Hands-on Experiment # 4 : Worksheet

Section_____ Date_____

No more than 3 students per one submission of this worksheet.

Student ID _____ Name_____

Student ID _____ Name_____

Student ID _____ Name_____

Part A: Java API

1. Place the file "Point.class" (which is a Java bytecode) in the same folder as the Java source code files you will be writing in this Hands-on Experiment.
2. Understand the source file "Point.pdf" (Point.java). Assume we want to create a point called "startPoint" at (2,3). Write the code to do the following task:
    a. Create this point
    b. Compute the distance of this point to the original point (origin)
    c. Clear this point

```
public class PartA {
   public static void main(String[] args) {
      Point p = new Point(2, 3);
      double dist = p.distance(Point.origin);
      System.out.println(dist);
      p.clear();
   }
}
```

3. Explain the difference between "static data" and "object data"

Static data belongs to the class while object data belongs to the specific instance/object of the class

Part B: Scanner

4. Write a Java program "PointTest1.java" to read two points from user. Locations x and y are entered by user separately. The output is the distance between two points. (Hint: use "Scanner" to input data from user)

a. List your source code below.

```
import java.util.Scanner;

public class PointTest1 {
   public static void main(String[] args) {
      Scanner sc = new Scanner(System.in);
      int x1 = sc.nextInt();
      int y1 = sc.nextInt();
      int x2 = sc.nextInt();
      int y2 = sc.nextInt();
      Point a = new Point(x1, y1);
      Point b = new Point(x2, y2);
      double dist = a.distance(b);
      System.out.println(dist);
   }
}
```

b. Capture the program output.

```
3 5
1 3
2.8284271247461903
```

Part C: BufferedReader (Advanced Problem)

5. Place the file "location.txt" in the same folder as the Java source code. In this file there is a single point, where x and y are shown in Line 1 and 2, respectively. Write a Java program "PointTest2.java" to read "location.txt" and output the distance to the original location (origin). (Hint: use "BufferedReader" to read data from file)

c. What is the location in the text file "location.txt"?

X=20, Y=50

d. List your source code below.

```
import java.io.IOException;
import java.io.BufferedReader;
import java.io.FileReader;

public class PointTest2 {
```

```
  public static void main(String[] args) throws IOException {
    BufferedReader in = new BufferedReader(new FileReader("location.txt"));
    String p1 = in.readLine();
    int x = Integer.parseInt(p1);
    String p2 = in.readLine();
    int y = Integer.parseInt(p2);
    Point p = new Point(x, y);
    System.out.print("X = " + x + " Y = " + y + '\n');
    double dist = p.distance(Point.origin);
    System.out.println(dist);
  }
}
```

e. Capture the program output.

```
X = 20 Y = 50
53.85164807134504
```

f. Modify location in the text file to “(2, 3)”. Then, rerun your program and capture the program output.

```
X = 2 Y = 3
3.605551275463989
```

Submit this worksheet (by only one member of the group) via http://www.myCourseVille.com (Assignments > Hands-on Experiment # 4) **before noon of the day after your lecture.**