Assignment3_KyleHampton

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Assignment 3 Background

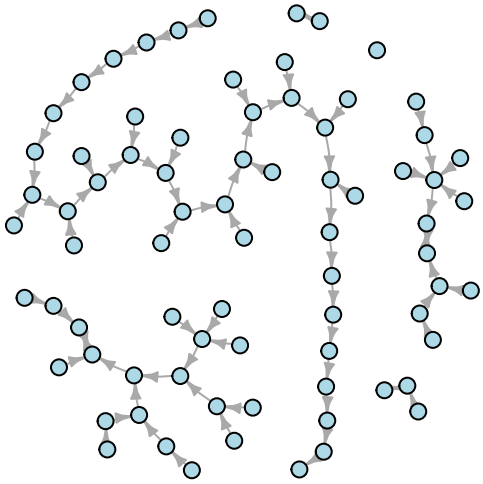
In this assignment, the task is to leverage various data visualization packages in R to create interactive Network and Graph visualizations. The visualizations are built of the specific Bone Articulation and Pair data sets. The subsequent assignment is broken into two sections, articulation and pair, with specific visualizations for each area.

Articulation Plots

Initial Network Diagram

This first plot is minimally interactive, although this network diagram does highlight the data cleaning process. With the cleaning and organizing out of the way, our subsequent visualization will comes together much easier. This diagram emphasizes the chain-like articulation of bones through the human body. It's important to note that although bones are connected to each other, they may not be considered an articulation.

```
ANodes2 <- read_excel("C:/Users/kyleh/Google Drive UNO/UNO/Fall 2017/ISQA 8086/Assignment 3/ANodes2.xlsx
ALinks <- read_excel("C:/Users/kyleh/Google Drive UNO/UNO/Fall 2017/ISQA 8086/Assignment 3/ALinks.xlsx")
ANet <- graph_from_data_frame(d = ALinks,
    vertices = ANodes2, directed = T)
ANet <- simplify(ANet, remove.multiple = F,
    remove.loops = T)
ANodes2$size <- 50
ANodes2$color.background <- c("red",
    "orange", "lightgreen", "darkgreen",
    "darkblue", "purple", "pink")[ANodes2$category.number]
ANodes2$color.border <- c("black")
plot(ANet, edge.arrow.size = 0.4,
    vertex.size = 7, vertex.label = NA,
    edge.curved = 0.1, vertex.color = "LightBlue",
    edge.color = "DarkGray", edge.width = 1)
```



Note that the `echo = FALSE` parameter was added to the code chunk to prevent printing of the R code that generated the plot.

Articulation - Cicular Network Diagram

This next plot uses the same as the previous network diagram, although this diagram visualizes the data in a circle. This data emphasizes the articulation connections between bones, highlighting how some bones have few or no articulations while others have quite a few.

```
plot(ANet, layout = layout_in_circle(ANet),
    vertex.label = NA, edge.arrow.size = 0.01,
    vertex.color = "LightBlue",
    edge.color = "DarkGray", edge.width = 1)
```