import java.util.*;
class Palindrome{
    public static void main(String args[]){

        int r,sum=0,temp;
        Scanner s=new Scanner(System.in);
        System.out.println("enter the palindrome");
        int n=s.nextInt();
        temp=n;
        while(n!=0)
        {
            r=n%10;
            sum=(sum*10)+r;
            n=n/10;
        }
        if(sum==temp)
        {
            System.out.println("Palindrome");
        }
        else
        {
            System.out.println("Not Palindrome");
        }
    }
}
```

Output:

```
Command Prompt
C:\Users\Manasamaanu\Desktop\B161254\00PS\Week_1>java Palindrome
enter the palindrome
123
Not Palindrome

C:\Users\Manasamaanu\Desktop\B161254\00PS\Week_1>java Palindrome
enter the palindrome
1221
Palindrome
```

6. Write an application that declares 5 integers, determines and prints the largest and smallest in the group  
Program:

```
SmallestLarger.java - Notepad
File Edit Format View Help
import java.util.*;
class Smallest
{
    public static void main(String args[])
    {
        System.out.println("enter the values");
        Scanner s=new Scanner(System.in);
        int a=s.nextInt();
        int b=s.nextInt();
        int c=s.nextInt();
        int d=s.nextInt();
        int e=s.nextInt();
        int t1=a<b?(a<c?a:c):(b<c?b:c);
        int t2=t1<d?(t1<e?t1:e):(d<e?d:e);
        System.out.print("the smallest number is");
        System.out.println(t2);
        t1=a>b?(a>c?a:c):(b>c?b:c);
        t2=t1>d?(t1>e?t1:e):(d>e?d:e);
        System.out.print("the largest number is");
        System.out.println(t2);
    }
}
```

Output:



```
C:\Users\Manasamaanu\Desktop\B161254\00PS\Week_1>java Smallest
enter the values
1
2
11
56
3
the smallest number is1
the largest number is56
```

## Week-II

### 1. Write a Java program to sort given list of numbers

#### Program:



```
sort.java - Notepad
File Edit Format View Help
import java.util.*;
class Sort {
    public static void main(String[] args) {
        int i,j;
        int temp;
        System.out.println("Enter the number of numbers");
        Scanner s=new Scanner(System.in);
        int n=s.nextInt();
        int a[]=new int[n];
        System.out.println("Enter Numbers");
        for(i=0;i<n;i++)
        {
            a[i]=s.nextInt();
        }
        for(i=0;i<n;i++)
        {
            for(j=i;j<n;j++)
            {
                if(a[i]>a[j])
                {
                    temp=a[i];
                    a[i]=a[j];
                    a[j]=temp;
                }
            }
        }
        System.out.println(Arrays.toString(a));
    }
}
```

## Output

```
Command Prompt
C:\Users\Manasamaanu\Desktop\B161254\00PS\week_2>java Sort
Enter the number of numbers
7
Enter Numbers
22
1
34
2
6
7
8
[1, 2, 6, 7, 8, 22, 34]
```

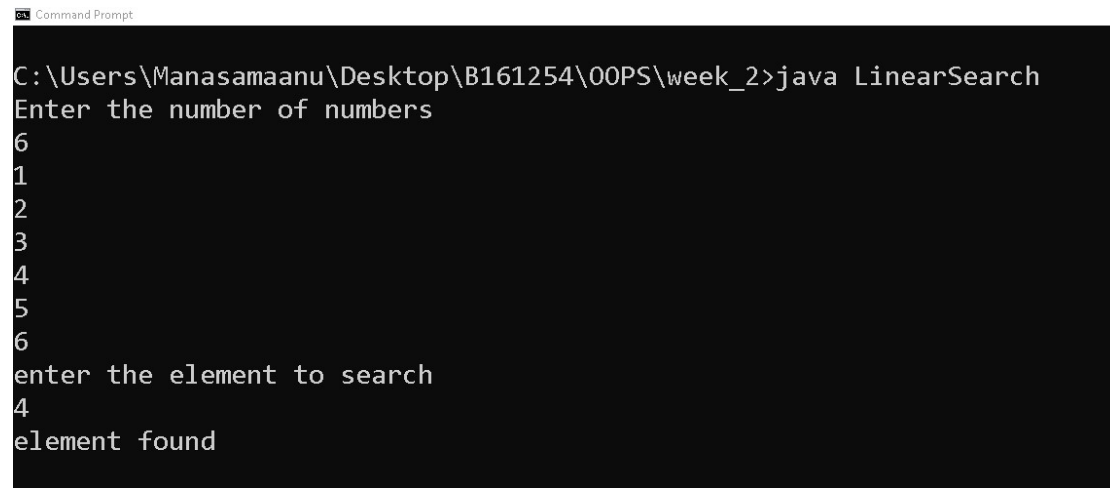
## 2. Write a Java program to implement linear search.

### Program:

```
LinearSearch.java - Notepad
File Edit Format View Help
import java.util.*;
class LinearSearch {
    public static void main(String[] args) {
        int i,j,f=0;

        System.out.println("Enter the number of numbers");
        Scanner s=new Scanner(System.in);
        int n=s.nextInt();
        int a[]=new int[n];
        for(i=0;i<n;i++)
        {
            a[i]=s.nextInt();
        }
        System.out.println("enter the element to search");
        int temp=s.nextInt();
        for(i=0;i<n;i++)
        {
            if(a[i]==temp)
            {
                f=1;
                break;
            }
        }
        if(f==1)
        {
            System.out.println("element found");
        }
        else
        {
            System.out.println("element not found");
        }
    }
}
```

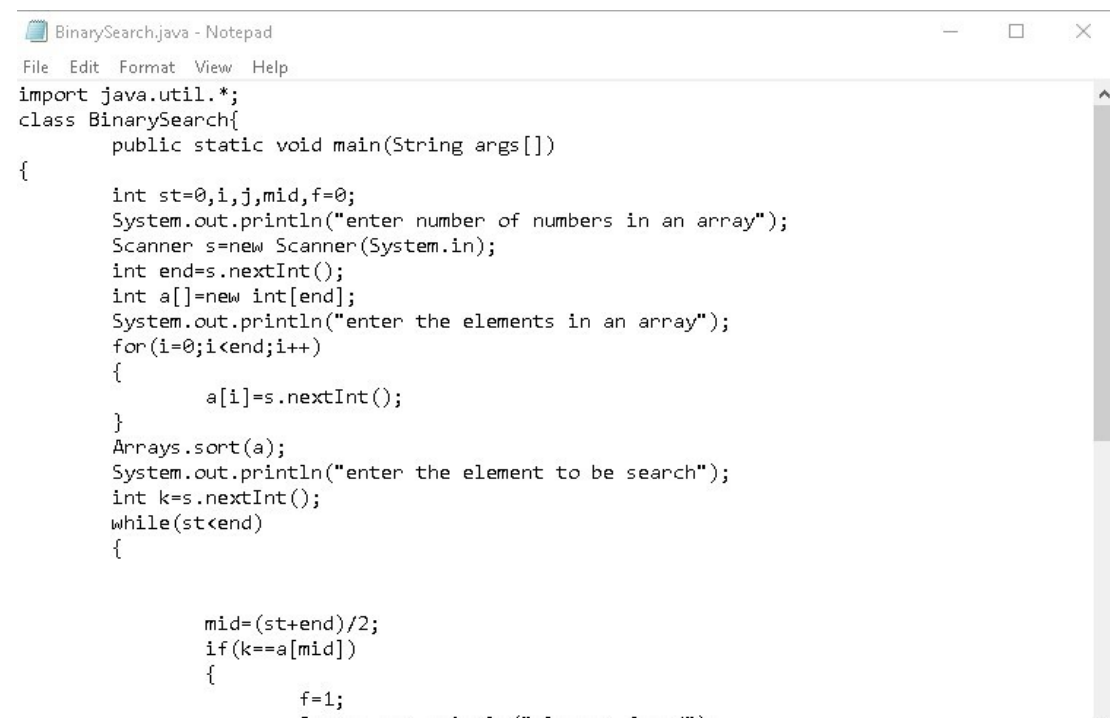
## Output:



```
Command Prompt
C:\Users\Manasamaanu\Desktop\B161254\OOPS\week_2>java LinearSearch
Enter the number of numbers
6
1
2
3
4
5
6
enter the element to search
4
element found
```

## 3. Write a Java program to implement binary search.

### Program:



```
BinarySearch.java - Notepad
File Edit Format View Help
import java.util.*;
class BinarySearch{
    public static void main(String args[])
    {
        int st=0,i,j,mid,f=0;
        System.out.println("enter number of numbers in an array");
        Scanner s=new Scanner(System.in);
        int end=s.nextInt();
        int a[]=new int[end];
        System.out.println("enter the elements in an array");
        for(i=0;i<end;i++)
        {
            a[i]=s.nextInt();
        }
        Arrays.sort(a);
        System.out.println("enter the element to be search");
        int k=s.nextInt();
        while(st<end)
        {
            mid=(st+end)/2;
            if(k==a[mid])
            {
                f=1;
            }
        }
    }
}
```

```

        System.out.println("element found");
    }
    if(a[mid]>k)
    {
        end=mid-1;
    }
    else
    {
        st=mid+1;
    }
}
if(f==0)
{
    System.out.println("notfound");
}
}
}

```

## Output:

```

C:\Users\Manasamaanu\Desktop\B161254\00PS\week_2>javac binarysearch.java

C:\Users\Manasamaanu\Desktop\B161254\00PS\week_2>java BinarySearch
enter number of numbers in an array
6
enter the elements in an array
2
1
3
4
2
5
enter the element to be search
2
element found

```

## 4. Write a java program to add two given matrices.

### Program:

```
add.java - Notepad
File Edit Format View Help
import java.util.*;
class TwodimensionalAddition{
public static void main(String args[])
{
    int i,j;
    System.out.println("enter the number of rows and columns in array1");
    Scanner s=new Scanner(System.in);
    int r1=s.nextInt();
    int c1=s.nextInt();
    System.out.println("enter the number of rows and columns in array2");

    int r2=s.nextInt();
    int c2=s.nextInt();
    int a1[][]=new int[r1][c1];
    int a2[][]=new int[r2][c2];
    int c[][]=new int[r2][c2];
    System.out.println("enter the elents in array1");
    for(i=0;i<r1;i++)
    {
        for(j=0;j<c1;j++)
        {
            a1[i][j]=s.nextInt();
        }
    }
    System.out.println("enter the elents in array2");
    for(i=0;i<r2;i++)
    {
        for(j=0;j<c2;j++)
        {
            a2[i][j]=s.nextInt();
        }
    }

    for(i=0;i<r2;i++)
    {
        for(j=0;j<c2;j++)
        {
            c[i][j]=a1[i][j]+a2[i][j];

            c[i][j]=a1[i][j]+a2[i][j];
        }
    }
    for(i=0;i<r2;i++)
    {
        for(j=0;j<c2;j++)
        {
            System.out.print(c[i][j]);

        }
        System.out.println();
    }
}
```

## 5. Write a java program to multiply two given matrices

### Program:

```
multiply.java - Notepad
File Edit Format View Help
import java.util.*;
class multiply{
public static void main(String args[])
{
    int i,j,k;
    System.out.println("enter the number of rows and columns in array1");
    Scanner s=new Scanner(System.in);
    int r1=s.nextInt();
    int c1=s.nextInt();
    System.out.println("enter the number of rows and columns in array2");

    int r2=s.nextInt();
    int c2=s.nextInt();
    int a1[][]=new int[r1][c1];
    int a2[][]=new int[r2][c2];
    int c[][]=new int[r2][c2];
    if(c1==r2)
    {
        System.out.println("enter the elements in array1");
        for(i=0;i<r1;i++)
        {
            for(j=0;j<c1;j++)
            {
                a1[i][j]=s.nextInt();
            }
        }
        System.out.println("enter the elements in array2");
        for(i=0;i<r2;i++)
        {
            for(j=0;j<c2;j++)
            {
                a2[i][j]=s.nextInt();
            }
        }

        for(i=0;i<c1;i++)
```



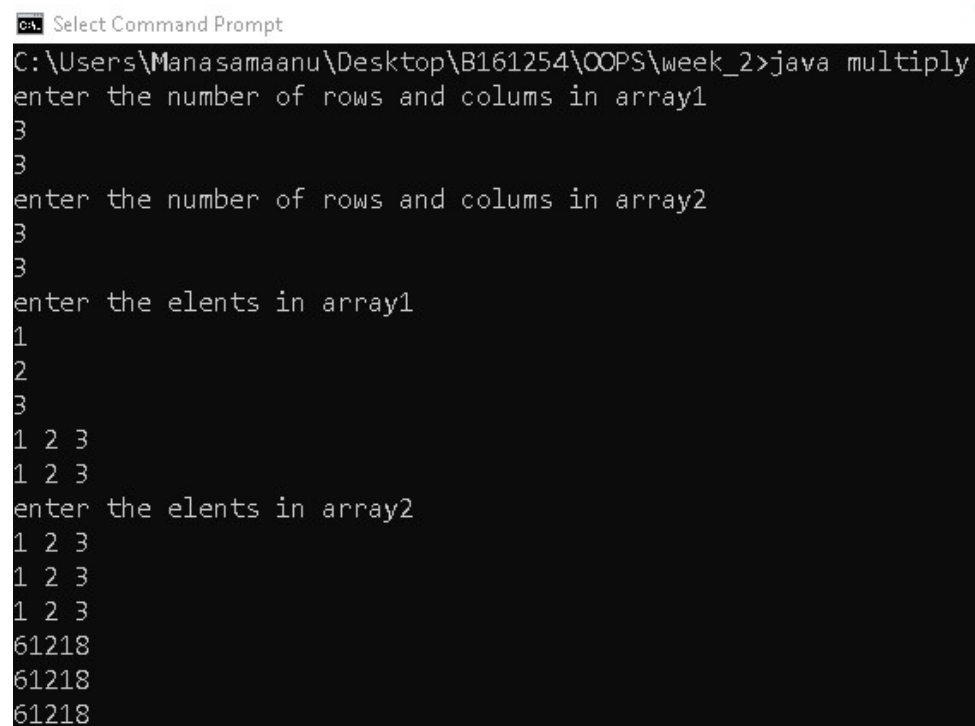
```

        {
            for(j=0;j<r2;j++)
            {
                for(k=0;k<r1;k++)
                {
                    c[i][j]=c[i][j]+a1[i][k]*a2[k][j];
                }
            }
        }
        for(i=0;i<r2;i++)
        {
            for(j=0;j<c2;j++)
            {
                System.out.print(c[i][j]);

            }
            System.out.println();
        }
    }
}
else
{
    System.out.println("operation cannot be done");
}
}
}

```

## Output:



```

C:\Users\Manasamaanu\Desktop\B161254\OOPS\week_2>java multiply
enter the number of rows and columns in array1
3
3
enter the number of rows and columns in array2
3
3
enter the elents in array1
1
2
3
1 2 3
1 2 3
enter the elents in array2
1 2 3
1 2 3
1 2 3
61218
61218
61218

```

## 6. Write a java program for sorting a given list of names.

Program:

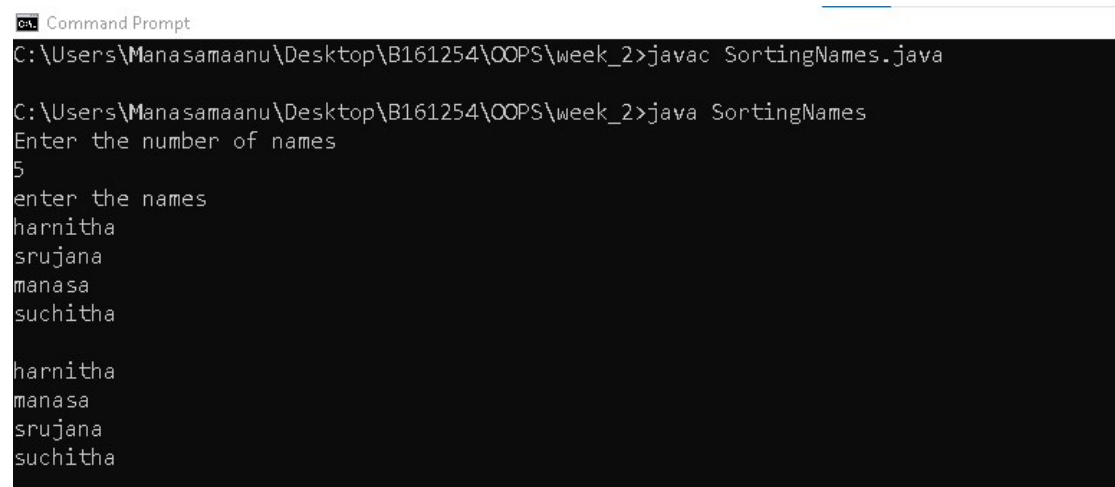
---

```
SortingNames.java - Notepad
File Edit Format View Help

import java.util.*;
class SortingNames{
public static void main(String args[]){
int i,j;
System.out.println("Enter the number of names");
Scanner s=new Scanner(System.in);
int n=s.nextInt();
String temp;
String a[]=new String[n];
System.out.println("enter the names");
for(i=0;i<n;i++){
    a[i]=s.nextLine();
}
for(i=0;i<n;i++){
    for(j=i+1;j<n;j++){
        if(a[i].compareTo(a[j])>0)
        {
            temp=a[i];
            a[i]=a[j];
            a[j]=temp;
        }
    }
}
for(i=0;i<n;i++){
    System.out.println(a[i]);
}
}
}
```

---

## Output:

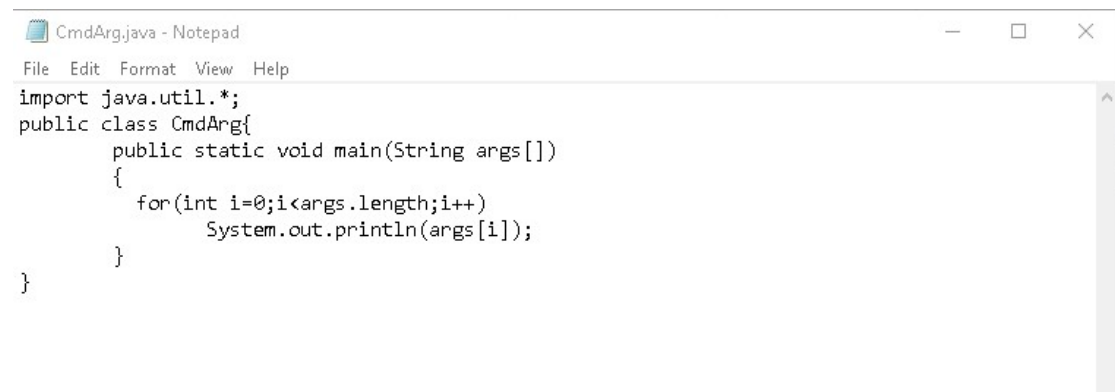


```
Command Prompt
C:\Users\Manasamaanu\Desktop\B161254\OOPS\week_2>javac SortingNames.java
C:\Users\Manasamaanu\Desktop\B161254\OOPS\week_2>java SortingNames
Enter the number of names
5
enter the names
harnitha
srujana
manasa
suchitha

harnitha
manasa
srujana
suchitha
```

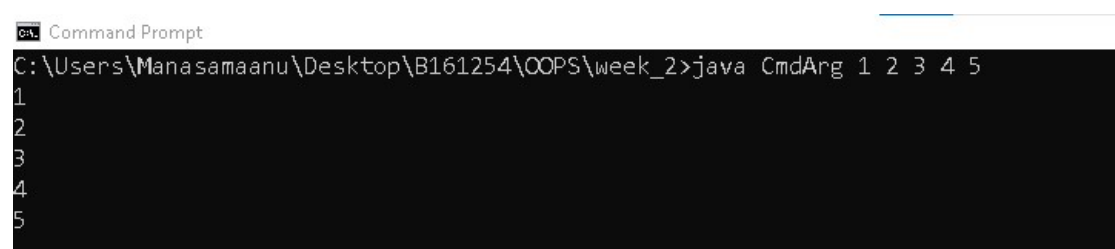
## 7. Write a Java program to give an example for command line arguments

### Program:



```
CmdArg.java - Notepad
File Edit Format View Help
import java.util.*;
public class CmdArg{
    public static void main(String args[])
    {
        for(int i=0;i<args.length;i++)
            System.out.println(args[i]);
    }
}
```

## Output:



```
Command Prompt
C:\Users\Manasamaanu\Desktop\B161254\OOPS\week_2>java CmdArg 1 2 3 4 5
1
2
3
4
5
```

