Week-1

1a) Write a JAVA program to display default value of all primitive data type of JAVA

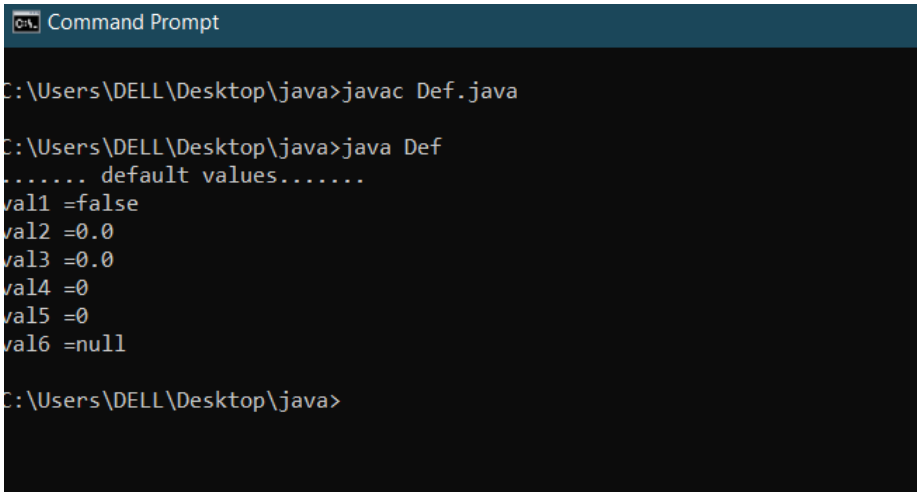
Aim : Write a JAVA program to display default value of all primitive data type

Program:

```
class Def {
 static boolean val1;
static double val2;
 static float val3;
 static int val4;
static long val5;
 static String val6;

public static void main(String args[])
{
System.out.println("..... default values.....");
System.out.println("val1 ="+val1);
System.out.println("val2 ="+val2);
System.out.println("val3 ="+val3);
System.out.println("val4 ="+val4);
System.out.println("val5 ="+val5);
System.out.println("val6 ="+val6);
}
}
```

Output:



1b) AIM: To write a Java program to find the discriminant value D and find out the roots of the quadratic equation of the form ax2+bx+c=0.

Program:

```
import java.util.*;
class Quadratic
{
public static void main(String args[])
{
double a,b,c,d;
double root1,root2;
Scanner sc=new Scanner(System.in);
System.out.println("Enter a value");
a=sc.nextDouble();
System.out.println("Enter b value");
b=sc.nextDouble();
System.out.println("Enter c value");
c=sc.nextDouble();
d=(b*b)-(4*a*c);
```

```
if(d>0)
{
root1=(-b+Math.sqrt(d))/(2*a);
root2=(-b-Math.sqrt(d))/(2*a);
System.out.println("Root1="+root1);
System.out.println("Root2="+root2);
System.out.println("Roots are distinct");
}
else if(d==0)
{
root1=root2=((-b)/(2*a));
System.out.println("Root1="+root1+"Root2="+root2);
System.out.println("Roots are equal");
}
else  {
System.out.println("Roots are imaginary");
}
}
}
```

Output:

```
C:\Users\DELL\Desktop\java>javac Quadratic.java

C:\Users\DELL\Desktop\java>java Quadratic
Enter a value
5
Enter b value
3
Enter c value
2
Roots are imaginary

C:\Users\DELL\Desktop\java>
```

Week-2

a) Aim:

Write a JAVA program to search for an element in a given list of elements using binary search mechanism.

```
import java.util.*;
 class Binary
{
 public static void main(String args[])
 {
  int low,mid,high,key,i,count=0;
  Scanner sc = new Scanner(System.in);
  System.out.println("Enter the size of the list:");
  int n = sc.nextInt();
     int[] a = new int[n];
  int[] b = new int[n];
     System.out.println("Enter the elements:");
  for(i=0;i<n;i++)
   a[i]=sc.nextInt();
System.out.println("Enter a key to search:");
  key=sc.nextInt();
     for(i=0;i<n;i++)
   b[i]=a[i];
  Arrays.sort(a);
  low=0;
  high=n-1;
              while(low<=high)
  {
   mid=(low+high)/2;
```

```
 int temp=0;
    if(key==a[mid])
 {
  for(i=0;i<n;i++)
  {
   if(key==b[i])
   {
    temp=i;
    break;
   } }
  System.out.println("The element is found at thelocation:"+(temp+1));
  break;
 }
 else if(key<a[mid])
  high=mid-1;
 else
  low=mid+1;
 count++;
}
if(low>high)
 System.out.println("Element is not present in the given list");
} }
```

Output:

```
C:\Users\DELL\Desktop\java>java Binary
Enter the size of the list:
3
Enter the elements:
12
35
56
Enter a key to search:
56
The element is found at thelocation:3
```

b) Aim:

Write a JAVA program to sort for an element in a given list of elements using bubble sort

Program:

```
import java.util.Scanner;
 class Bubble
{
 public static void main(String args[])
 {
  int i,j,n;
  Scanner sc = new Scanner(System.in);
  System.out.println("Enter the no.of elements:");
  n=sc.nextInt();
  int[] a = new int[n];
  System.out.println("Enter the elements:");
  for(i=0;i<n;i++)
  {
   a[i]=sc.nextInt();
  }
  int temp;

  for(i=0;i<n-1;i++)
  {
   for(j=0;j<n-i-1;j++)
   {
    if(a[j]>a[j+1])
    {
     temp=a[j];
```

```
a[j]=a[j+1];
     a[j+1]=temp;
    }
   }
}
  System.out.println("Sorted List");
  for(int k : a)
  {
   System.out.print(k + " ");
  }
 }
}
```

Output:

```
C:\Users\DELL\Desktop\java>java Bubble
Enter the no.of elements:
5
Enter the elements:
14
56
2
34
42
Sorted List
2 14 34 42 56
C:\Users\DELL\Desktop\java>
```

Week-3

3a)Aim;

Write a java program to implement class mechanism .Create a class,methods and invoke them inside main methods.

Program:

```
class Student{
String name;
char  gender;
int rollno;
void get(String n,char g,int r)
{
name=n;
gender=g;
rollno=r;
}
void show()
{
System.out.println("NAME="+name);
System.out.println("GENDER="+gender);
System.out.println("ROLL NO="+rollno);
}
}
class Details{
public static void main(String args[]){
Student s=new Student();
s.get("Sameer",'m',52);
s.show();
}}
```

Output:

```
C:\Users\admin>cd Desktop

C:\Users\admin\Desktop>javac Details.java

C:\Users\admin\Desktop>java Details
NAME=Sameer
GENDER=m
ROLL NO=52
```

3b) Aim:

Write a JAVA program implement method overloading.

Program:

```
class Area{
void area(int x){
System.out.println("Area of square-"+(x*x));
}
void area(int l,int b){
System.out.println("Are of rectangle"+(l*b));
}
void area(float x){
System.out.println("Area of circle"+(Math.PI*x*x));
}
}
class Demo{
public static void main(String args[]){
Area a=new Area();
a.area(10);
a.area(2,5);
a.area(2.4f);
}}
```

Output:

```
C:\Users\DELL\Desktop\java>javac Demo.java

C:\Users\DELL\Desktop\java>java Demo
Area of square-100
Are of rectangle10
Area of circle18.095575122784226
```

3c) Aim:

Write a JAVA program to implement constructor

Program:

```
class Spec
{
Spec(){
System.out.println("Constructor");
}
 public static void main(String[] args){
 Spec s=new Spec();
}
}
```

Output:

```
C:\Users\DELL\Desktop\java>javac Spec.java

C:\Users\DELL\Desktop\java>java Spec
Constructor
```

d)Aim:

Write a JAVA program to implement constructor overloading.

Program:

```
class Box
{
int length,width,height;
Box() {
length=8;
width=5;
height=3;
}
Box(int l,int w,int h)
{
length=l;
width=w;
height=h;
}
Box(int x){
length=x;
width=x;
height=x;
}
int volume()

{
return(length*width*height);
}
}
```

```
class Consover
{
public static void main(String args[])
{
Box b1=new Box();
Box b2=new Box(10,20,15);
Box b3=new Box(8);
System.out.println("Volume of box 1 is ="+b1.volume());
System.out.println("Volume of box 2 is ="+b2.volume());
System.out.println("Volume of box 3 is ="+b3.volume());
}
}
```

Output:

```
C:\Users\DELL\Desktop\java>java Consover
Volume of box 1 is =120
Volume of box 2 is =3000
Volume of box 3 is =512
```