Stem-N-Leaf Plots

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## Get Data

Data may be imported from a local file or downloaded from the web. For this example we will use a CSV file downloaded from the web and data entered by hand.

htwt = read.csv("http://facweb1.redlands.edu/fac/jim\_bentley/downloads/math111/htwt.csv")  
 head(htwt)

## Height Weight Group  
## 1 64 159 1  
## 2 63 155 2  
## 3 67 157 2  
## 4 60 125 1  
## 5 52 103 2  
## 6 58 122 2

bp = c(87,67,55,66,88,75,84,78,64,73,84,55,72,83,75,55,83,63)

For now, We will focus on the weight (***Weight***) data in the ***htwt*** dataframe.

names(htwt)

## [1] "Height" "Weight" "Group"

htwt$Weight

## [1] 159 155 157 125 103 122 101 82 228 199 195 110 191 151 119 119 112 87 190  
## [20] 87

We can create a quick stemplot using the base package.

stem(htwt$Weight, 2)

##   
## The decimal point is 1 digit(s) to the right of the |  
##   
## 8 | 277  
## 10 | 130299  
## 12 | 25  
## 14 | 1579  
## 16 |   
## 18 | 0159  
## 20 |   
## 22 | 8

We can create back-to-back stemplots using the ***aplpack*** package. We first make ***Group*** a factor variable, and then generate the plot.

## 1 | 2: represents 120  
## leaf unit: 10  
## n: 20  
## 3 0. | 888  
## 9 1\* | 001111  
## (2) t | 22  
## 9 f | 5555  
## s |   
## 5 1. | 9999  
## 2\* |   
## 1 t | 2

## \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  
## 1 | 2: represents 120, leaf unit: 10   
## htwt$Weight[htwt$Group == "Male"]  
## htwt$Weight[htwt$Group == "Female"]  
## \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  
## | 0\* |   
## | t |   
## | f |   
## | s |   
## 1 8| 0. |88 2   
## 3 10| 1\* |0111 (4)   
## 4 2| t |2 5   
## (1) 5| f |555 4   
## | s |   
## 4 999| 1. |9 1   
## | 2\* |   
## 1 2| t |   
## | f |   
## | s |   
## | 2. |   
## | 3\* |   
## \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  
## n: 9 11   
## \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

## Stem Splitting

How stems are split can greatly affect the way we view the data. We use the blood pressure data to show this.

# Too few stems  
 stem(bp)

##   
## The decimal point is 1 digit(s) to the right of the |  
##   
## 5 | 555  
## 6 | 3467  
## 7 | 23558  
## 8 | 334478

# Too many stems  
 stem(bp,5)

##   
## The decimal point is at the |  
##   
## 54 | 000  
## 56 |   
## 58 |   
## 60 |   
## 62 | 0  
## 64 | 0  
## 66 | 00  
## 68 |   
## 70 |   
## 72 | 00  
## 74 | 00  
## 76 |   
## 78 | 0  
## 80 |   
## 82 | 00  
## 84 | 00  
## 86 | 0  
## 88 | 0

# Just right stems  
 stem(bp,2)

##   
## The decimal point is 1 digit(s) to the right of the |  
##   
## 5 | 555  
## 6 | 34  
## 6 | 67  
## 7 | 23  
## 7 | 558  
## 8 | 3344  
## 8 | 78

# Strangely, the aplpack version defaults to the right stems  
 stem.leaf(bp)

## 1 | 2: represents 12  
## leaf unit: 1  
## n: 18  
## 3 5. | 555  
## 5 6\* | 34  
## 7 6. | 67  
## (2) 7\* | 23  
## (3) 7. | 558  
## 6 8\* | 3344  
## 2 8. | 78