Name : Ahmad Baseer **Roll no : 124**

Section : C

OOP LAB # 08

Objective: To Study Pass Objects As Parameter To Methods and Constructors.

Task#01: Create a class Point, with two properties x and y. Write all the methods to manipulate the values of Point. Write a method that can check two Objects of Point class for Equality.

Source code:

```
package test;
public class Point {
int x1,y1,x2,y2;
Point(int x1,int y1,int x2,int y2){
this.x1=x1;
this.x2=x2;
this.y1=y1;
this.y2=y2;
}
public double distance( ){
int x=x2-x1;
int y=y2-y1;
return Math.sqrt(x*x+y*y);
}
public String MidPoint( ){
int x=(x2+x1)/2;
int y=(y2+y1)/2;
return ("Mid point of line is: ("+x+","+y+")");
}
boolean equals(Point obj) {
if(obj.x1 == x1 && obj.x2 == x2 && obj.y1 == y1 && obj.y2 == y2)
return true;
else
return false;
}
}
package test;
import java.util.Scanner;
public class Test {
public static void main(String[] args) {
Scanner sc=new Scanner(System.in);
int a,b,c,d;
System.out.print("Plz enter first point x co-ordinate:");
a=sc.nextInt();
System.out.print("Plz enter first point y co-ordinate:");
b=sc.nextInt();
System.out.print("Plz enter Second point x co-ordinate:");
c=sc.nextInt();
System.out.print("Plz enter Second point y co-ordinate:");
d=sc.nextInt();
System.out.println();
Point p=new Point(a,b,c,d);
Point p1=new Point(3,4,5,6);
System.out.print("Distance between given points is: "+p.distance());
```

```
System.out.println();
System.out.println("p == p1: " + p.equals(p1));
System.out.print(p.MidPoint());
}
}
```

Output:

```
Plz enter first point x co-ordinate:4
Plz enter first point y co-ordinate:5
Plz enter Second point x co-ordinate:6
Plz enter Second point y co-ordinate:7

Distance between given points is: 2.8284271247461903
p == p1: false
Mid point of line is: (5,6)
```

Task#02. Create a Class Line. Line Objects will be created by 2 Point Objects. Create 2 Line objects and check their equality by calling Point class equals function from Line class equals function.

Source code:

```
package line;
public class Point  {
int x,y;
Point(int a , int b){
x=a;
y=b;
}
static Line L2=new Line();
String equals(){
if("True".equals(L2.S))
return "Line class objects are equals";
else
return "Line class objects are not equals";
}
}
package line;
public class Line{
Line(){
}
int c,d;
static String S;
Line(int a, int b){
c=a;
d=b;
}
public static void Checking(Point o,Point j){
Line L=new Line(4,6);
Line L1=new Line(4,6);
if(L.c==L1.c&&L.d==L1.d){
S="True";
}
else{
S="false";
}
}   static Point p1=new Point(5,7);
static Point p2=new Point(6,7);
static void equals(){
```

```
String S2=p1.equals();
System.out.println(S2);
}
public static void main(String[] args) {
Checking(p1,p2);
equals();
}
}
```

Output:

```
Line class objects are equals          //program output when objects are kept same

Line class objects are not equals      //program output when objects are kept not same
```