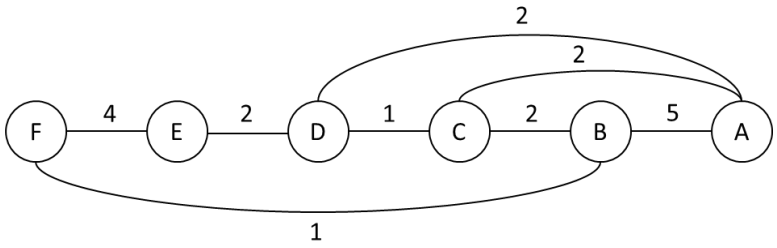
Online Exam #2, Problem #8

Consider the same network as shown in Homework #5. Suppose all nodes run the Distance Vector (DV) routing protocol with SHPR (Split Horizon with Poisoned Reverse).

(a) After the network stabilizes/converges in Problem #2 of Homework #5, suppose the link between C and D is broken. Show step by step how the protocol (DV with SHPR) continues, to find the shortest path from each node to destination node D, by completing the following iteration table till convergence.



Answer:

	Iteration	A	B	C	E	F
Destination node D	Before Break	(D, 2)	(C, 3)	(D, 1)	(D, 2)	(B, 4)
	After Break	(D, 2)	(C, 3)	**(A, 4)**	(D, 2)	(B, 4)
	1	(D, 2)	**(C, 6)**	(A, 4)	(D, 2)	(B, 4)
	2	(D, 2)	(C, 6)	(A, 4)	(D, 2)	**(E, 6)**
	3	(D, 2)	(C, 6)	(A, 4)	(D, 2)	(E, 6)

(b) After the network stabilizes/converges again in (a), what is the Distance Vector report that B sends to C, and what is the Distance Vector report that E sends to F? Justify your answers.

Answer:

DV report B sends to C:

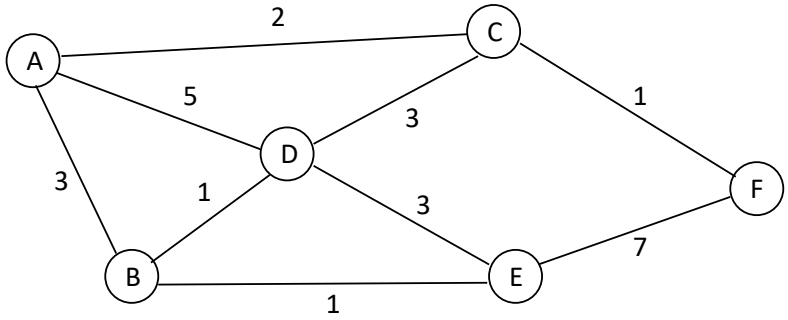
j	D_{Bj}
A	∞
B	0
C	∞
D	∞
E	5
F	1

DV report E sends to F:

j	D_{Ej}
A	4
B	∞
C	6
D	2
E	0
F	∞

Online Exam #2, Problem #9

Consider the network shown below. Suppose all nodes run the Link State routing protocol and the Dijkstra's algorithm. Show step by step (as we did in Problem #1 of Homework #5) how node C computes its shortest paths to all other nodes in the network.



Answer:

Iteration	N	H_{CA}; D_{CA}	H_{CB}; D_{CB}	H_{CD}; D_{CD}	H_{CE}; D_{CE}	H_{CF}; D_{CF}
Initial	{C}	A; 2	B; ∞	D; 3	E; ∞	**F; 1**
1	{C, F}	**A; 2**	B; ∞	D; 3	F; 8	F; 1
2	{C, F, A}	A; 2	A; 5	**D; 3**	F; 8	F; 1
3	{C, F, A, D}	A; 2	**D; 4**	D; 3	D; 6	F; 1
4	{C, F, A, D, B}	A; 2	D; 4	D; 3	**D; 5**	F; 1
5	{C, F, A, D, B, E}	A; 2	D; 4	D; 3	D; 5	F; 1