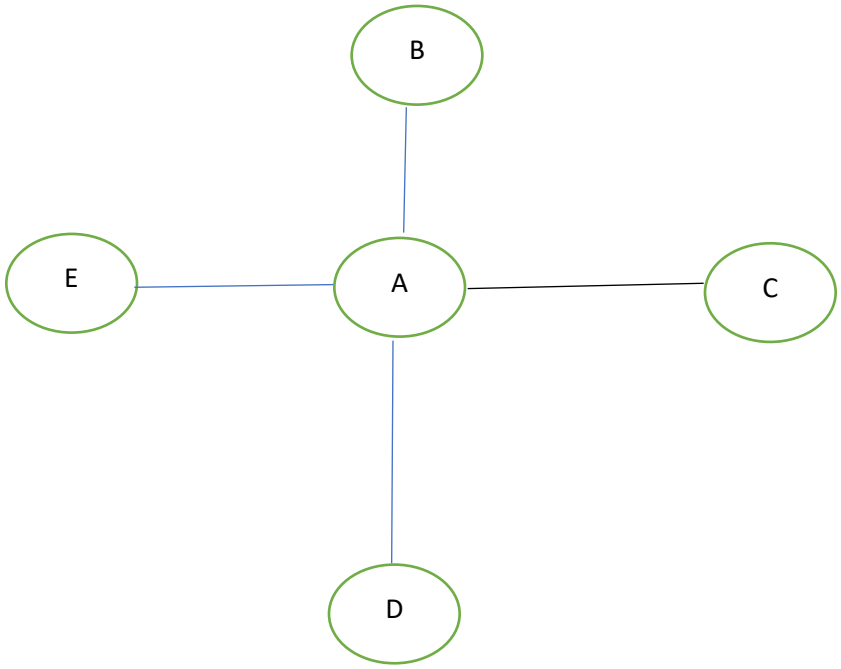
Lecture 8 measures of centralization for the entire graph

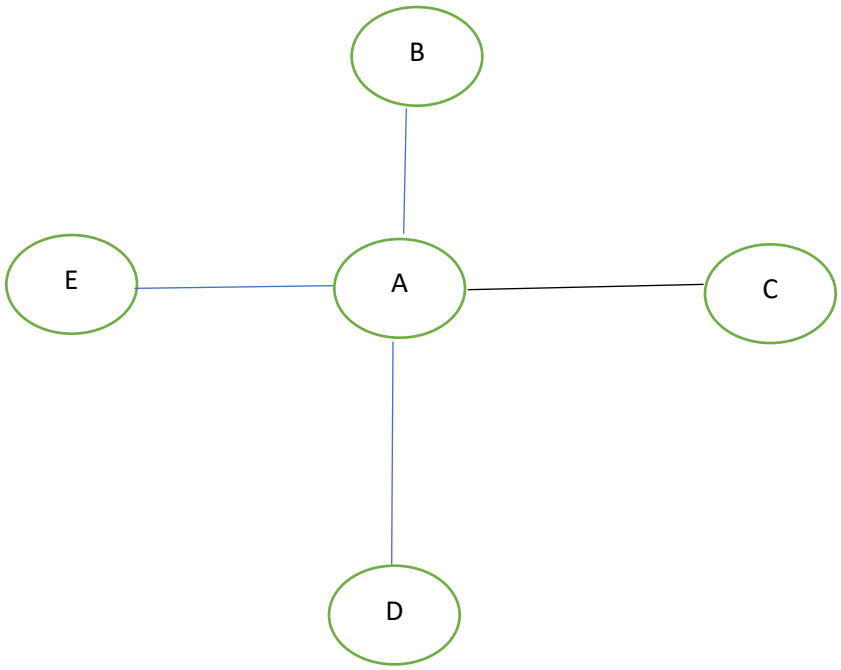
1) Computing graph centralization

$$C_D = \frac{\sum(C_D(N^*) - C_D(N_i))}{(N-1)(N-2)}$$

2) Examples



1)

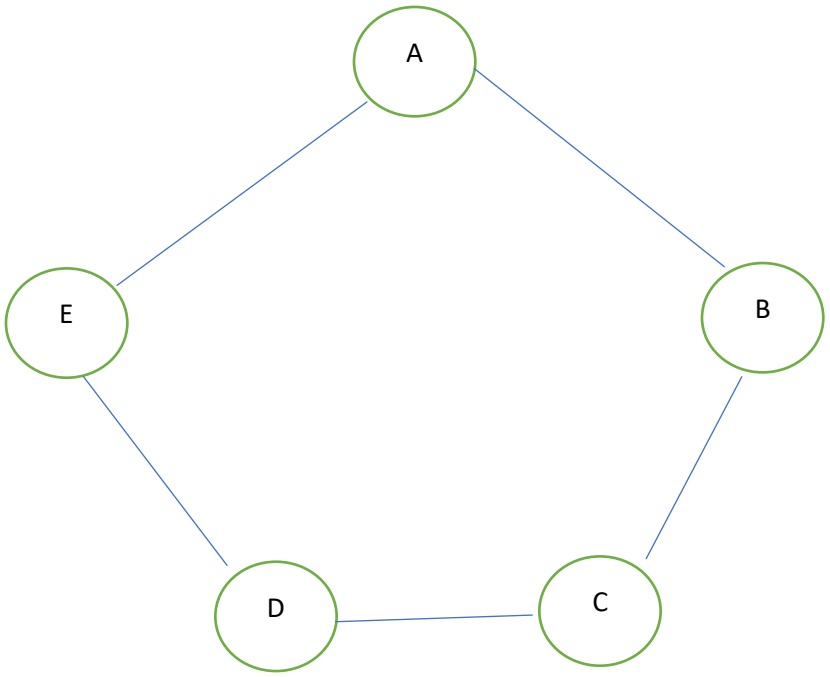


	A	B	C	D	E
A	0	1	1	1	1
B	1	0	0	0	0
C	1	0	0	0	0
D	1	0	0	0	0
E	1	0	0	0	0
CM	4	1	1	1	1

$$C_D = \frac{\sum(C_D(N^*) - C_D(N_i))}{(N-1)(N-2)}$$

$$= \frac{(4-1)+(4-1)+(4-1)+(4-1)}{(5-1)(5-2)} = \frac{12}{12} = 1 \; or \; 100\%$$

Example 2



	A	B	C	D	E
A	0	1	0	0	1
B	1	0	1	0	0
C	0	1	0	1	0
D	0	0	1	0	1
E	1	0	0	1	0
CM	2	2	2	2	2

$$C_D = \frac{\sum(C_D(N^*) - C_D(N_i))}{(N-1)(N-2)}$$

$$= \frac{(2-2)+(2-2)+(2-2)+(2-2)}{(5-1)(5-2)} = \frac{0}{12} = 0 \; or \; 0\%$$

$$0 \leq degree\ centralization \leq 1 \; or \; 100\%$$

Degree centralization measures the extent to which actor degree centrality are different from each other in a given network.

When centralization is closer to 0, the degree centrality among nodes are evenly distributed.

When centralization is closer to 1 or 100%, the degree centrality among nodes are unevenly distributed.