This document is about how to use my program.

1. Most of comments use for testing and also can output something useful such as shortest path.
2. ReadZachary.java using for process data from text to graph array and run degree, closeness, betweenness and cluster coefficient function.
3. Calculating properties:

   Betweenness.java

   CloseDijkstraPath.java

   ClusterCoefficient.java

   Degree.java

   Using for build function and running in ReadZachary.java.
4. Visualization:

   Edge.java and Node.java use for graph entity.

   OutputGraph.java use for run Spring function and input data.

   Spring.java use for implement algorithm.

   TransSet.java use for translate ID(String/long) to int.

   TransTest.java use for run translate from twitter api original ID date to int date which can be use to build graph array.

   How to test my program?

   Testing for calculate properties.

   1. Open ReadZachary.java

ReadZachary.java

```
5     private static final int inf = Integer.MAX_VALUE;
6
7     public static void main(String args[]) throws Exception {
8         int[][] a = readZachary("E:/poly project/cssahw1/graphAfterTransIdtoInt.txt");
9         /*
10         * cluster coefficient
11         */
12        /**
13        for (int i = 0; i < a.length; i++) {
14            double output = ClusterCoefficient.countTriangle(i, a);
15            System.out.println("node"+i+"'s clustering coefficient is"+output);
16        }
17        */
18
19        /*
20         * betweenness
21         */
22        /**
23        int[] countAll = new int[a.length];
24        double allpath = a.length * (a.length) - 1;
25        for (int i : countAll) {
26            i = 0;
27        }
28        for (int i = 0; i < a.length; i++) {
29            int[] countIndiv = new int[a.length];
30            countIndiv = Betweenness.getBetweenness(a, i);
31            for (int j = 0; j < countIndiv.length; j++) {
32                if (countIndiv[j] != 0) {
33                    countAll[j] += countIndiv[j];
34                }
35            }
36        }
37
```

2. Revise the path and remove the comment and choose function you need.
3. If you want to test twitter data, you have to run TransTest.java firstly and get the translated data.

Testing for visualization:

1.Open OutputGraph.java and revise path and run.