Lab07_Advanced Graphics

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```
library(Lahman)
data("Salaries")
```

1. Calculate each team's budget from 2002 using the tapply() function.

```
sal.2002 <- Salaries [Salaries$yearID=="2002", ]
sal.2002.names <- merge( sal.2002, Teams, by.x=c("teamID", "yearID", "lgID"), by.y=c("tea
mID", "yearID", "lgID"))
sal.2002 <- tapply( X=sal.2002.names$salary, INDEX=sal.2002.names$name, sum, na.rm=T )
sal.2002.dat <- data.frame( budget=as.numeric(sal.2002), name=names(sal.2002))
sal.2002 <- merge(sal.2002.dat, Teams, by.x="name", by.y="name" )
sals.2002 <- sal.2002[sal.2002$yearID =="2002",]
sals.2002 <- sals.2002[ order( sals.2002$budget, decreasing=T ), ]
sals.2002[c("name", "budget")]
```

```
##                       name    budget
## 1246      New York Yankees 125928583
## 225         Boston Red Sox 108366060
## 1897         Texas Rangers 105526122
## 22    Arizona Diamondbacks 102819999
## 1010   Los Angeles Dodgers  94850953
## 1201         New York Mets  94633593
## 65          Atlanta Braves  92870367
## 1723      Seattle Mariners  80282668
## 673      Cleveland Indians  78909449
## 1655  San Francisco Giants  78299835
## 1919     Toronto Blue Jays  76864333
## 360           Chicago Cubs  75690833
## 1750   St. Louis Cardinals  74660875
## 889         Houston Astros  63448417
## 8           Anaheim Angels  61721667
## 138      Baltimore Orioles  60493487
## 1371 Philadelphia Phillies  57954999
## 463      Chicago White Sox  57052833
## 730       Colorado Rockies  56851043
## 800         Detroit Tigers  55048000
## 1046     Milwaukee Brewers  50287833
## 951     Kansas City Royals  47257000
## 595        Cincinnati Reds  45050390
## 1489    Pittsburgh Pirates  42323599
## 852        Florida Marlins  41979917
## 1618      San Diego Padres  41425000
## 1112       Minnesota Twins  40425000
## 1352     Oakland Athletics  40004167
## 1125        Montreal Expos  38670500
## 1869  Tampa Bay Devil Rays  34380000
```

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2. Subset the results by American and National League. Create separate graphs for each league. Include the league average budget in the appropriate spot on the graph.

3. Use each team's total budget instead of the % of league budget.

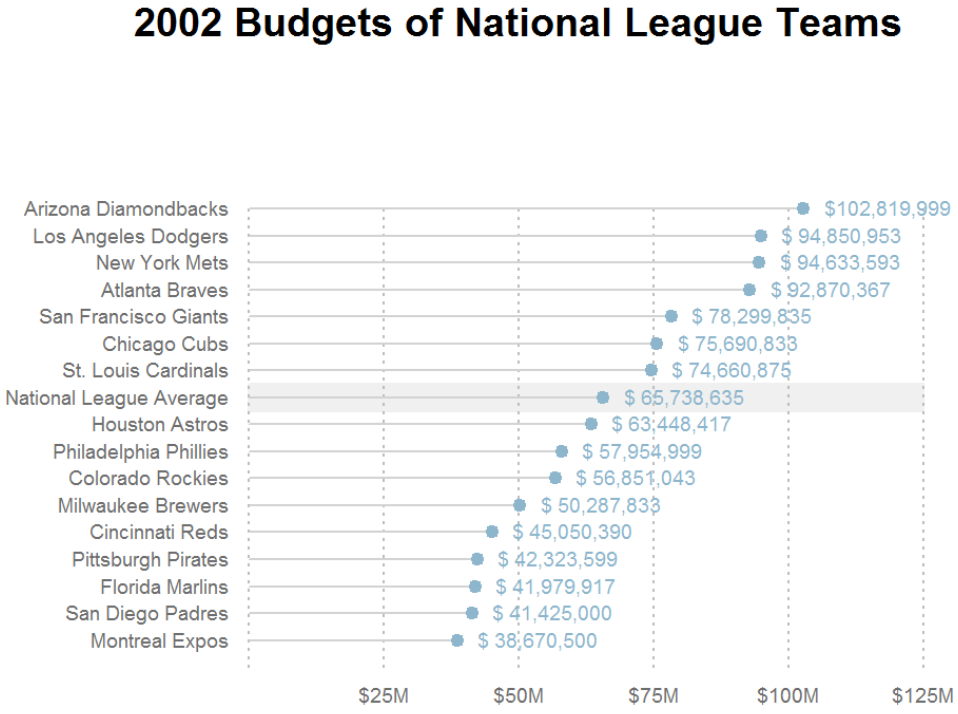
4. Label everything appropriately.

National League Subset

```
nl.2002 <- sals.2002[sals.2002$lgID == "NL",]
nl.ave <- mean(nl.2002$budget)
nl.ave.dat <- data.frame(budget=nl.ave, name="National League Average")
nl.sal.2002 <- merge(nl.2002, nl.ave.dat, all.x = T, all.y=T)
nl.2002 <- nl.sal.2002[ order( nl.sal.2002$budget, decreasing=T ), ]
```

National League Plot

```
plot( nl.2002$budget, 17:1, type="n",
      xlim=c(-50000000,150000000), ylim=c(-2,20),
      bty="n", ylab="", yaxt="n", xlab="", xaxt="n"
)
rect (xleft=0, ybottom=9.5, xright=125000000, ytop=10.5, col="gray94", border="gray94")
segments( x0=0, y0=0, y1=17, col="gray", lty=3 )
segments( x0=25000000, y0=0, y1=17, col="gray", lty=3 )
segments( x0=50000000, y0=0, y1=17, col="gray", lty=3 )
segments( x0=75000000, y0=0, y1=17, col="gray", lty=3 )
segments( x0=100000000, y0=0, y1=17, col="gray", lty=3 )
segments( x0=125000000, y0=0, y1=17, col="gray", lty=3 )
title(main="2002 Budgets of National League Teams"  )
segments( x0=0, x1=nl.2002$budget, y0=17:1, col="lightgray", lty=1 )
text( nl.2002$budget, 17:1, (paste("$", (format(nl.2002$budget , big.mark=","")), se
p="")), pos=4, cex=0.6, col="lightskyblue3" )
text( c(25000000, 50000000, 75000000, 100000000, 125000000), -1, c("$25M","$50M","$75
M","$100M","$125M"), col="gray43", cex=0.6 )
text( -1, 17:1, nl.2002$name, col = "gray43", pos=2, cex=0.6)
points(nl.2002$budget, 17:1, pch=19, cex=.8, col="lightskyblue3")
```



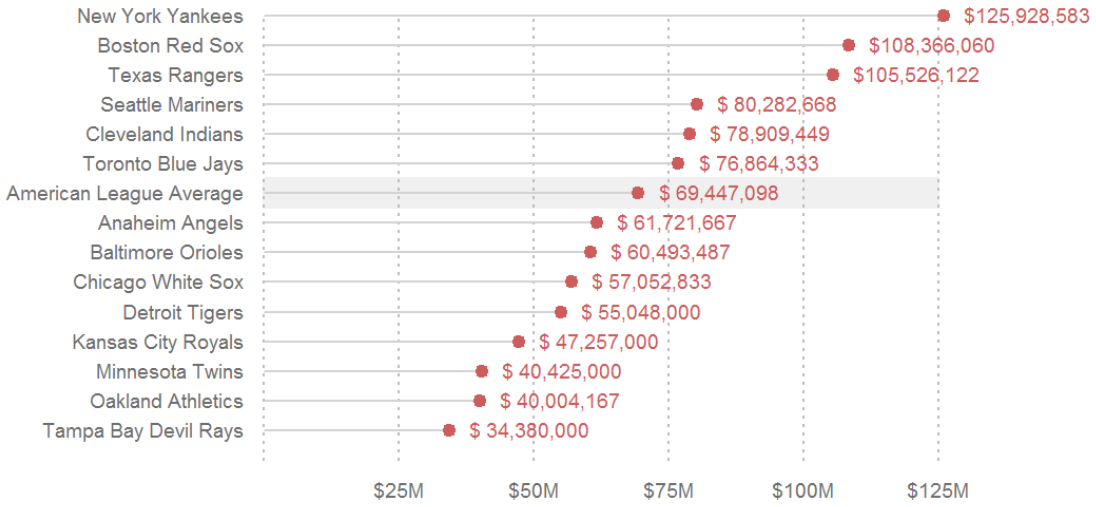
American League Subset

```
al.2002 <- sals.2002[sals.2002$lgID == "AL",]
al.ave <- mean(al.2002$budget)
al.ave.dat <- data.frame(budget=al.ave, name="American League Average")
al.sal.2002 <- merge(al.2002, al.ave.dat, all.x = T, all.y=T)
al.2002 <- al.sal.2002[ order( al.sal.2002$budget, decreasing=T ), ]
```

American League Plot

```
plot( al.2002$budget, 15:1, type="n",
      xlim=c(-50000000,150000000), ylim=c(-2,18),
      bty="n", ylab="", yaxt="n", xlab="", xaxt="n"
)
rect (xleft=0, ybottom=8.5, xright=125000000, ytop=9.5, col="gray94", border="gray94")
segments( x0=0, y0=0, y1=15, col="gray", lty=3 )
segments( x0=25000000, y0=0, y1=15, col="gray", lty=3 )
segments( x0=50000000, y0=0, y1=15, col="gray", lty=3 )
segments( x0=75000000, y0=0, y1=15, col="gray", lty=3 )
segments( x0=100000000, y0=0, y1=15, col="gray", lty=3 )
segments( x0=125000000, y0=0, y1=15, col="gray", lty=3 )
title(main="2002 Budgets of American League Teams"  )
segments( x0=0, x1=al.2002$budget, y0=15:1, col="lightgray", lty=1 )
text( al.2002$budget, 15:1, (paste("$", (format(al.2002$budget , big.mark=","
p=""))), pos=4, cex=0.6, col="indianred" )
text( c(25000000, 50000000, 75000000, 100000000, 125000000), -1, c("$25M","$50M","$75
M","$100M","$125M"), col="gray43", cex=0.6 )
text( -1, 15:1, al.2002$name, col = "gray43", pos=2, cex=0.6)
points(al.2002$budget, 15:1, pch=19, cex=.8, col="indianred")
```

2002 Budgets of American League Teams



National and American League Comparison