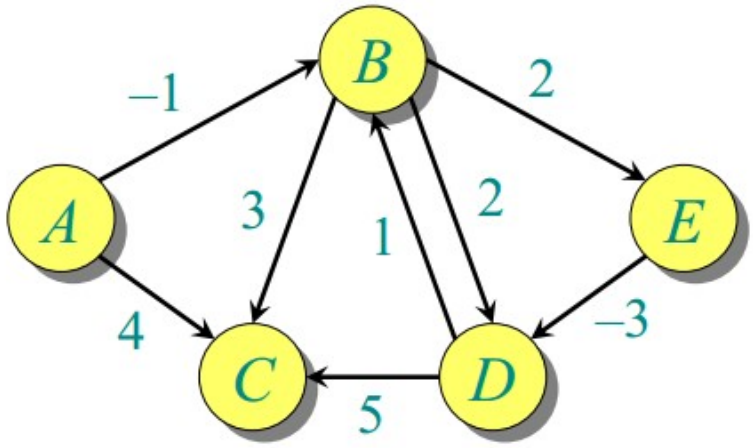
Lecture Exercise in Week 10

Compute the shortest paths from vertex A (the source) to any other vertices in the following graph. (Is there any negative weight cycle?)



Solution:

$Edge\ order = (AB), (AC), (BC), (BD), (BE), (DB), (DC), (ED)$

	A	**B**	**C**	**D**	**E**
i=0	$\mathbf{0/A}$	$\infty/\mathbf{NIL}$	$\infty/\mathbf{NIL}$	$\infty/\mathbf{NIL}$	$\infty/\mathbf{NIL}$
i=1	$\mathbf{0/A}$	$-1/A$	$2/B$	$-2/E$	$1/B$
i=2	$\mathbf{0/A}$	$-1/A$	$2/B$	$-2/E$	$1/B$
i=3	$\mathbf{0/A}$	$-1/A$	$2/B$	$-2/E$	$1/B$
i=4	$\mathbf{0/A}$	$-1/A$	$2/B$	$-2/E$	$1/B$
I=5	$\mathbf{0/A}$	$-1/A$	$2/B$	$-2/E$	$1/B$

No, negative cycle.

(Why we need 5 iterations?)
There are 5 vertexes.