

Seminar 7

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Assignment task 1

In your Seminar 7 folder, there is another file with data, HiTech. Create the code that will do the following:

- Create a directory that will consist of a working directory name and the HiTech folder name, so that it opens the HiTech folder.
- Create file paths to separate data files “GivesAdviceTo,” “IsFriendOf,” “ReportsTo,” and “HiTechAtt.”

```
wd<-getwd()
```

```
HTFile1 <- "/HiTech/HiTech - GivesAdviceTo.tsv"
HTFilePath1 <- paste(wd, HTFile1, sep = "")
GivesAdviceTo<-read.table(HTFilePath1, sep = "\t", header = TRUE, row.names = 1)
head(GivesAdviceTo)
```

```
##   Sender Receiver Value
## 1      1         2     1
## 2      1         4     1
## 3      1         8     1
## 4      1        16     1
## 5      1        18     1
## 6      1        21     1
```

```
HTFile2 <- "/HiTech/HiTech - IsFriendOf.tsv"
HTFilePath2 <- paste(wd, HTFile2, sep = "")
IsFriendOf<-read.table(HTFilePath2, sep = "\t", header = TRUE, row.names = 1)
head(IsFriendOf)
```

```
##   Sender Receiver Value
## 1      1         2     1
## 2      1         4     1
## 3      1         8     1
## 4      1        12     1
## 5      1        16     1
## 6      2         1     1
```

```
HTFile3 <- "/HiTech/HiTech - ReportsTo.tsv"
HTFilePath3 <- paste(wd, HTFile3, sep = "")
ReportsTo<-read.table(HTFilePath3, sep = "\t", header = TRUE, row.names = 1)
head(ReportsTo)
```

```
##   Sender Receiver Value
## 1      1         2     1
## 2      2         7     1
## 3      3        14     1
## 4      4         2     1
## 5      5        14     1
## 6      6        21     1
```

```
HTFile4 <- "/HiTech/HiTech - HiTechAtt.tsv"
HTFilePath4 <- paste(wd, HTFile4, sep = "")
HiTechAtt<-read.table(HTFilePath4, sep = "\t", header = TRUE, row.names = 1)
head(HiTechAtt)
```

```
##   Department Level Age Tenure
## v1          4     3  33  9.333
## v2          4     2  42 19.583
## v3          2     3  40 12.750
## v4          4     3  33  7.500
## v5          2     3  32  3.333
## v6          1     3  59 28.000
```

Assignment task 2

Using the plotting function in igraph, improve my graph for the SouthernWomen data by changing at least three characteristics of the graph.

Assignment task 3

Display the contents of the Women.only and Events.only matrices we created above.

- Explain what data in these matrices mean.
- What are the benefits and problems with separating incidence matrices and creating adjacency matrices out of them?

Assignment task 4

For the network SouthernWomen, please calculate the following network characteristics and briefly explain what they mean:

- Indegree, outdegree, total degree;
- Centrality: degree, betweenness, closeness, eigenvector, page rank; correlations between these measures.
- Transitivity.