# FAST - National University of Computer & Emerging Sciences, Karachi

## Computer Network (CS 3001)

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## Assignment no. 3

**Max. Marks: 30**
**Section**: CS-7A & SE-5A
**Date:** 4th December 2021

## Assignment Instructions:

1. Assignment no: 3 is from chapter 5 of the textbook, the material is provided on google classroom.
2. Write the roll no: and name on the front page of your assignment. Use your name and roll number as your file name when saving pdf.
3. Explain your answer that shows all the steps involved in obtaining your answer.

**Deadline to submit the assignment no: 3 is 10th December 2021 at 12: 00 am**

1. Consider the following network in figure 1 with the indicated link costs.
   a. Use Dijkstra's shortest-path algorithm to compute the shortest path from **A** to all network nodes.
   b. Recalculate the routing table for Node **A** if the link between Node C to Node E is failed.

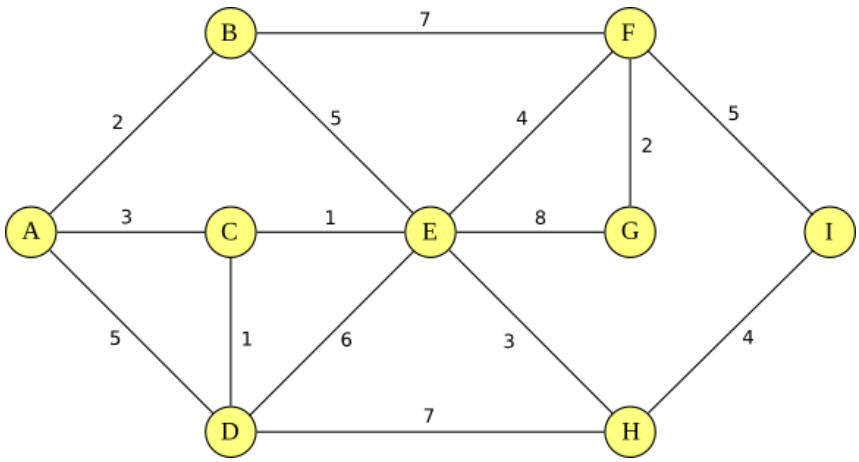


Figure: 1

2. Consider the figure 2.
    a. Show the operation of Dijkstra's or LinkState algorithm for computing the least cost path from u to all destinations.
    b. After applying the Dijkstra's algorithm from E to all destination in above part now briefly describe that how from E to A you have computed least cost path.
    c. Consider the network shown in figure 2 again and assume that each node initially knows the cost to each of its neighbors. Consider the distance-vector algorithm and show the distance table entries at node z.

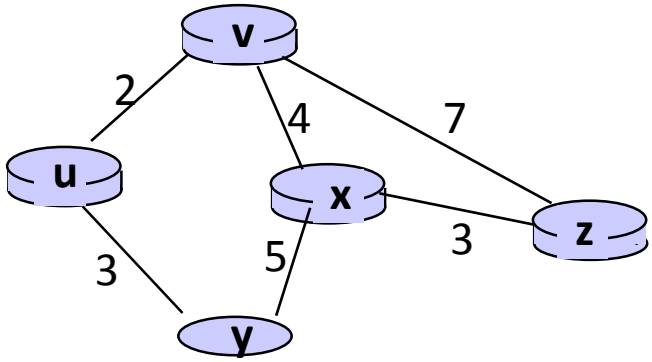


Figure: 2

3. Consider the following network in figure 3 with the indicated link costs. Use Dijkstra's shortest-path algorithm to compute the shortest path from **A** to all network nodes.

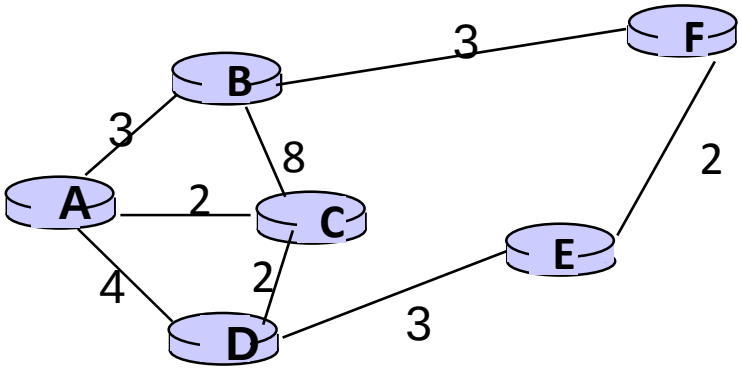


Figure: 3

**Best of Luck!**