The process of using the website: (http://stom.eng.buffalo.edu/network)

1. After loading the website,

- Click the "Choose Origin Node" in the sidebar menu, and then click on any node of the network you have chosen to be the original node. Once the node is chosen as original node, it will be shown as red instead of blue.
- Click the "Choose Destination Node" in the sidebar menu, and then click on any node of the network to be the destination node. Once the node is chosen as the destination node, it will be shown as red instead of blue.
- Click the "Find the shortest Path" in the sidebar menu, it will find the shortest path with your chosen origin and destination. A window will pop up to tell you the length of shortest path. Click "OK" on the pop up window. Then you will see the shortest path shown in green on the network. The shortest path distance will be shown in the right output part as well.
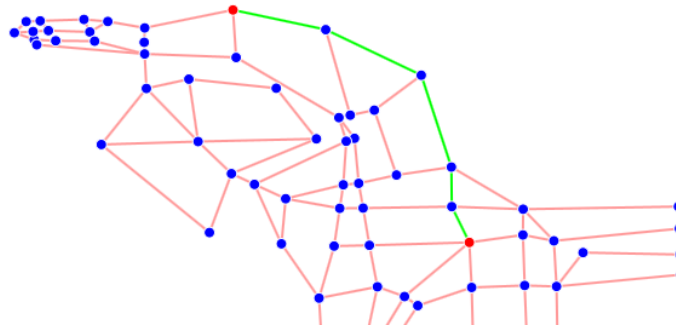
2. Choose "Animate Dijkstra's Algorithm" and see the process of finding the shortest path. Think about what is the meaning of the flashing large red dot node. Think about the search process of Dijkstra's algorithm and see if it is consistent with what you have learned about the algorithm (if you have learned the algorithm).

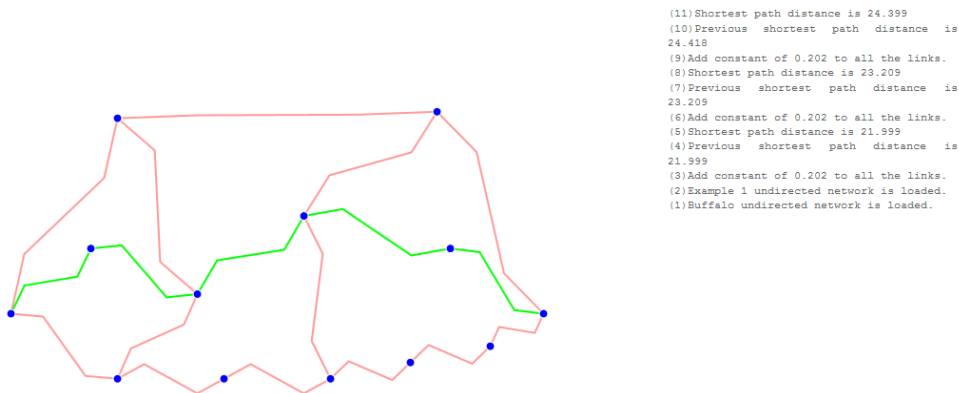3. Delete Links and See how Shortest Path changes.

Click on "Delete Links" on the sidebar, you are able to delete any link. Once a link is deleted, it will become dashed line instead of solid line. You may also notice that the "Delete Links" turns to "Stop Deleting Links". So you can click on "Stop Deleting Links" when you are done.
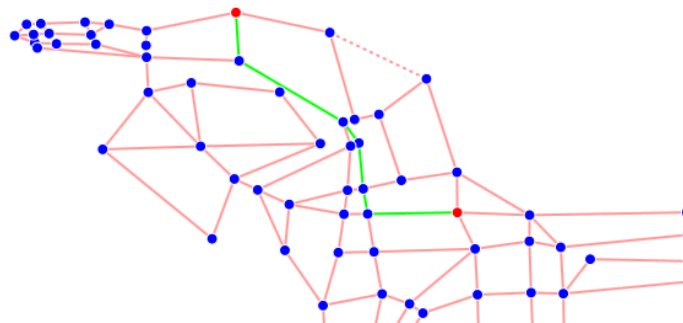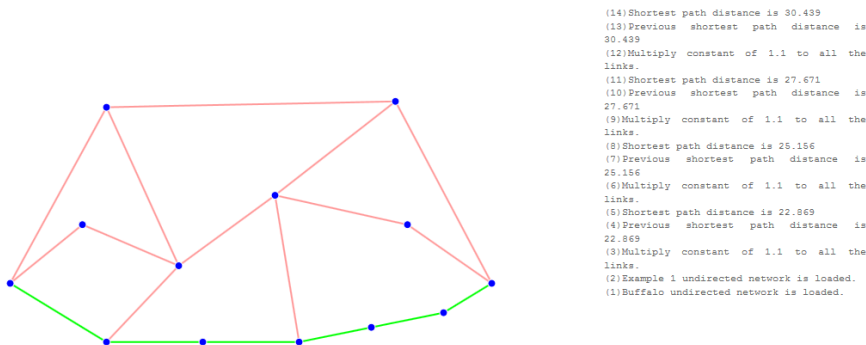

4.

- By hovering over the "Choose Network" sidebar menu, a second level menu will show up and you are able to choose any network listed (Buffalo, Ravenna and an illustrating example). Choose "Illustrating Example" in the second level menu.
- By hovering over "Add Constant to Links", a second menu will show up and let you to choose how much you want to add up to all the links. In order to have appropriate values, we list "5% of the median" and "10% of the median" under this menu. Click "5% of the median", see if the shortest path changes or not. Check the shortest path length in the right part of the website. Then Click "5% of the median" again and think about the same questions. Continue with that for several more times. Think about why the shortest path changes or not.

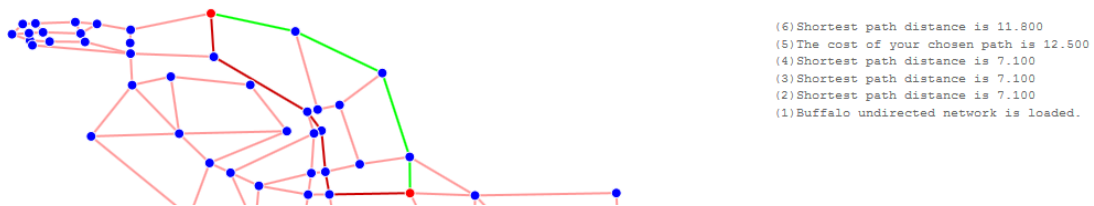Note: You can choose "Reload Network" if something wrong happens.


```
(11)Shortest path distance is 24.399
(10)Previous  shortest  path  distance  is
24.418
(9)Add constant of 0.202 to all the links.
(8)Shortest path distance is 23.209
(7)Previous  shortest  path  distance  is
23.209
(6)Add constant of 0.202 to all the links.
(5)Shortest path distance is 21.999
(4)Previous  shortest  path  distance  is
21.999
(3)Add constant of 0.202 to all the links.
(2)Example 1 undirected network is loaded.
(1)Buffalo undirected network is loaded.
```

5.

- Choose "Reload network" to reload the illustrating example network,
- Choose "Multiply Constant to Links", a submenu will show up and will let you choose to multiply 1.1 or 1.5 to all the links. Choose multiply 1.1, see if the shortest path changes or not. Check the shortest path length in the right part of the website. Do you find any law behind it? Click multiply 1.1 again and think about the same questions. Continue with that for several more times. Think about why the shortest path changes or not.


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(14)Shortest path distance is 30.439
(13)Previous  shortest  path  distance  is
30.439
(12)Multiply  constant  of  1.1  to  all  the
links.
(11)Shortest path distance is 27.671
(10)Previous  shortest  path  distance  is
27.671
(9)Multiply  constant  of  1.1  to  all  the
links.
(8)Shortest path distance is 25.156
(7)Previous  shortest  path  distance  is
25.156
(6)Multiply  constant  of  1.1  to  all  the
links.
(5)Shortest path distance is 22.869
(4)Previous  shortest  path  distance  is
22.869
(3)Multiply  constant  of  1.1  to  all  the
links.
(2)Example 1 undirected network is loaded.
(1)Buffalo undirected network is loaded.
```

6.

- "Choose Network" -> "Buffalo Undirected Network"
- Click "Choose Own Path", imagine your own origin and destination and then go to the network to choose your own path. You can choose the path by choosing nodes along the path, which means that we can choose the link by choosing its initial and termination nodes. The process goes in this way: You first choose the origin node by clicking on any node, and then choose one of its adjacent nodes. Now you can see one link is displayed with a deeper color which means it is selected. You can continue do so until you reach your ideal destination nod. During the process, you can also un-choose your current link by clicking on the current destination node again.
- Then you click "Find the shortest path", it will give you the length of your chosen path, and the length of the shortest path. Also, two paths are displayed on the networks if your chosen path is different with the shortest path.
- See how much difference you are with the shortest path. Play several times and think what you have learned.


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(6)Shortest path distance is 11.800
(5)The cost of your chosen path is 12.500
(4)Shortest path distance is 7.100
(3)Shortest path distance is 7.100
(2)Shortest path distance is 7.100
(1)Buffalo undirected network is loaded.
```

7. Now play with any network or other thoughts you want to try on this website. Note: If anything wrong happens, you can reload the network or click rest. Also reloading the website can also clear the mistakes you have done.