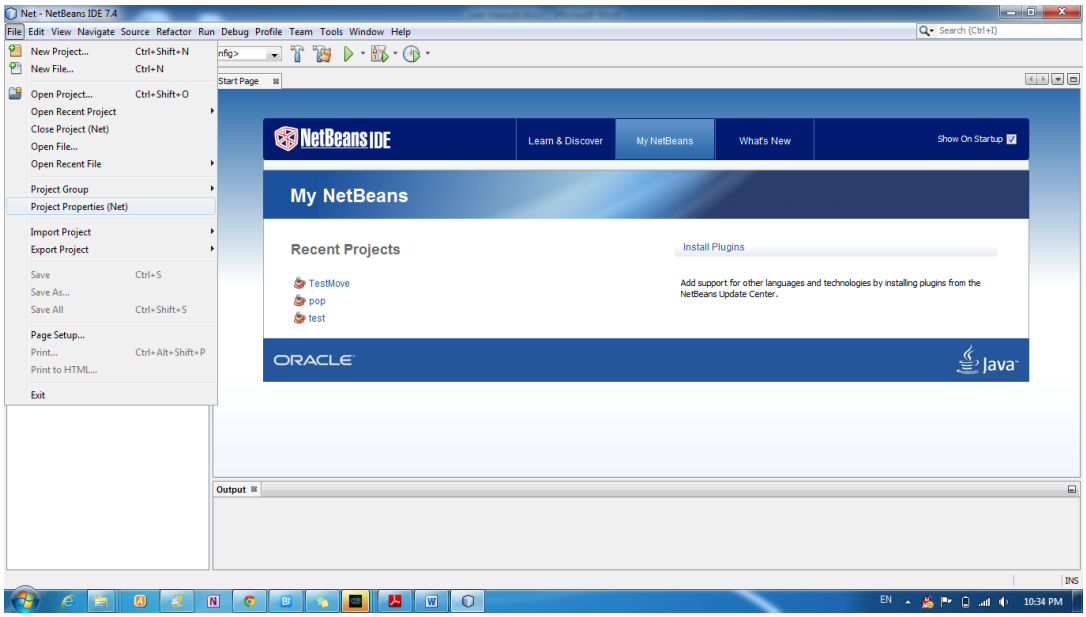
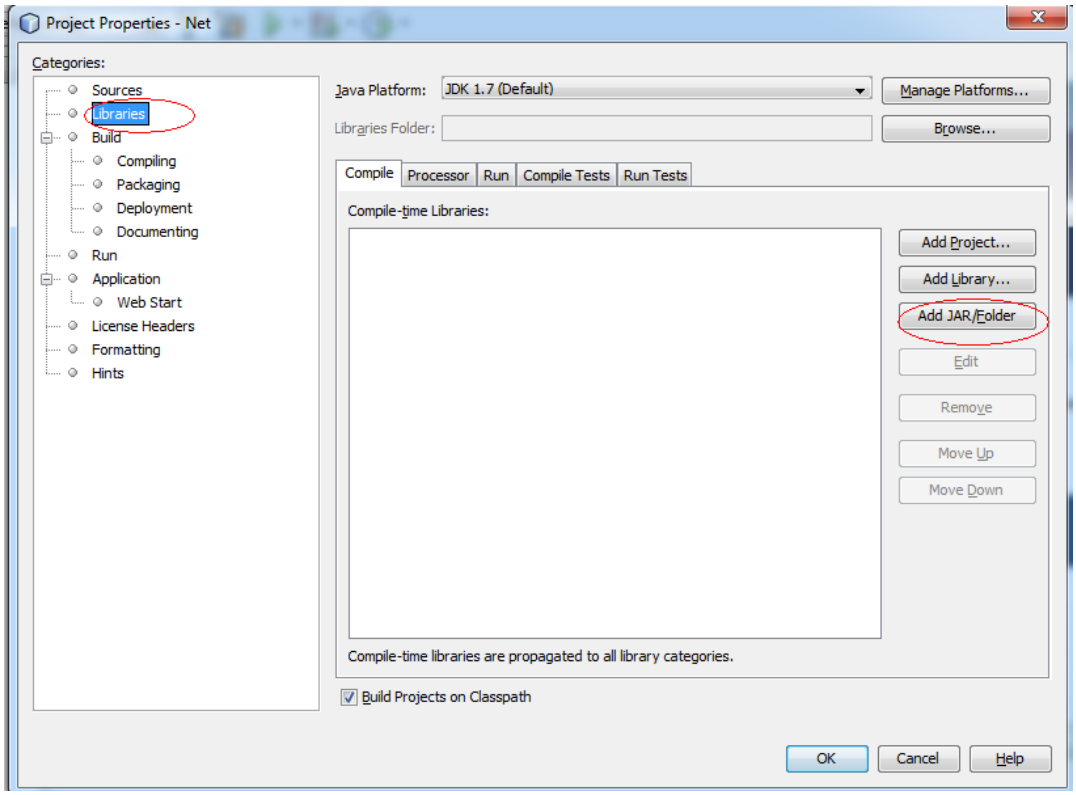
Install:

1. in “Executable-exe” file, click Network.exe, it will run successfully.

2. If there is some problem in step 1, then try step2. Directly click Network.jar or Import .jar file to NetBeans(Put four images in the src folder of the new created project.) Open NetBeans 7.4, file >> file properties >> libraries >> add jar





How to use the system(For detail, please see screen shot step by step)

1. After run the program successfully, input a string (for example, 'A') to the input field, click "start both ball" button, it will generate some random number which stands for delay between every two routers. And the red ball and blue ball starts to run at the same time choosing the shortest path according to Dijkstra's Algorithm.

2. When it runs to each layer, mouse click one time on the ball, it stops running, at the same time, the system automatically pops out a small window, which shows the message of selected layer. Closing the window, the ball will continue running.

3. Also, it can implement a simple CRC scheme, when the red ball runs chooses the path including router R7 and router R8, it will show the animation. When the message is transferred incorrectly from sender to receiver, a yellow ball comes from router R8 to R7, when the message is transferred correctly, a green ball comes from router R8 to R7.

   Note: In order to distinguish red ball and blue ball, I made the red ball slower than the blue ball. If you want to see whether the RED ball reaches the destination host H2 first or BLUE ball reaches the destination host H2 first, you can edit the codes in "HW3.java" (line 182-197) to the following code, which will make the red ball and blue ball start run simultaneously from R1.

```
if (x1 == 60 && y1 < 540) {
                    y1 = y1 + 4;
                    Thread.sleep(80);
                }
                if (y1 == 540 && x1 < 319) {
                    x1 = x1 + 4;
                    Thread.sleep(80);
                }
                if (919 < x1 && x1 < 1152 && y1 == 540) {
                    x1 = x1 + 4;
                    Thread.sleep(80);
                }
                if (x1 == 1152) {
                    y1 = y1 - 4;
                    Thread.sleep(80);
                }
```