Homework Assignment 4

Due: Thursday, Dec 6

Directions: This is an easy homework.

The figures show an IP network. The numbers on the links are the costs associated with them by the routing protocol. Answer the questions below.

- **A, Shortest path:** (15 points) Fill out the routing tables of all nodes.

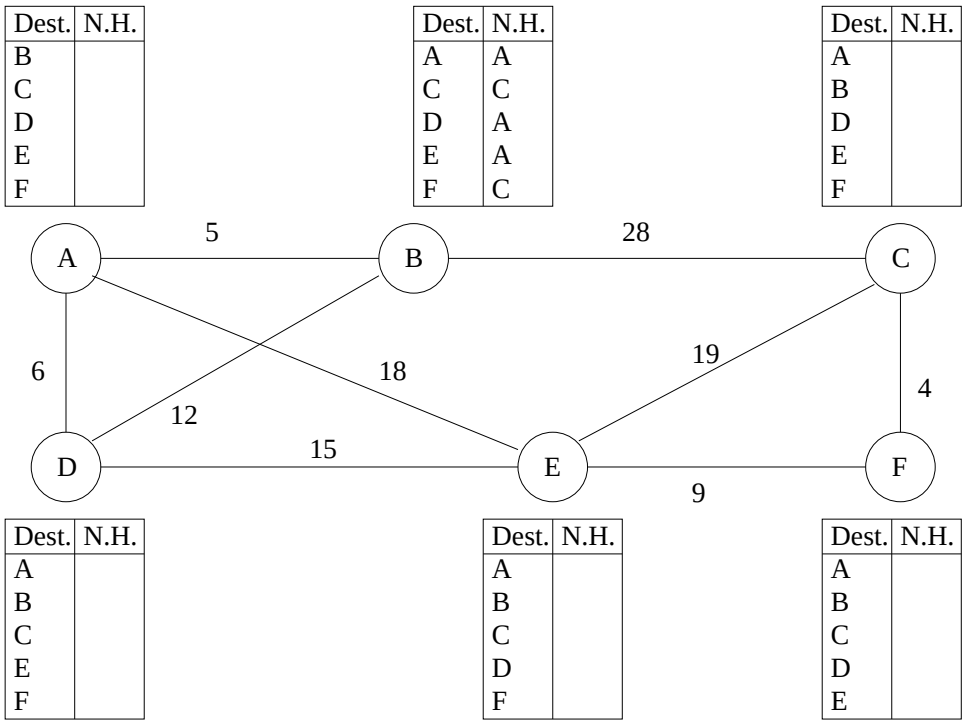

Figure 1: Shortest path

- **B, Distance vector:** (15 points) Assume first that the network uses a distance vector routing protocol. Fill out the central routing databases of all nodes after the failure of link AE (after the routing information stabilizes).

- **C LSP flooding:** (20 points) Assume next that the network uses a link state routing protocol. As a response to the failure of link AE nodes A and E generate new LSPs. Show how these LSPs are flooded through the network. Assume that packet propagation delays are the same on all links, all routers process all LSPs immediately and that A and E detect the failure of the link at the same time. If a router gets two identical LSPs at the same time on links X and Y, it floods the LSP only on links other than X and Y. For your answer, just draw on the figure on which links (and in which direction) LSPs from A and E are propagated. You do not have to provide times at which LSPs arrive at each node. The picture below shows a few such packets for a start.

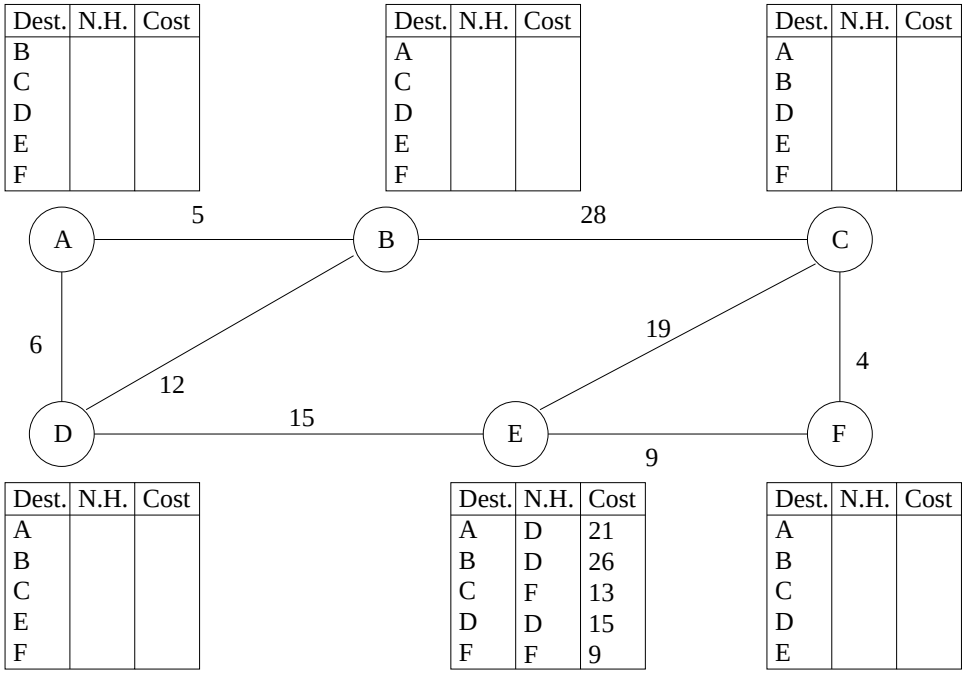

Figure 2: Distance vector

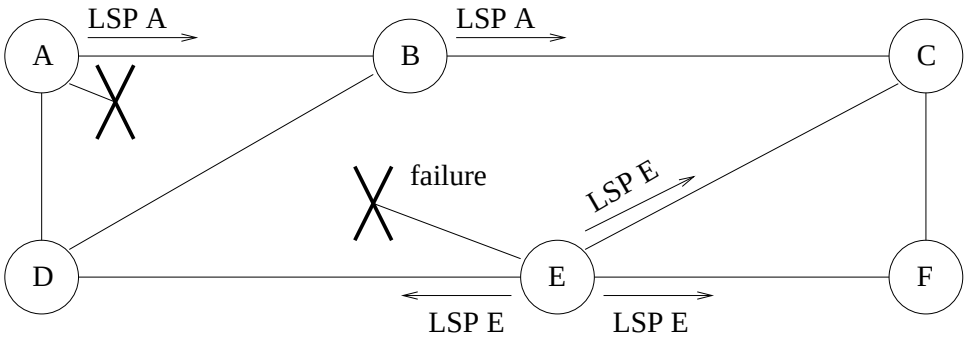

Figure 3: LSP flooding