OOP LAB

Week 4

Udeet Mittal

CSE C3

Roll Number 64

1.

filename: Person.java

```
class Person
{
	private String name;
	private String dob;
	Person()
	{
		name="";
		dob="";
	}
	void setname(String s)
	{
		name=s;
	}
	void setdob(String db)
	{
		dob=db;
	}
	String getname()
	{
		return name;
	}
	String getdob()
	{
		return dob;
	}
	void display()
	{
		System.out.println("\nName: "+getname()+"\nDate of Birth: "+getdob());
	}
}
```

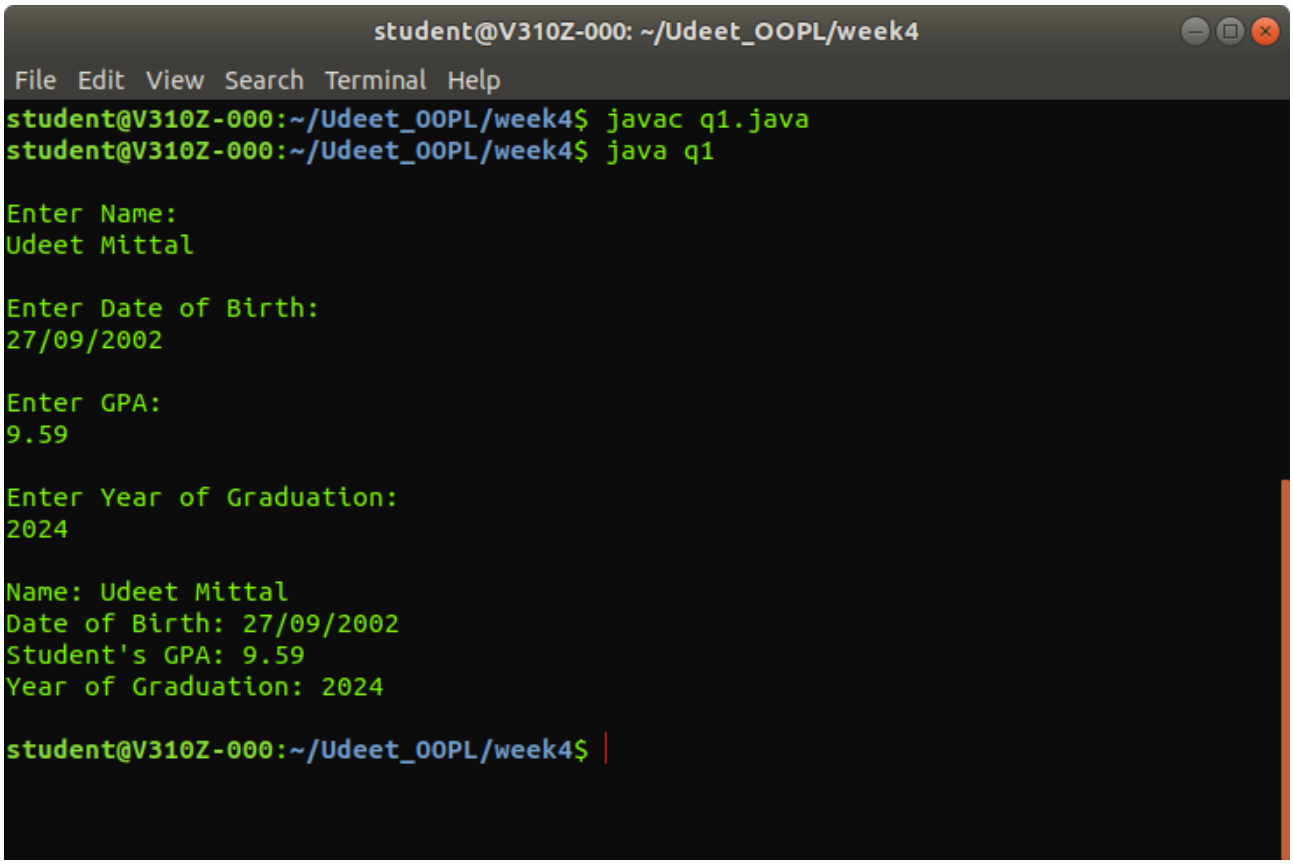
filename: CollegeGraduate.java

```
class CollegeGraduate extends Person
{
	private float gpa;
	private int year;
	CollegeGraduate()
	{
		super();
	}
	void setgpa(float s)
	{
		gpa=s;
	}
	void setyear(int y)
	{
		year=y;
	}
	float getgpa()
	{
		return gpa;
	}
	int getyear()
	{
		return year;
	}
	void display()
	{
		super.display();
		System.out.println("Student's GPA: "+getgpa()+"\nYear of Graduation: "+getyear()
+"\n");
	}
}
```

filename: q1.java

```
import java.util.*;
class q1
{
	public static void main(String[] args) {
		Scanner sc=new Scanner(System.in);
		CollegeGraduate obj=new CollegeGraduate();
		System.out.println("\nEnter Name:");
		String name=sc.nextLine();
		obj.setname(name);
		System.out.println("\nEnter Date of Birth:");
		String dob=sc.nextLine();
		obj.setdob(dob);
		System.out.println("\nEnter GPA:");
```

```
                float gpa=sc.nextFloat();
                obj.setgpa(gpa);
                System.out.println("\nEnter Year of Graduation:");
                int year=sc.nextInt();
                obj.setyear(year);
                obj.display();
        }
}
```



2.

filename: Max.java
directory: home/Udeet_OOPL/week4/myPackages/p1

```
package p1;
import java.util.*;
public class Max
{
        public static int max(int a,int b,int c)
        {
                return (a>b)?((a>c)?a:c):((b>c)?b:c);
        }
        public static float max(float a,float b,float c)
```

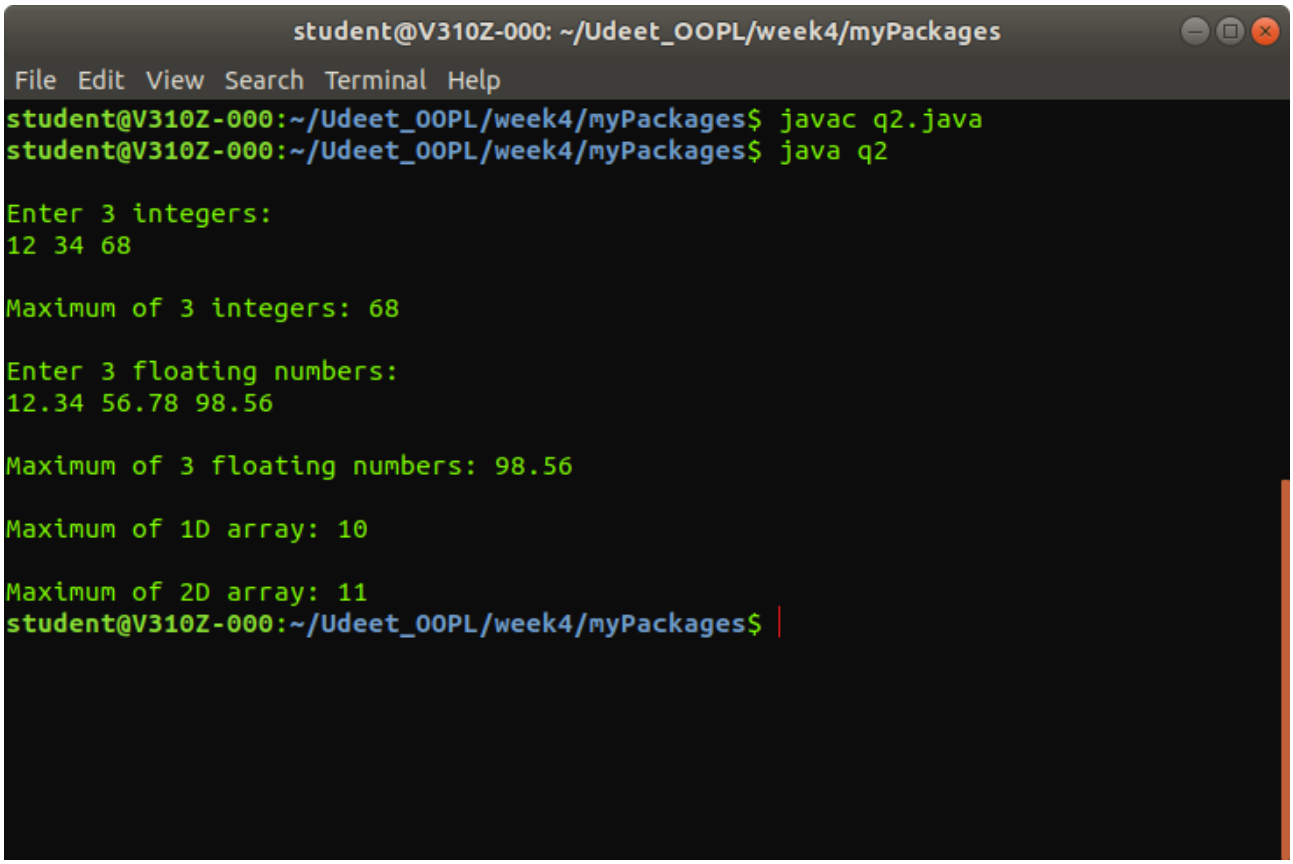
```
	{
		return (a>b)?((a>c)?a:c):((b>c)?b:c);
	}
	public static int max(int arr[])
	{int max=arr[0];
		for(int i=1;i<arr.length;i++)
		{
			if(arr[i]>max)
				max=arr[i];
		}
		return max;
	}
	public static int max(int arr[][])
	{int max=arr[0][0];
		for (int i=0;i<arr.length;i++) {
			for (int j=0;j<arr[0].length;j++ ) {
				if(arr[i][j]>max)
					max=arr[i][j];
			}
		}
		return max;
	}
}
```

filename: q2.java
directory: home/Udeet_OOPL/week4/myPackages

```
import p1.Max;
import java.util.*;
class q2
{
	public static void main(String[] args) {
	Scanner sc=new Scanner(System.in);
	System.out.println("\nEnter 3 integers:");
	int a=sc.nextInt();
	int b=sc.nextInt();
	int c=sc.nextInt();
	System.out.println("\nMaximum of 3 integers: "+Max.max(a,b,c)+"\n");
                                                                                    // max of 3 integers
	System.out.println("Enter 3 floating numbers:");
	float ax=sc.nextFloat();
	float bx=sc.nextFloat();
	float cx=sc.nextFloat();
	System.out.println("\nMaximum of 3 floating numbers: "+Max.max(ax,bx,cx));
                                                                          // max of 3 floating numbers
	int ar[] = {1, 2, 3, 4, 5, 6, 7, 8, 9, 10};
	System.out.println("\nMaximum of 1D array: "+Max.max(ar));
                                                                                  //max from an array
```

```
        int ar2[][] = {{1, 2, 3, 4, 5},{7, 8, 9, 10, 11}};
        System.out.println("\nMaximum of 2D array: "+Max.max(ar2));
                                                                    //max from a 2D array

        }
}
```



3.

filename: Figure.java

```
abstract class Figure {
        int dim1, dim2;
        Figure(int dim1, int dim2){
                this.dim1 = dim1;
                this.dim2 = dim2;
        }
        abstract void area();
}
```

filename: Rectangle.java

```
class Rectangle extends Figure
{
	Rectangle(int l, int b)
	{
		super(l, b);
	}

	void area()
	{
		System.out.println("\nArea of Rectangle: " + (dim1 * dim2));
	}
}
```

filename: Triangle.java

```
class Triangle extends Figure
{
	Triangle(int b, int h)
	{
		super(b, h);
	}

	void area()
	{
		double ar = 0.5*dim1*dim2;
		System.out.println("\nArea of Triangle: " + ar);
	}
}
```

filename: Square.java

```
class Square extends Figure
{
	Square(int s)
	{
		super(s, s);
	}

	void area()
	{
		System.out.println("\nArea of Square: " + (dim1 * dim2));
	}
}
```

filename: q3.java

```
import java.util.*;
class q3
{
	public static void main(String[] args)
	{
		Scanner sc=new Scanner(System.in);
		System.out.println("Enter the length and breadth of rectangle:");
		int l=sc.nextInt();
		int b=sc.nextInt();
		Rectangle rect = new Rectangle(l, b);
		Figure s1 = rect;
		s1.area();
		System.out.println("\nEnter the base and height of triangle:");
		int base=sc.nextInt();
		int h=sc.nextInt();
		Triangle tri = new Triangle(base, h);
		s1 = tri;
		s1.area();
		System.out.println("\nEnter the side of square:");
		int side=sc.nextInt();
		Square sqr = new Square(side);
		s1 = sqr;
		s1.area();
	}
}
```