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