

### Pseudo Code for Adaptive Routing:

1. Generating a graph with 100 nodes and average connectivity of 3 nodes
2. Let the source and destination be S and D, path used be P and the base load be a dictionary object
3. Initiating the clock to know the amount of time spent
4. Generating the shortest path for (n1,n2) nodes
5. For every edge we repeat the following
  - a. If Measure\_Increase () is true
    - i. This is function which calculates the increase in the load factor if the clock strikes the multiple of 15. It returns the Boolean value if there is an increase and the node with the highest increase say M
    - ii. Taking the node with highest increment and finding the shortest path from current node to M and from M to N2 and be a path called K
    - iii. If Measure\_Increase () is false for the path K breaking the loop
  - b. Else we will pass this edge and mark the current node as visited
6. Stopping the clock

### Measure\_Increased (Edge E, destination D, Graph G, path P)

1. Checking if the minutes % 15=0 and getting the base load value of hours
2. For every edge between edge E and destination D of graph we calculate the load factor increase by multiplying P, base load values and edge length. The overall load factor is given by summation of % increase in P/ length(P).
3. Checking if the overall load factor has increased more than 5% and returning the node with highest increase in percentage and Boolean value.

1. The change of connectivity parameter to 0.06, the total travel was 4918 which is a 25% decrease of time taken with a connectivity of 0.03.

2. The change of standard deviation parameter of traffic load to 0.125, the total travel was 6943 which is a 12% increase of time taken with a standard deviation of 0.25.

3. With the increase of connectivity to 0.06 from 0.03 and with a standard deviation of 0.25, the total travel time has been reduced from 6184 mins to 4918 mins signifying that connectivity enables lower time to travel, as there might be multiple paths from one node to the other with the growth of alternative paths.

4. With the increase of connectivity of 0.03 and with a standard deviation of 0.125, the total time taken was 6943 minutes with a higher increase in the total time travelled. The P values enable us to be confined to the chosen randomly higher value than the standard deviation of 0.25. So, the weights may change much more which invokes the constant change in the path than before.

With the increase of connectivity by 0.06 and with a standard deviation of 0.125, the total time was 6711 mins which is just a marginal increase of 6184 minutes. As the p values always increase the weights which results in changes in the original paths