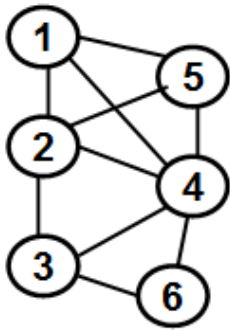
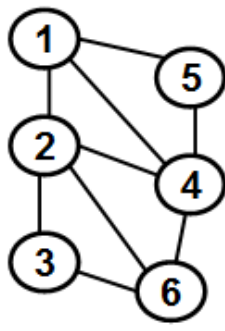


Hardcopy (Neatly written or typed), due in Class

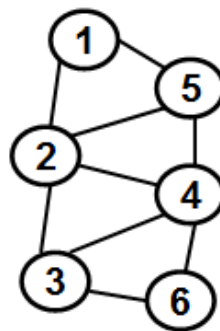
1) (20 pts) Determine the Eigenvector Centrality of the vertices (using the Power-Iteration method) in the graph assigned to you. Show all the work for four iterations.



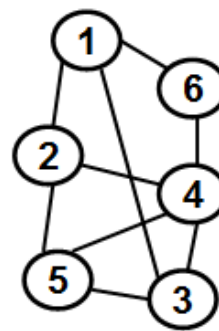
Champion, Jeremy



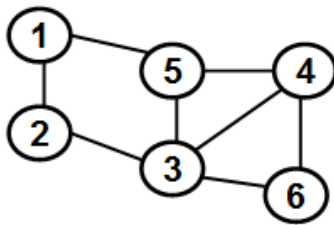
Deanes, Marcus



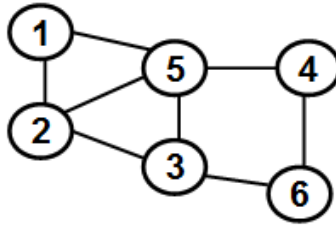
Evans, Rashad



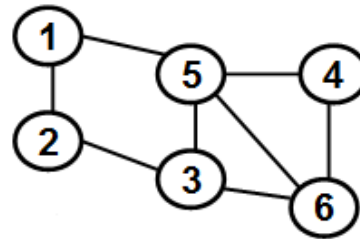
Gammons, Allee



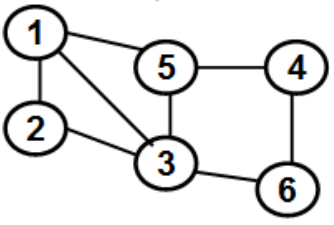
Jones, Qunicy



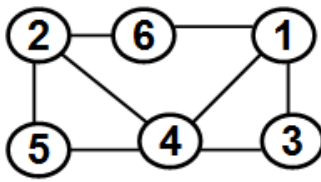
Lewis, Devario



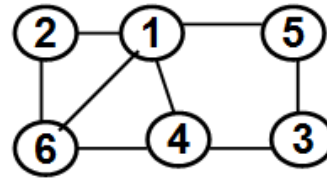
Maduka, Chidiebere



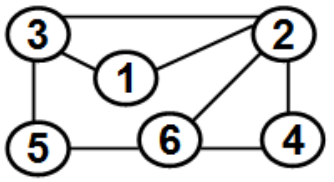
Ukpebor, Augustine



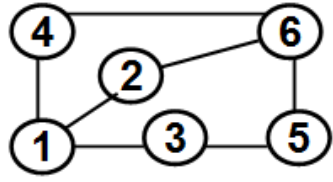
Valliappan, Vallimanan



Xu, Ran



Zhang, Xuecen



Gebre, Amanuel Engeda

2) (30 pts) For the graph assigned to you:

(a) Find the LCC'DC values for the vertices

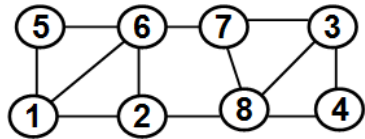
(b) Use the Node BWC java executable program to determine the BWC values for the vertices

(c) Find the Pearson's correlation coefficient (using the formula) between the LCC'DC and the BWC values.

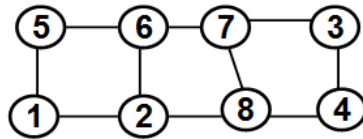
(d) Fit a linear regression line for  $BWC = f(LCC'DC)$  and determine the slope and intercept as well as the  $R^2$  of the fit.

(e) Use the regression line of (d) to predict the BWC values based on the actual LCC'DC values.

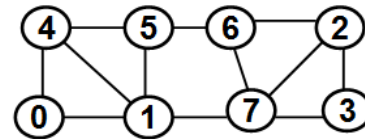
(f) Determine the Standard Error (SER) for the predicted BWC values vis-a-vis the actual BWC values determined in (b).



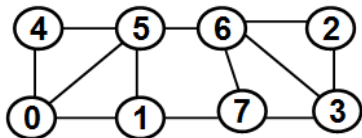
Champion, Jeremy



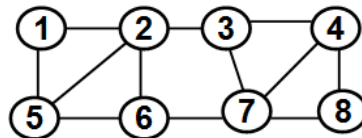
Deanes, Marcus



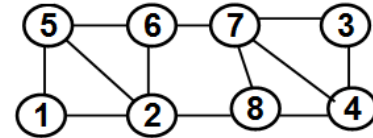
Evans, Rashad



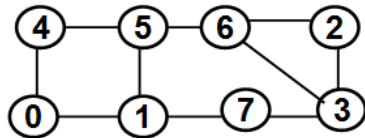
Gammons, Allee



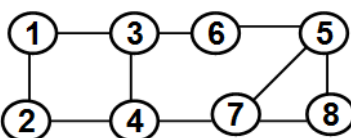
Jones, Qunicy



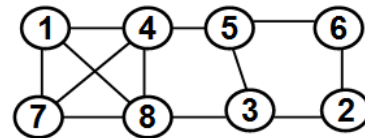
Lewis, Devario



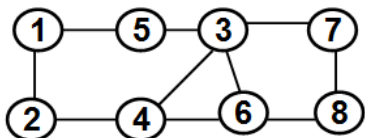
Maduka, Chidiebere



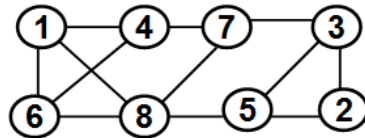
Ukpebor, Augustine



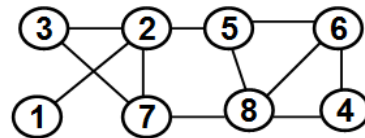
Valliappan, Vallimanalan



Xu, Ran

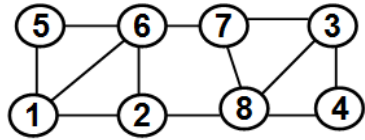


Zhang, Xuecen

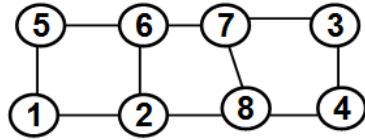


Gebre, Amanuel Engeda

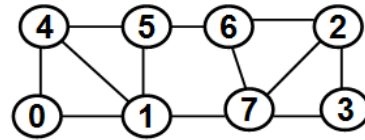
3) (20 pts) For the graph assigned to you, use the Breadth First Search algorithm-based approach to determine the BWC of the two vertices listed with respect to the pair y and z: i.e.,  $BWC(X; Y \text{ and } Z)$ .



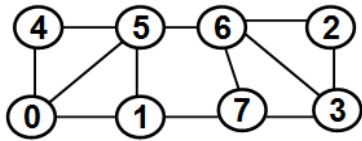
Champion, Jeremy



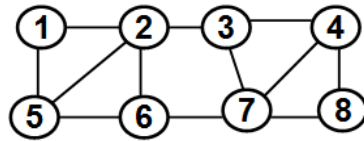
Deanes, Marcus



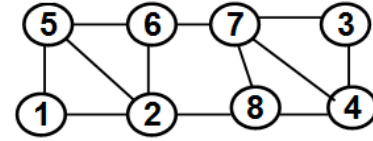
Evans, Rashad



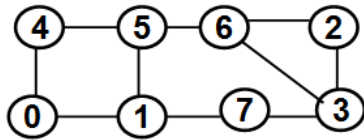
Gammons, Allee



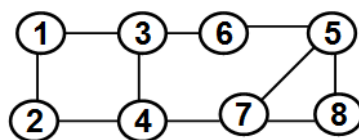
Jones, Qunicy



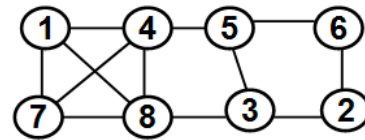
Lewis, Devario



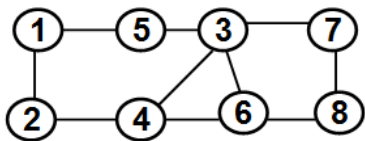
Maduka, Chidiebere



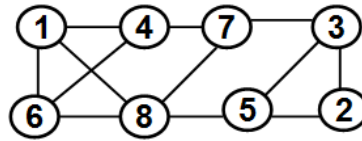
Ukpebor, Augustine



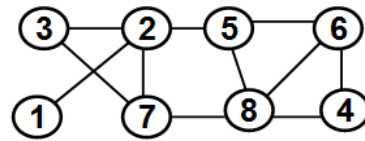
Valliappan, Vallimanalan



Xu, Ran



Zhang, Xuecen



Gebre, Amanuel Engeda

Student	X	Y and Z	X	Y and Z
Champion, Jeremy	7	1 and 3	5	1 and 3
Deanes, Marcus	7	5 and 8	3	5 and 8
Evans, Rashad	7	2 and 4	0	2 and 4
Gammons, Allee	6	0 and 2	3	0 and 2
Jones, Qunicy	3	1 and 8	4	1 and 8
Lewis, Devario	7	1 and 3	4	1 and 3
Maduka, Chidiebere	7	0 and 3	2	0 and 3
Ukpebor, Augustine	7	1 and 8	5	1 and 8
Valliappan, Vallimanalan	8	1 and 2	7	1 and 2
Xu, Ran	6	1 and 8	4	1 and 8
Zhang, Xuecen	7	1 and 3	2	1 and 3
Gebre, Amanuel Engeda	8	1 and 4	3	1 and 4

4) (30 pts) For the graph assigned to you, determine the following:

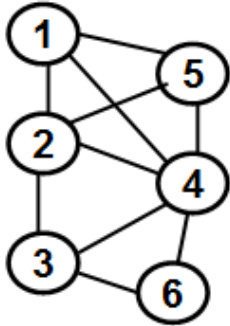
(1: 2 pts) Degree centrality; (2: 4 pts) Eigenvector centrality; (3: 6 pts) Closeness centrality

(4: 4 pts) Farness centrality;

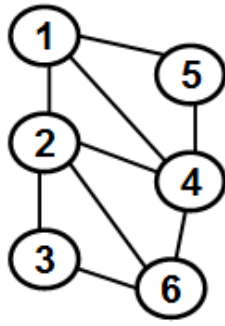
(5: 7 pts) Determine the Kendall's correlation coefficient between centrality metrics (1) and (3)

(6: 7 pts) Determine the rank-based correlation coefficient between centrality metrics (1) and (2)

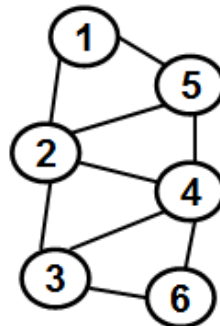
For (2) and (4), you could use the Spectral analysis Java program given to you.



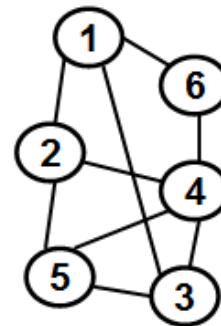
Champion, Jeremy



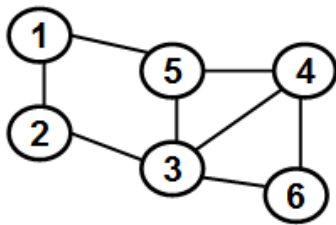
Deanes, Marcus



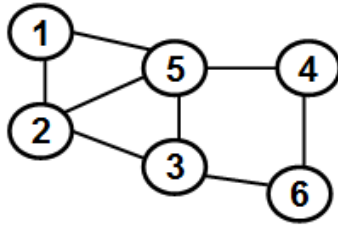
Evans, Rashad



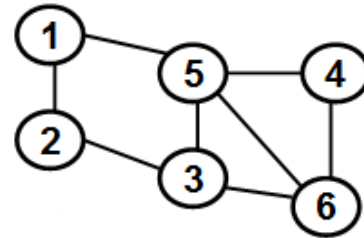
Gammons, Allee



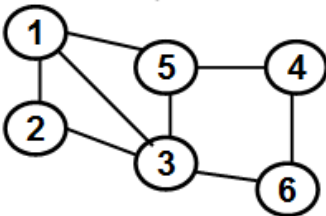
Jones, Qunicy



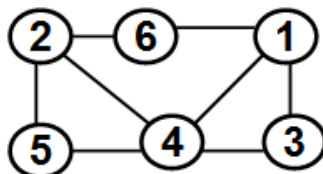
Lewis, Devario



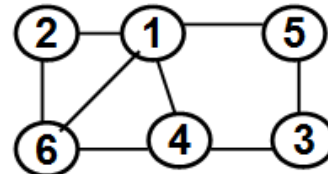
Maduka, Chidiebere



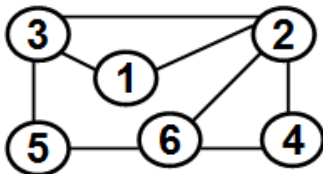
Ukpebor, Augustine



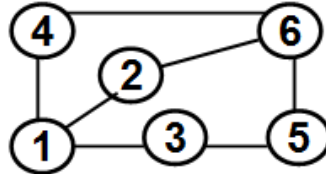
Valliappan, Vallimanan



Xu, Ran



Zhang, Xuecen



Gebre, Amanuel Engeda