descriptive statistics

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```r
co_mem = read.csv("C:\\Users\\lunad\\Desktop\\co-membership-binary.csv", sep = ",")
```

```r
colnames(co_mem)=co_mem[,1]
co_mem=co_mem[,-1]
co_mem <- as.matrix(co_mem)
```

```r
net_m <- network(co_mem,directed=FALSE) # Create a network object based on flo
net_m # Get a quick description of the data
```

```
##  Network attributes:
##    vertices = 3813
##    directed = FALSE
##    hyper = FALSE
##    loops = FALSE
##    multiple = FALSE
##    bipartite = FALSE
##    total edges= 1852444
##      missing edges= 0
##      non-missing edges= 1852444
##
##  Vertex attribute names:
##      vertex.names
##
##  Edge attribute names not shown
```

```r
#try to plot the network
#high_degree<-delete.vertices(net_m,which(degree(net_m, cmode = "indegree")<1500))
#plot(high_degree, vertex.size=4, edge.arrow.size=.1, edge.width=.2, edge.color="black", vertex.label=N
```

```r
dyadcount <- network.dyadcount(net_m) # How many dyads in nflo?
edgecount <- network.edgecount(net_m) # How many edges are present?
size <- network.size(net_m) # How large is the network?
socio_m <- as.sociomatrix(net_m) # Show it as a sociomatrix
des <- matrix(c(dyadcount,edgecount,size), ncol = 3, byrow = TRUE)
colnames(des) <- c('Dyad', 'Edge', 'Node')
rownames(des) <- c('Count')
des <- as.table(des)
des
```

```
##          Dyad      Edge     Node
## Count 7267578 1852444     3813
```

```r
#Degree Centrality
deg <- degree(net_m, cmode = "indegree")
deg.val <- cbind(deg)
user.id <- cbind(net_m%v%"vertex.names")
deg.df <- data.frame(deg=deg.val,group=user.id)
deg.df <- deg.df[order(deg.df$deg,decreasing = TRUE),]
m.deg <- deg.df[1:100,2]
```

```r
hist.deg <- hist(deg, main = paste("Histogram of Degree Distribution"), col = "lightblue", border = "gr
```

Histogram of Degree Distribution
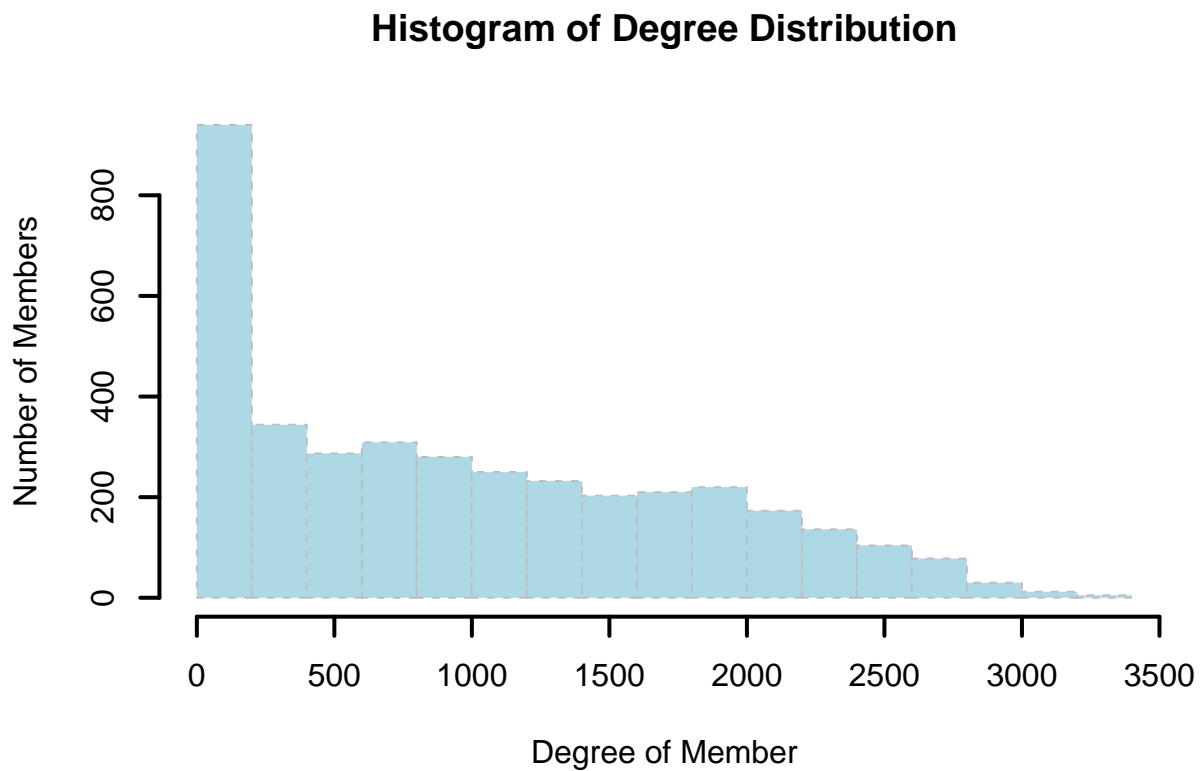

```r
#Eigen Vector Centrality
ev <- round(evcent(net_m),2)
ev.val <- cbind(ev)
ev.df <- data.frame(ev=ev.val,group=user.id)
ev.df <- ev.df[order(ev.df$ev,decreasing = TRUE),]
m.ev <- ev.df[1:100,2]

df <- data.frame(m.deg, m.ev)
colnames(df) <- c('Degree', 'Eigen Vector')
df
```

```
##                Degree     Eigen Vector
## 1         95174098@N00     27393618@N00
## 2           614277@N22       734417@N22
## 3         22286323@N00       855487@N25
## 4           680939@N24     23597558@N00
## 5          2323201@N20     27762863@N00
## 6           581530@N25      1524985@N21
## 7          1404348@N25     12044148@N00
## 8         76303964@N00       570151@N23
## 9         72717767@N00       754062@N25
## 10          806927@N20       312159@N20
## 11          441938@N20      1149204@N21
## 12          357435@N21 52240880306@N01
```

```
## 13        96982141@N00        809384@N20
## 14        40025645@N00       1051319@N22
## 15         1118172@N20       1337195@N24
## 16         1022751@N24       1066753@N20
## 17         2740203@N20 51035802032@N01
## 18          734417@N22       1048533@N22
## 19          442586@N20       1033062@N22
## 20        80148101@N00       2246169@N22
## 21        65248419@N00      12087001@N00
## 22          741558@N22        609332@N22
## 23          331984@N20        645168@N24
## 24        40969270@N00      27118562@N00
## 25          478525@N24        396621@N21
## 26          814881@N21        493306@N22
## 27        61877873@N00        848360@N20
## 28         1293043@N21       1446719@N20
## 29     52241685729@N01      35061774@N00
## 30        31901345@N00        403107@N25
## 31         1092792@N20      85188870@N00
## 32        26156853@N00       1135937@N22
## 33         1163143@N25      91806330@N00
## 34          754062@N25       2323201@N20
## 35          609332@N22        447697@N21
## 36          386378@N21       1163143@N25
## 37        70663139@N00        785899@N24
## 38         2625045@N25       1216504@N22
## 39          848360@N20       1171542@N20
## 40        40172196@N00      40172196@N00
## 41        54989341@N00       1353720@N25
## 42        91806330@N00      70663139@N00
## 43         1353720@N25      81431815@N00
## 44        63012863@N00        680939@N24
## 45         1066753@N20        293391@N25
## 46         1563499@N24      54989341@N00
## 47        16984497@N00       1563499@N24
## 48         1216504@N22       1192127@N25
## 49          645168@N24        684213@N21
## 50         2218225@N21        343046@N25
## 51         1335384@N20        879022@N25
## 52          293391@N25        919510@N24
## 53          976892@N22       1618044@N23
## 54        25902462@N00      11611663@N00
## 55          493306@N22        581530@N25
## 56         1051319@N22 52242005023@N01
## 57          347276@N23        587728@N22
## 58        17044869@N00      59823798@N00
## 59        12044148@N00      63012863@N00
## 60         1171542@N20        744944@N20
## 61          380509@N22      31901345@N00
## 62        92206151@N00       1335384@N20
## 63         2246169@N22 52241685729@N01
## 64        11611663@N00      87382628@N00
## 65          570151@N23      65248419@N00
## 66         1149204@N21      22286323@N00
```

```
## 67        1446719@N20       478525@N24
## 68     59823798@N00       2625045@N25
## 69        785899@N24     64814153@N00
## 70     64814153@N00        976892@N22
## 71        361056@N20        386378@N21
## 72       1278880@N23       1293043@N21
## 73     27762863@N00        361056@N20
## 74        684213@N21        684768@N21
## 75       1048533@N22     61877873@N00
## 76        473716@N23     40969270@N00
## 77        577946@N20     95174098@N00
## 78       1135937@N22       1092792@N20
## 79        452627@N25        442586@N20
## 80     61418316@N00     80148101@N00
## 81       1755214@N23        741558@N22
## 82       1551115@N22     40025645@N00
## 83     93724179@N00        357435@N21
## 84     27118562@N00     16984497@N00
## 85        744944@N20       1118172@N20
## 86        587728@N22       2740203@N20
## 87        919510@N24        347276@N23
## 88  52240880306@N01        614277@N22
## 89        433933@N23        331984@N20
## 90       1063725@N23       2246555@N22
## 91        646122@N21     23912831@N00
## 92        343046@N25     68841873@N00
## 93     81431815@N00        576928@N23
## 94       1165409@N23       1063725@N23
## 95        879022@N25        491206@N23
## 96     87382628@N00     61418316@N00
## 97       1622255@N23     51569276@N00
## 98        809384@N20        806927@N20
## 99       1524985@N21        610129@N24
## 100      1051403@N21       1431176@N23
```