Lab 2 - Working in RMarkdown

Jordan Inskeep

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Working in RMarkdown files makes outputting your work a lot easier. We can add plain text and chunks of code, which can be **knit** as a PDF.

This is a high level header.

This is a low level header.

This is plain text.

```
paste("This is a chunk of code", "below it will be it's output", sep = " & ")
```

```
## [1] "This is a chunk of code & below it will be it's output"
```

You can click **Knit** at the top of the top left panel in RStudio or "ctrl/cmnd + shft + k" and it will save your work as a PDF in your working directory.

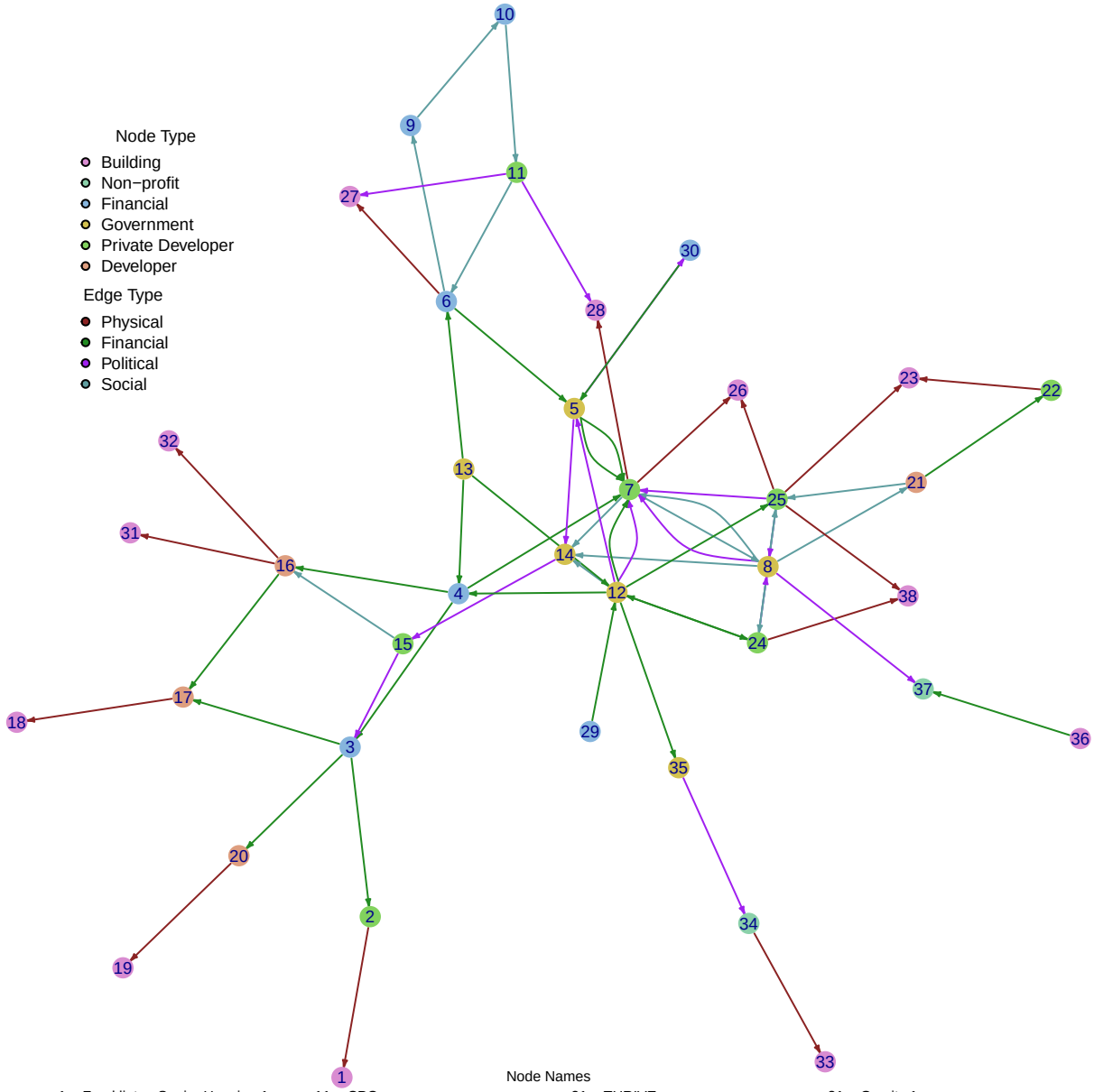
Some of the formatting can take some getting used to but there is a handy guide in the RStudio menu bar under "Help > Cheatsheets".

I can include the network we will create in Lab 2 inside this document by adding a code chunk, and setting it's options to `echo=TRUE, message=FALSE, warning=FALSE` to limit what is output in the document to just the code and the network. I can also change the "figures dimensions" to fit the document.

```
library(readxl)
library(igraph)
library(hues)

nodeData <- read_excel(path = "fhact50data.xlsx", sheet = "Nodes")
edgeData <- read_excel(path = "fhact50data.xlsx", sheet = "Edges")
netData <- graph_from_data_frame(d = edgeData,
                                 vertices = nodeData,
                                 directed = TRUE)
V(netData)$id <- seq.int(from = 1,to = length(V(netData)))
nodePal <- iwanthue(n = length(unique(V(netData)$type)),0,360,23,100,60,100)

E(netData)$color <- ifelse((E(netData)$type == "Natural"),"darkgreen","NULL")
E(netData)$color <- ifelse((E(netData)$type == "Physical"),"brown4",E(netData)$color)
E(netData)$color <- ifelse((E(netData)$type == "Financial"),"forestgreen",E(netData)$color)
E(netData)$color <- ifelse((E(netData)$type == "Social"),"cadetblue",E(netData)$color)
E(netData)$color <- ifelse((E(netData)$type == "Cultural"),"darkgoldenrod",E(netData)$color)
E(netData)$color <- ifelse((E(netData)$type == "Human"),"coral",E(netData)$color)
E(netData)$color <- ifelse((E(netData)$type == "Political"),"purple",E(netData)$color)

kk <- layout_with_kk(netData)
plot(netData,
```

```
     layout=kk,
     main = "Franklinton, Ohio Affordable Housing Network",
     vertex.frame.color=NA,
     vertex.size=4,
     vertex.color=nodePal[as.numeric(as.factor(vertex_attr(netData,"type")))],
     vertex.label=V(netData)$id,
     vertex.label.cex = .6,
     vertex.label.family = "Helvetica",
     edge.arrow.size=.2,
     edge.color=E(netData)$color)
legend(x = -.9,y = .8,
       legend = unique(V(netData)$type),
       pt.bg = nodePal,
       pch = 21,
       bty = "n",
       cex = .6,
       title = "Node Type")
legend(x = -.9,y = 0.5,
       legend = unique(E(netData)$type),
       pt.bg = unique(E(netData)$color),
       pch = 21,
       bty = "n",
       cex = .6,
       title = "Edge Type")
legend("bottom",
       legend = paste(V(netData)$id,V(netData)$name,sep=" - "),
       bty = "n",
       title = "Node Names",
       ncol = 4,
       cex = .5,
       y.intersp = .9)
```

Franklinton, Ohio Affordable Housing Network



Node Names

1 − Franklinton Senior Housing 1
2 − National Church Residents
3 − Finance Fund
4 − OHFA
5 − Community Development Collab
6 − OCCH
7 − FDA
8 − FAC
9 − OCFC
10 − OCIC
11 − CPO
12 − Cols Dept of Dev
13 − US HUD HOME Fund
14 − FHAct50 Committee
15 − Neighborhood Design Center
16 − Kaufman Developer
17 − Homeport
18 − McDowell Place
19 − Warner Junction
20 − Model Group
21 − THRIVE
22 − Mount Carmel
23 − Homes on Hartford
24 − COCIC
25 − COCLT
26 − Town Square Station
27 − City View Homes
28 − Boulevard Homes
29 − US HUD CDBG Fund
30 − Affordable Housing Trust
31 − Gravity 1
32 − Gravity 2
33 − River and Rich
34 − Casto
35 − CMHA
36 − 400 W Rich
37 − Urban Smart Growth
38 − Land Bank Properties