Derek Shin
Professor Andres
Sabermetrics 101
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Week 6: 1st R Homework

R script
```
# Sabermetrics Week 6 - 1st R HW
# by Jun Soo Shin
# 2/27/15

win_estimators = read.csv('Week 6 R HW.csv')
shrunk = win_estimators[c("yearID", "teamID", "R", "RA", "W", "L", "WPct",
"BJames_Pythag_WPct")]
shrunk162 = shrunk[(shrunk$W + shrunk$L) == 162, ]
shrunk162$avgRuns = shrunk162$R / 162
shrunk162$RunDiff = shrunk162$R - shrunk162$RA
shrunk162$WinDiff = shrunk162$W - shrunk162$L
plot(shrunk162$RunDiff, shrunk162$WinDiff, xlab="Runs Differential", ylab="Wins
Differential")
```
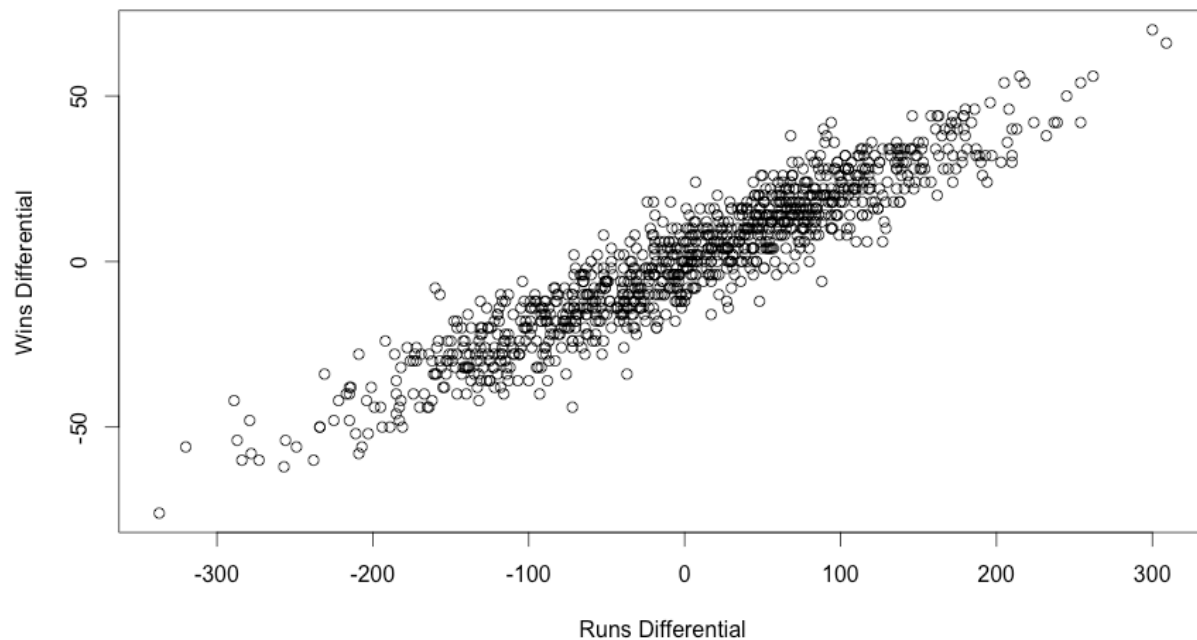
```r
# challenges for extra credit - for loop
# most code provided by the course staff
list <- NULL

for (year in 1902:2013) {
  df <- shrunk[shrunk$yearID == year, ]

  df$avgGames = df$W + df$L
  avgRuns  = sum(df$R) / nrow(df)
  avgGames = sum(df$avgGames) / nrow(df)

  runsToWins <- avgRuns - sqrt( (avgRuns*avgRuns) / (1/(.500-(1/avgGames))-1) )
  # putting a year and runs to wins conversion for that year in a vector together
  year_runsToWins <- c(year, runsToWins)
  # add year's runs to wins conversion to the list
  list <- rbind(list, year_runsToWins)
}

# turning list into data frame
list <- data.frame(list)
# renaming the data frame columns
names(list) <- c('year', 'runsToWins')

list
plot(list$year, list$runsToWins, xlab="Year", ylab="Runs to Wins Conversion")
```