Exercise 2

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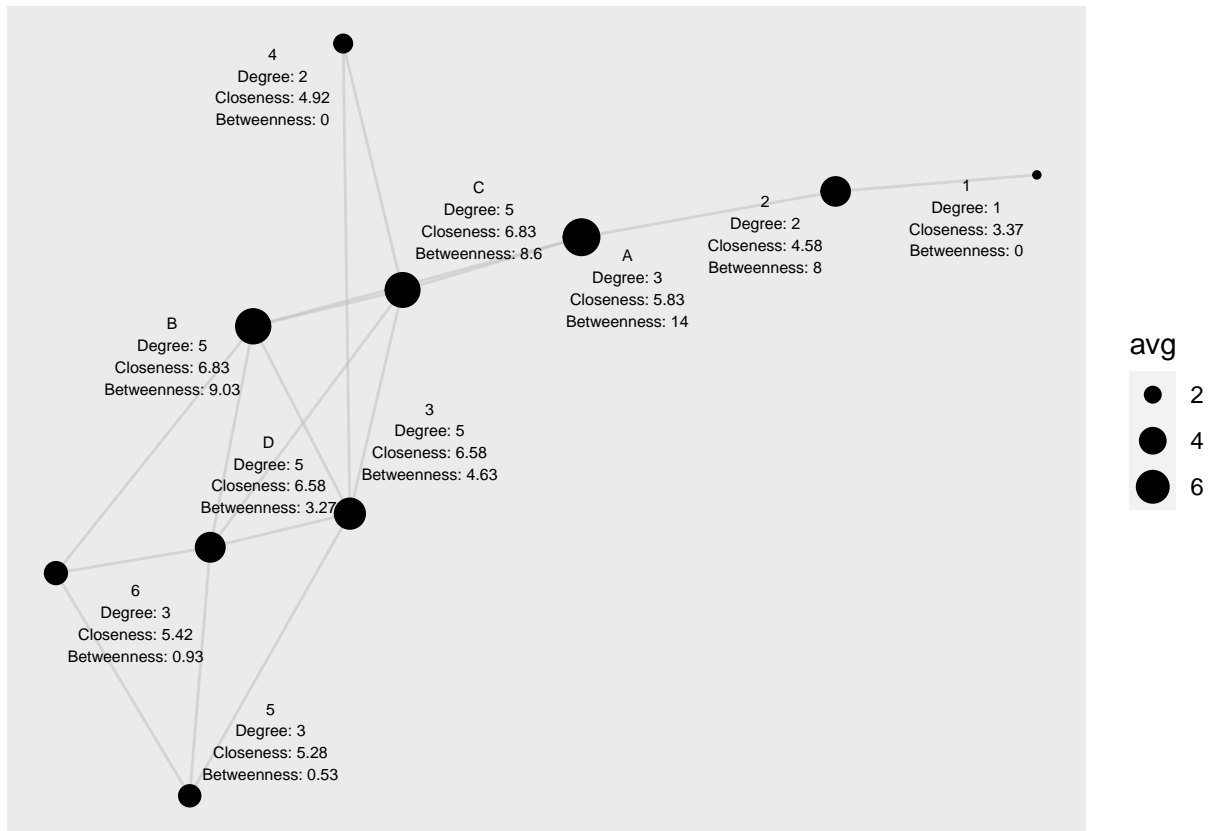
2023-03-25

CODE

```r
### CREATE DATA
nodes <- tibble(name = c('1', '2', '3', '4', '5', '6','A', 'B', 'C', 'D'))
edges <- tibble(
  from = c('6','6','6', '5', '5', '4', '4', '3', '2', '2', 'D', 'D', 'B', 'B', 'C', '3', '3'),
  to = c('5','D','B', 'D', '3', '3', 'C', 'D', '1', 'A', 'B', 'C', 'C', 'A', 'A', 'C', 'B')
)


### CREATE NETWORK
network <- tbl_graph(nodes = nodes, edges = edges, directed=FALSE)


### ESTIMATE METRICS
network <- network %>%
  mutate(degree = centrality_degree(),
         closeness = centrality_closeness_harmonic(),
         betweenness = centrality_betweenness()) %>%
  mutate(avg = (degree + closeness + betweenness)/3) %>%
  mutate(label = paste0(name, '\n',
                        'Degree: ',round(degree,2), '\n',
                        'Closeness: ',round(closeness,2), '\n',
                        'Betweenness: ',round(betweenness,2), '\n'))
node_data <- network %>% data.frame() %>% tibble()

plot <- network %>%
  ggraph(layout="graphopt") +
  geom_edge_link(edge_colour = "grey", alpha=0.5) +
  geom_node_point(aes(size=avg)) +
  geom_node_text(aes(label = label), size=2, repel=TRUE)
```

Network

4
Degree: 2
Closeness: 4.92
Betweenness: 0

C
Degree: 5
Closeness: 6.83
Betweenness: 8.6

A
Degree: 3
Closeness: 5.83
Betweenness: 14

2
Degree: 2
Closeness: 4.58
Betweenness: 8

1
Degree: 1
Closeness: 3.37
Betweenness: 0

B
Degree: 5
Closeness: 6.83
Betweenness: 9.03

3
Degree: 5
Closeness: 6.58
Betweenness: 4.63

D
Degree: 5
Closeness: 6.58
Betweenness: 3.27

6
Degree: 3
Closeness: 5.42
Betweenness: 0.93

5
Degree: 3
Closeness: 5.28
Betweenness: 0.53

avg
● 2
● 4
● 6

Discussion

There appears to be 2 approaches to developing the most useful informal networks based on our discussion in class

1. Be at the center of a dense network
2. Be an intermediary between various networks

The first approach can be defined by the degree score and for the first approach B would likely be the best (as it has the highest other scores) The second approach can be defined by betweenness score and for this approach A would be best

It seems to me that the 1st approach would result in closer friendships, whereas 2nd approach would result in many acquaintances Due to that I would go with 1st approach as making friends is more important for me than having many acquaintances who can help with career