MATJAZ_URBAN

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```
source("https://raw.githubusercontent.com/bavla/Rnet/master/R/Pajek.R")
# corrected layers file - removed (...)
R <- read.table("london_transport_layers.txt",stringsAsFactors=FALSE,header=TRUE)
L <- read.table("london_transport_multiplex.edges",header=FALSE)
N <- read.table("london_transport_nodes.txt",stringsAsFactors=FALSE,header=TRUE)

net <- file("London.net","w")
n <- nrow(N)
cat("% London",date(),"\n*vertices",n,"\n",file=net)
for(i in 1:n) cat(i,' "',N$nodeLabel[i],'" ',N$nodeLong[i],' ',N$nodeLat[i],' 0\n',sep="",file=net)
for(i in 1:nrow(R)) cat("*edges :",i,' "',R$layerLabel[i],'"\n',sep="",file=net)
cat("*edges\n",file=net)
for(i in 1:nrow(L)) cat(L$V1[i],": ",L$V2[i]+1," ",L$V3[i]+1," ",L$V4[i],"\n",sep="",file=net)
close(net)
```

```
network = read_graph("London_test.net", format = "pajek")

summary(network)
```

```
## IGRAPH 1ecd2d7 UNW- 369 441 --
## + attr: id (v/c), name (v/c), x (v/n), y (v/n), z (v/n), weight (e/n)
```

```
# Calculate betweenness centrality
betweenness_scores <- betweenness(network, normalized = TRUE)

# Plot the network with vertex sizes based on betweenness
plot(network, vertex.size = betweenness_scores * 100, main = "Network Visualization")
```

Network Visualization