Degree Distribution
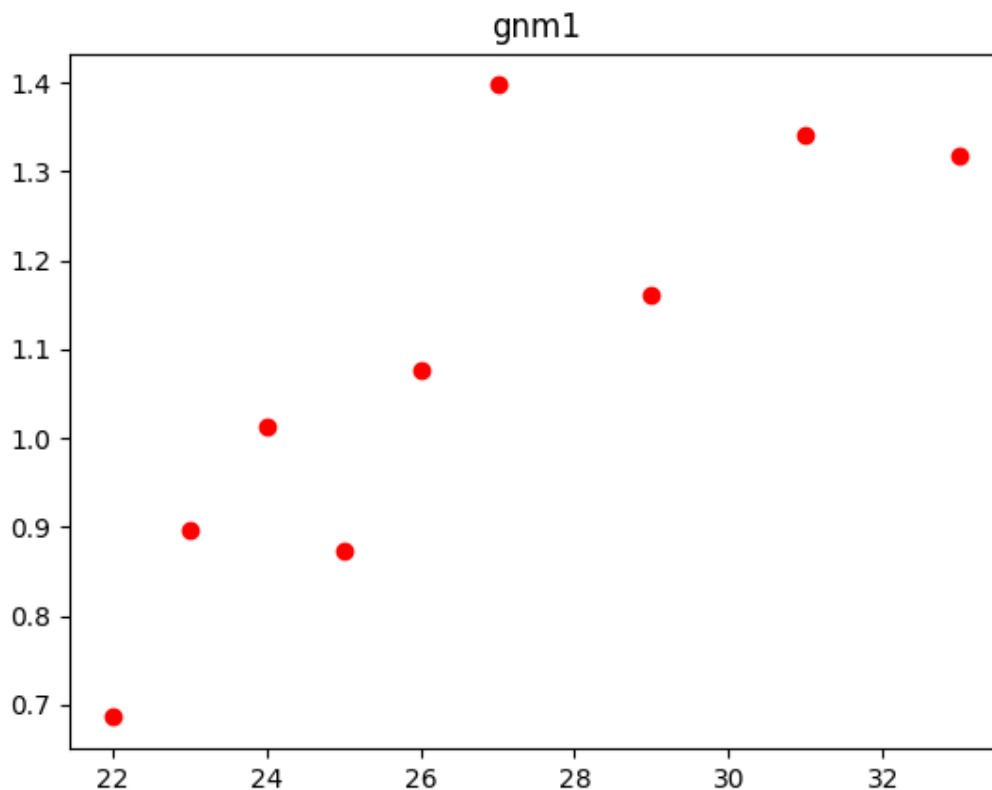
1. Generate a few random graphs. You can do this using networkx's random graph generators. Do the random graphs you tested appear to be scale free? (Include degree distribution with your answer).
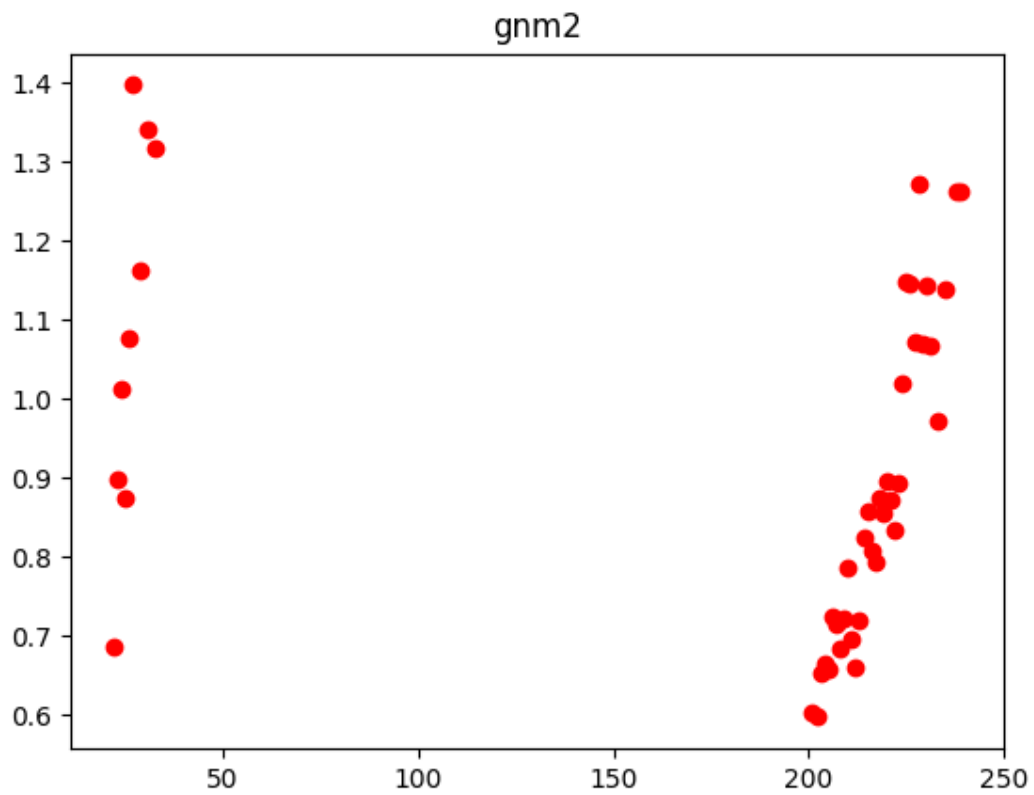
Answer:

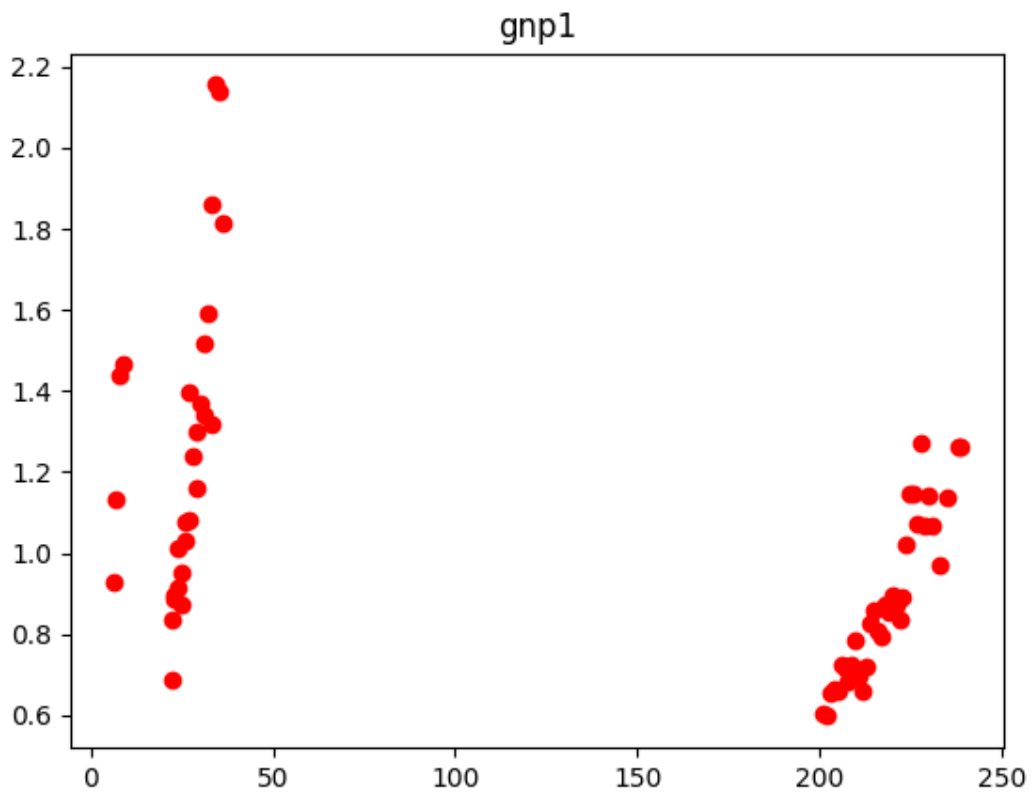Implemented code to generate random graphs in degree.py. The results are as follows:

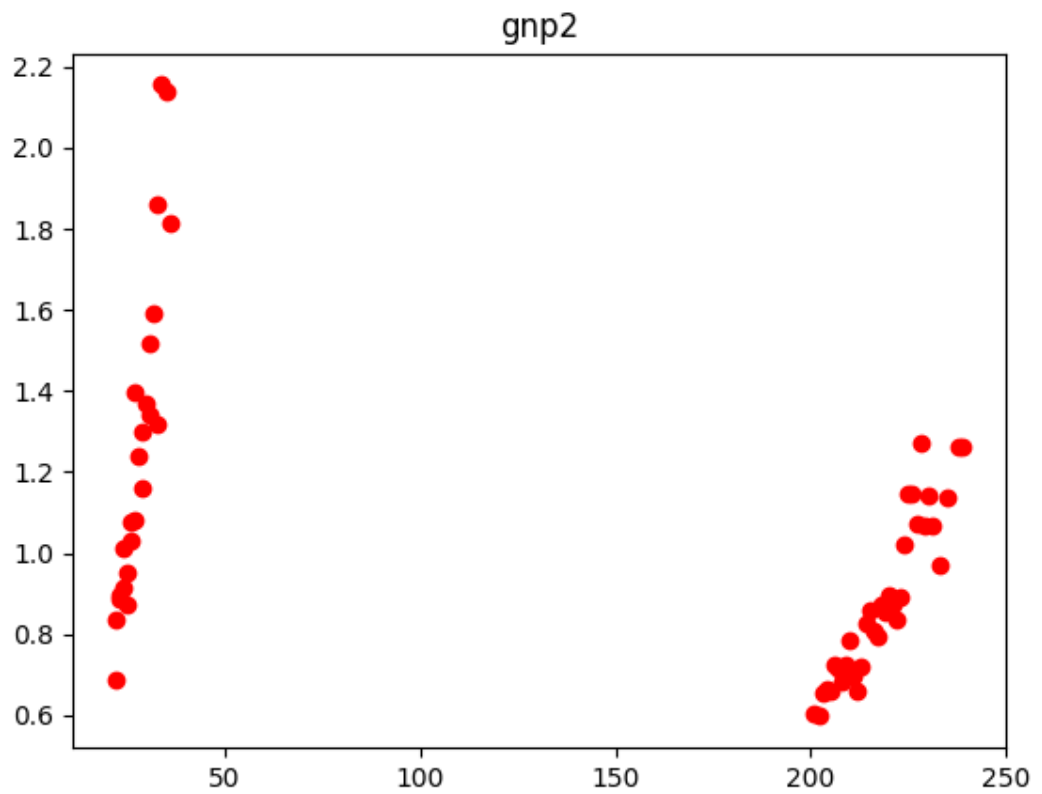   a. The graph doesn't appear to be scale free as Υ doesn't lie between 2 and 3

b. The graph doesn't appear to be scale free as Υ doesn't lie between 2 and 3

gnm2
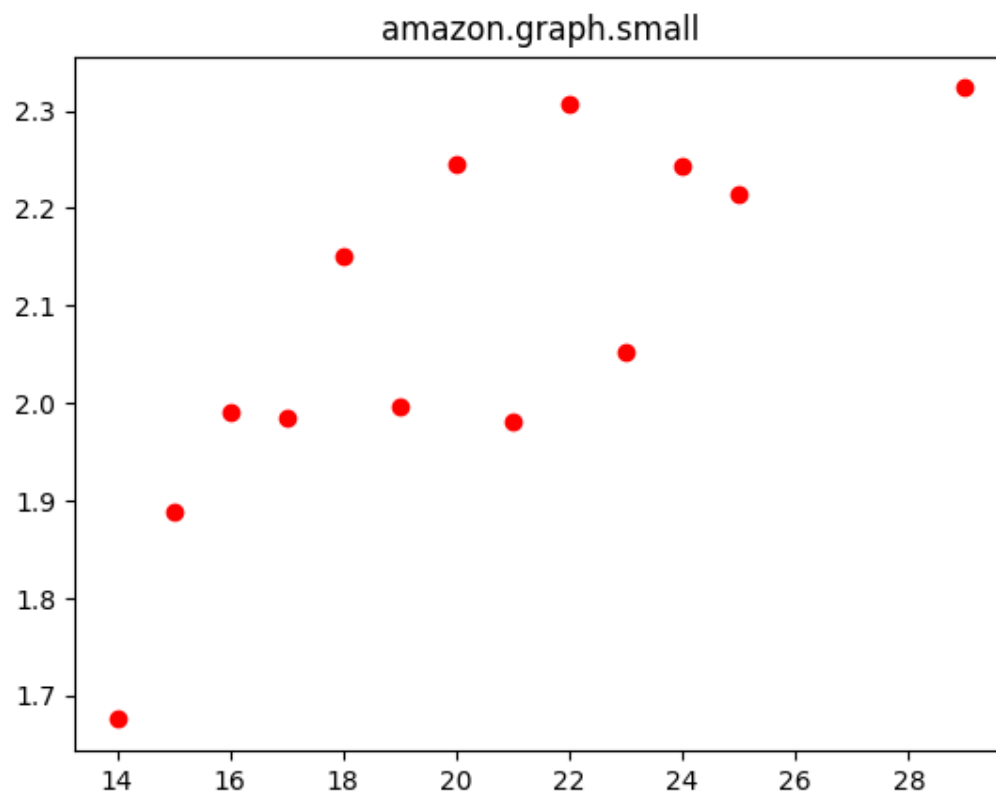
c. The graph doesn't appear to be scale free as Υ doesn't lie between 2 and 3
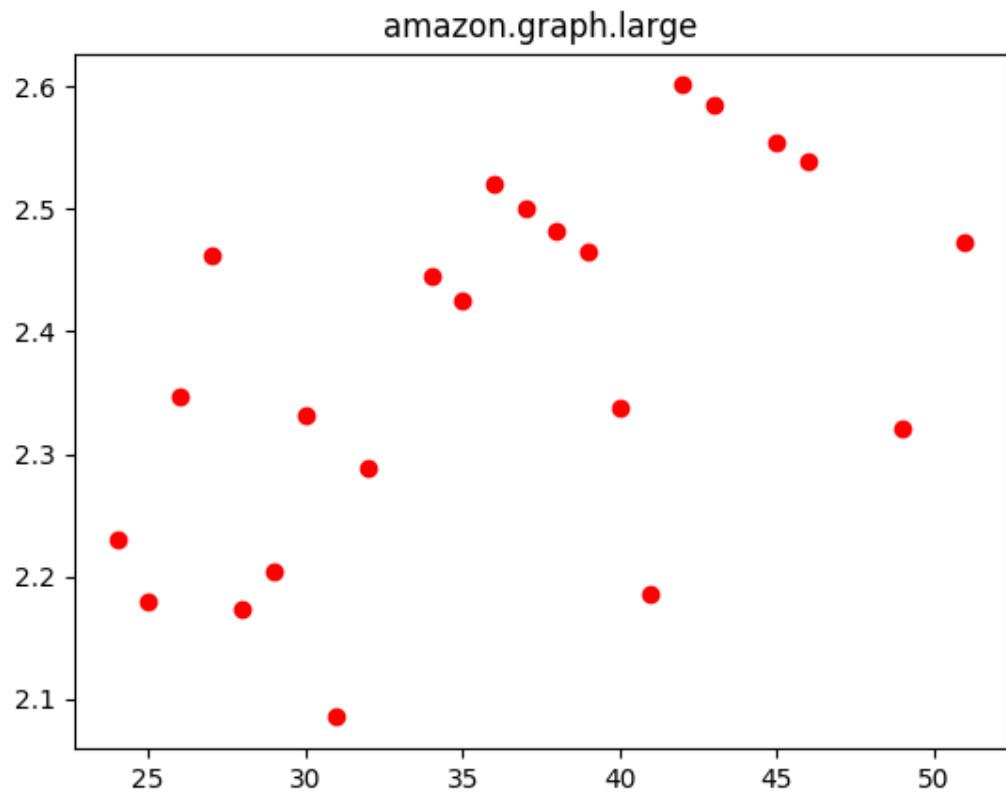

gnp1

d. The graph doesn't appear to be scale free as Υ doesn't lie between 2 and 3
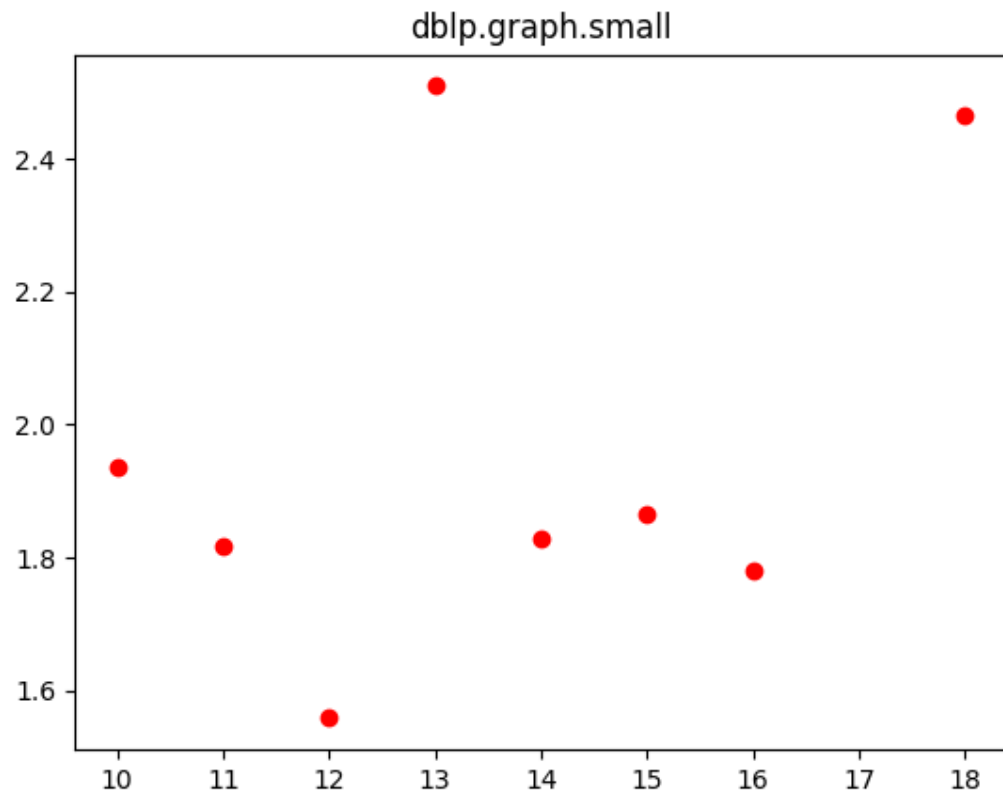

gnp2

2. Do the Stanford graphs provided to you appear to be scale free?
    a. Amazon.small appears to be a scale free graph since Υ lies between 2 & 3

amazon.graph.small

b. Amazon. Large appears to be a scale free graph since Υ lies between 2 & 3

amazon.graph.large

c. Dblp.small appears to be a scale free graph since Υ lies between 2 & 3

dblp.graph.small

e. Dblp.large appears to be scale free since Υ lies between 2 & 3

dblp.graph.large
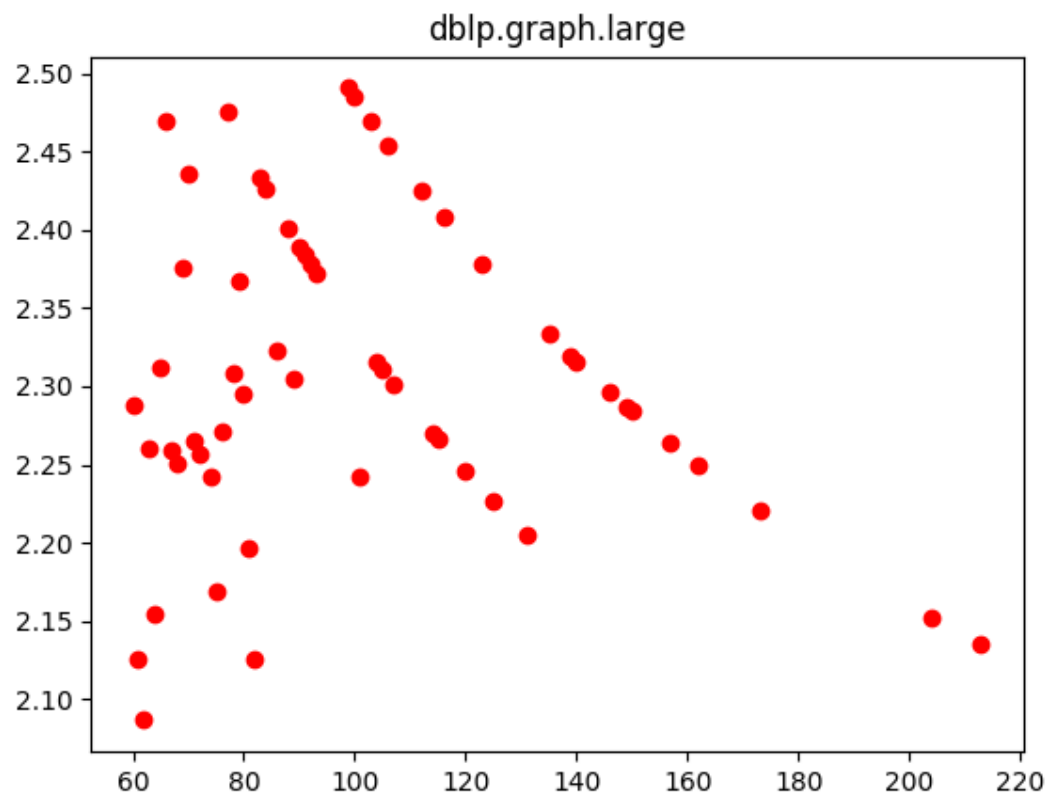
f. Youtube.small appears to be scale free since Υ lies between 2 & 3

youtube.graph.small
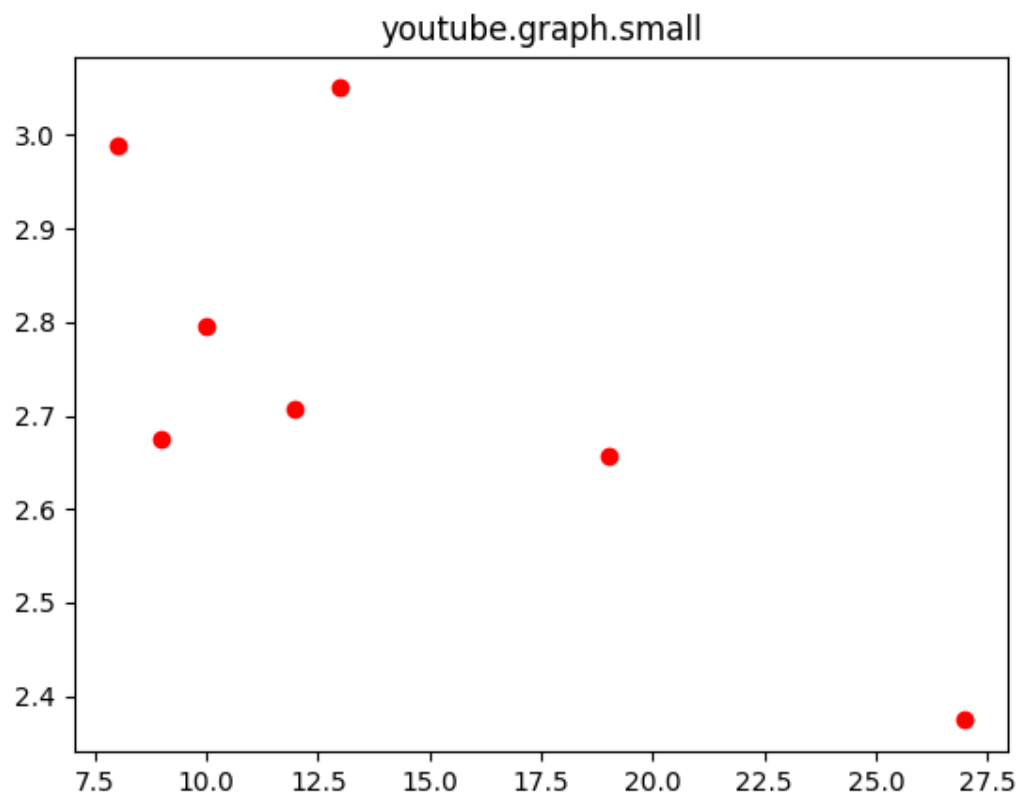
g. Youtube.large appears to be scale free since ϒ lies between 2 & 3

youtube.graph.large
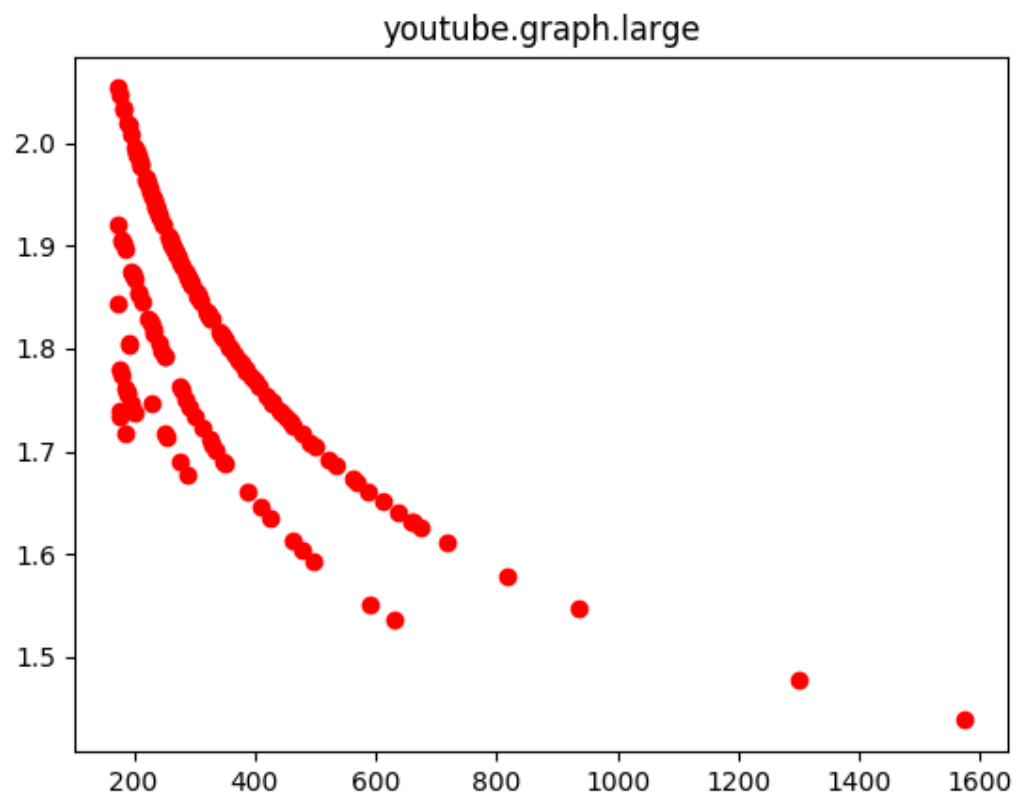
Centrality :

1. Rank the nodes from highest to lowest closeness centrality.

Answer:

id	closeness
C	0.0714285714
F	0.0714285714
D	0.0666666667
H	0.0666666667
B	0.0588235294
E	0.0588235294
A	0.0555555556
G	0.0555555556
I	0.0476190476
J	0.0344827586

2. Suppose we had some centralized data that would sit on one machine but would be shared with all computers on the network. Which two machines would be the best candidates to hold this data based on other machines having few hops to access this data?

Answer: Machines "C" and "F" would be the best candidates to hold this data based on other machines having few hops to access this data as they have the highest closeness value.

Articulation Points:

1. In this example, which members should have been targeted to best disrupt communication in the organization?

   These members have articulation points value as 1

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Djamal Beghal
Nawaf Alhazmi
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