

GTU Practical List

Date : 17/12/2019

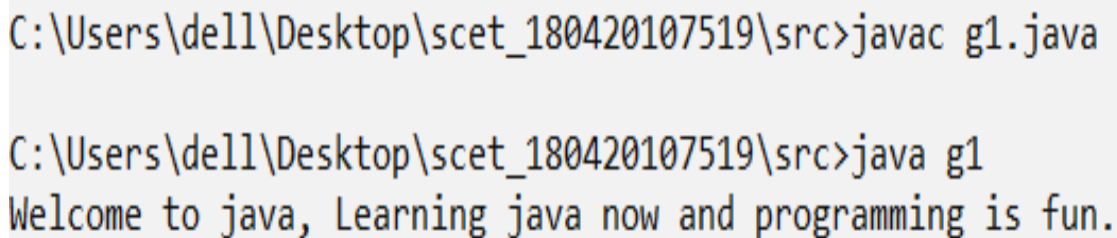
Practical No: 1

Problem Statement : Write a Program that displays Welcome to Java, Learning Java Now and Programming is fun.

Algorithm/Program:

```
import java.util.*;
class g1
{
    public static void main(String args[])
    {
        System.out.print("Welcome to java, Learning java now and programming is fun.");
    }
}
```

Output:



```
C:\Users\dell\Desktop\scet_180420107519\src>javac g1.java

C:\Users\dell\Desktop\scet_180420107519\src>java g1
Welcome to java, Learning java now and programming is fun.
```

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Practical No: 2**Problem Statement :** Write a program that solves the following equation and displays the value x and y:

1) $3.4x + 50.2y = 44.5$ 2) $2.1x + .55y = 5.9$ (Assume Cramer's rule to solve equation $ax + by = e$ $x = \frac{ed - bf}{ad - bc}$ $y = \frac{af - ec}{ad - bc}$)

Algorithm/Program:

```
import java.util.*;
class g2{
    public static void main(String args[]){
        Scanner io=new Scanner(System.in);
        float a,b,c,d,e,f;
        System.out.println("enter the values of a,b,c,d,e,f");
        System.out.println("enter value of A:");
        a=io.nextFloat();
        System.out.println("enter value of B:");
        b=io.nextFloat();
        System.out.println("enter value of C:");
        c=io.nextFloat();
        System.out.println("enter value of D:");
        d=io.nextFloat();
        System.out.println("enter value of E:");
        e=io.nextFloat();
        System.out.println("enter value of F:");
        f=io.nextFloat();
        float x=(e*d)-(b*f)/(a*d)-(b*c);
        float y=(a*f)-(e*c)/(a*b)-(b*c);
        System.out.print("value of X is:"+x+"\nvalue of Y is:"+y);
    }
}
```

Output:

```
C:\Users\dell\Desktop\scet_180420107519\src>java g2
enter the values of a,b,c,d,e,f
enter value of A:
5
enter value of B:
7
enter value of C:
4
enter value of D:
3
enter value of E:
5
enter value of F:
8
value of X is:-16.733334
value of Y is:11.42857
```

Date : 17/12/2019

Practical No: 3

Problem Statement : Write a program that reads a number in meters, converts it to feet, and displays the result.

Algorithm/Program:

```
import java.util.*;
class g3
{
    public static void main(String args[])
    {
        Scanner io=new Scanner(System.in);
        int meter,foot;
        System.out.print("enter the input in meter:");
        meter=io.nextInt();
        foot=3*meter;
        System.out.println(meter+" meter =" +foot+" foot");
    }
}
```

Output:

```
C:\Users\dell\Desktop\scet_180420107519\src>javac g3.java

C:\Users\dell\Desktop\scet_180420107519\src>java g3
enter the input in meter:3
3 meter =9 foot
```

Date : 24/12/2019

Practical No: 4

Problem Statement : Body Mass Index (BMI) is a measure of health on weight. It can be calculated by taking your weight in kilograms and dividing by the square of your height in meters. Write a program that prompts the user to enter a weight in pounds and height in inches and displays the BMI. Note:- 1 pound=.45359237 Kg and 1 inch=.0254 meters

Algorithm/Program:

```
import java.util.*;
class g4
{
    public static void main(String args[])
    {
        Scanner io=new Scanner(System.in);
        double weight1,weight,height1,height,BMI;

        System.out.println("Enter the weight in pound:");
        weight1=io.nextFloat();
        System.out.println("Enter the height in inches:");
        height1=io.nextFloat();
        weight=0.45359237*weight1;
        height=0.0254*height1;
        BMI=weight/(height*height);
        System.out.println("BMI of the given data is:"+BMI);
    }
}
```

Output:

```
C:\Users\dell\Desktop\scet_180420107519\src>javac g4.java
C:\Users\dell\Desktop\scet_180420107519\src>java g4
Enter the weight in pound:
45
Enter the height in inches:
67
BMI of the given data is:7.047924055193176
C:\Users\dell\Desktop\scet_180420107519\src>
```

Date : 24/12/2019

Practical No: 5

Problem Statement : Write a program that prompts the user to enter three integers and display the integers in decreasing order.

Algorithm/Program:

```
import java.util.*;
class g5{
    public static void main(String args[]){
        Scanner io=new Scanner(System.in);
        int a,b,c;
        System.out.println("Enter the three numbers:");
        a=io.nextInt();
        b=io.nextInt();
        c=io.nextInt();
        if(a>b){
            if(a>c){
                if(b>c)
                    System.out.println(a+" "+b+" "+c);
                else
                    System.out.println(a+" "+c+" "+b)
            }
            else
                System.out.println(c+" "+a+" "+b);
        }
        else{
            if(b>c){
                if(a>c)
                    System.out.println(b+" "+a+" "+c);
                else
                    System.out.println(b+" "+c+" "+a);
            }
            else
                System.out.println(c+" "+b+" "+a);
        }
    }
}
```

Output:

```
C:\Users\dell\Desktop\scet_180420107519\src>javac g5.java
C:\Users\dell\Desktop\scet_180420107519\src>java g5
Enter the three numbers:
5
6
7
7 6 5
```

Date : 24/12/2019

Practical No: 6

Problem Statement : Write a program that prompts the user to enter a letter and check whether a letter is a vowel or constant.

Algorithm/Program:

```
import java.util.*;
class g6
{
    public static void main(String[] args)
    {
        System.out.print("enter char.");
        Scanner sc=new Scanner(System.in);
        char c=sc.next().charAt(0);
        if(c=='A' || c=='E' || c=='I' || c=='O' || c=='U' || c=='a' || c=='e' || c=='u' || c=='o' || c=='i')
            System.out.println("char is vowel");
        else
            System.out.println("char not is vowel");
    }
}
```

Output:

```
C:\Users\dell\Desktop\scet_180420107519\src>javac g6.java

C:\Users\dell\Desktop\scet_180420107519\src>java g6
enter char.h
char not is vowel
```

Date : 31/12/2019

Practical No: 7

Problem Statement : Assume a vehicle plate number consists of three uppercase letters followed by four digits. Write a program to generate a plate number.

Algorithm/Program:

```
class g7
{
    public static void main(String[] args)
    {
        int n1,n2,n3,n4;
        n1=(int)(Math.random()*10);
        n2=(int)(Math.random()*10);
        n3=(int)(Math.random()*10);
        n4=(int)(Math.random()*10);

        char c1,c2,c3;
        c1=(char)(((Math.random()*100)/26)+65);
        c2=(char)(((Math.random()*100)/26)+65);
        c3=(char)(((Math.random()*100)/26)+65);

        System.out.print(c1+""+c2+""+c3+" "+n1+""+n2+""+n3+""+n4);
    }
}
```

Output:

```
C:\Users\dell\Desktop\scet_180420107519\src>javac g7.java
C:\Users\dell\Desktop\scet_180420107519\src>java g7
ADD 6862
```

Date : 31/12/2019

Practical No: 8

Problem Statement : Write a program that reads an integer and displays all its smallest factors in increasing order. For example if input number is 120, the output should be as follows:2,2,2,3,5.

Algorithm/Program:

```
import java.util.*;
class g8
{
    public static void main(String[] args)
    {
        int t,k,i,j,n;
        System.out.print("enter no.");
        Scanner sc=new Scanner(System.in);
        int c=sc.nextInt();
        t=c;
        System.out.print(c+" : ");
        for(i=0;i<=c;i++)
        {
            k=0;
            for(j=1;j<=i;j++)
            {
                if(i%j==0)
                    k++;
            }
            if(k!=2)
                continue;
            while(t%i==0)
            {
                System.out.print(i+" ");
                t=t/i;
            }
        }
        System.out.print("1");
    }
}
```

Output:

```
C:\Users\dell\Desktop\scet_180420107519\src>java g8
enter no.6
6 : 2 3 1
```


Date : 07/01/2020

Practical No: 9

Problem Statement : Write a method with following method header. public static int gcd(int num1, int num2) Write a program that prompts the user to enter two integers and compute the gcd of two integers.

Algorithm/Program:

```
import java.util.*;
class g9{
    public static void main(String[] args){
        int t1,t2,n,i,j,k,x,y;
        System.out.print("enter 1st no.");
        Scanner sc=new Scanner(System.in);
        int c=sc.nextInt();
        System.out.print("enter 2nd no.");
        int s=sc.nextInt();
        if(c>s){
            n=c;
            c=s;
            s=n;
        }
        t1=c;
        t2=s;
        n=1;
        for(i=0;i<=c&&i<=s;i++){
            k=0;
            for(j=1;j<=i;j++){
                if(i%j==0)
                    k++;
            }
            if(k!=2)
                continue;
            while(t1%i==0&&t2%i==0){
                t1=t1/i;
                t2=t2/i;
                n=n*i;
            }
        }
        System.out.print(n+" ");
    }
}
```

Output:

```
C:\Users\dell\Desktop\scet_180420107519\src>javac g9.java

C:\Users\dell\Desktop\scet_180420107519\src>java g9
enter 1st no.5
enter 2nd no.6
1
```

Date : 07/01/2020

Practical No: 10

Problem Statement : Write a test program that prompts the user to enter ten numbers, invoke a method to reverse the numbers, display the numbers.

Algorithm/Program:

```
import java.util.Scanner;
public class g10{
    public static void main(String[] args){
        Scanner input = new Scanner(System.in);
        int[] numbers = new int[10];
        System.out.print("Enter ten numbers: ");
        for (int i = 0; i < numbers.length; i++)
            numbers[i] = input.nextInt();
        System.out.println();
        reverse(numbers);
        for (int e: numbers)
            System.out.print(e + " ");
        System.out.println();
    }
    public static void reverse(int[] list){
        int temp;
        for (int i = 0, j = list.length - 1; i < list.length / 2; i++, j--)
        {
            temp = list[i];
            list[i] = list[j];
            list[j] = temp;
        }
    }
}
```

Output:

```
C:\Users\dell\Desktop\scet_180420107519\src>javac g10.java
C:\Users\dell\Desktop\scet_180420107519\src>java g10
Enter ten numbers: 1
2
3
4
5
6
7
8
9
10
10 9 8 7 6 5 4 3 2 1
```

Date : 14/01/2020

Practical No: 11

Problem Statement : Write a program that generate 6*6 two-dimensional matrix, filled with 0's and 1's , display the matrix, check every row and column have an odd number's of 1's.

Algorithm/Program:

```
import java.util.*;
class g11
{
    public static void main(String args[])
    {
        Scanner io=new Scanner(System.in);
        int[][] a=new int[6][6];
        int countr=0,countc=0;
        System.out.println("enetr the element of an array:");
        for(int i=0;i<6;i++)
        {
            for(int j=0;j<6;j++)
                a[i][j]=io.nextInt();
        }
        for(int i=0;i<6;i++)
        {
            for(int j=0;j<6;j++)
                System.out.print(a[i][j]+" ");
            System.out.println();
        }
        for(int i=0;i<6;i++)
        {
            countr=0;countc=0;
            for(int j=0;j<6;j++)
            {
                if(a[i][j]==1)
                    countr++;
                if(a[j][i]==1)
                    countc++;
            }
            if(countr%2==0)
                System.out.println("In"+i+"th row number of one's is even");
            else
                System.out.println("In"+i+"th row number of one's is odd");
            if(countc%2==0)
                System.out.println("In"+i+"th column number of one's is even");
            else
                System.out.println("In"+i+"th column number of one's is odd");
        }
    }
}
```

```
    }  
  }  
}
```

Output:

```
C:\Users\dell\Desktop\scet_180420107519\src>javac g11.java  
  
C:\Users\dell\Desktop\scet_180420107519\src>java g11  
enetr the element of an array:  
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33  
34 35 36  
1 2 3 4 5 6  
7 8 9 10 11 12  
13 14 15 16 17 18  
19 20 21 22 23 24  
25 26 27 28 29 30  
31 32 33 34 35 36  
In0th row number of one's is odd  
In0th column number of one's is odd  
In1th row number of one's is even  
In1th column number of one's is even  
In2th row number of one's is even  
In2th column number of one's is even  
In3th row number of one's is even  
In3th column number of one's is even  
In4th row number of one's is even  
In4th column number of one's is even  
In5th row number of one's is even  
In5th column number of one's is even
```

Date : 14/01/2020

Practical No: 12

Problem Statement : Write a program that creates a Random object with seed 1000 and displays the first 100 random integers between 1 and 49 using the NextInt (49) method.

Algorithm/Program:

```
import java.util.*;
class g12
{
    public static void main(String arg[])
    {
        Random r1 = new Random(1000);
        for(int i=0;i<100;i++)
        {
            System.out.print(r1.nextInt(49) + " ");
        }
    }
}
```

Output:

```
C:\Users\dell\Desktop\scet_180420107519\src>javac g12.java
```

```
C:\Users\dell\Desktop\scet_180420107519\src>java g12
```

```
40 1 17 0 46 46 4 33 9 40 25 13 17 29 30 31 42 35 48 40 11 13 10 0 38 9 0 10 35 10 14 26 34 35 31 43 47 35 2 33 16 48 45
43 5 29 1 35 0 25 28 42 25 2 33 30 18 27 4 28 31 35 9 13 33 12 18 36 39 7 17 31 21 26 47 39 11 40 11 26 48 26 27 32 19
30 26 4 7 40 9 41 8 37 3 34 10 36 4 21
```

```
C:\Users\dell\Desktop\scet_180420107519\src>
```

Date : 14/01/2020

Practical No: 13

Problem Statement : Write a program for calculator to accept an expression as a string in which the operands and operator are separated by zero or more spaces. For ex: 3+4 and 3 + 4 are acceptable expressions

Algorithm/Program:

```
import java.lang.*;
import java.util.*;
class g13
{
    public static void main(String[] args)
    {
        String s;
        int i,c=0,j=0;
        char ch='a';
        int a[] = new int[10];
        double n=0;
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter String...");
        s = sc.nextLine();
        int l=s.length();
        for(i=0;i<l;i++)
        {
            ch = s.charAt(i);
            if(ch!=' ')
            {
                if(!Character.isDigit(ch))
                {
                    break;
                }
            }
            c++;
        }
        String s1 = s.substring(0,c);
        String s2 = s.substring(c+1);
        String s3=s1.trim();
        String s4=s2.trim();
        int n1 = Integer.valueOf(s3);
        int n2 = Integer.valueOf(s4);
        switch(ch)
        {
            case '+': n=n1+n2;
                    break;
```

```
        case '-': n=n1-n2;
                break;
        case '*': n=n1*n2;
                break;
        case '/': n=n1/n2;
                break;
        default: System.out.println("Enter correct op");
    }
    System.out.println(n);
}
}
```

Output:

```
C:\Users\dell\Desktop\scet_180420107519\src>javac g13.java

C:\Users\dell\Desktop\scet_180420107519\src>java g13
Enter String...
5+7
12.0
```