Lab05_PlotFunction

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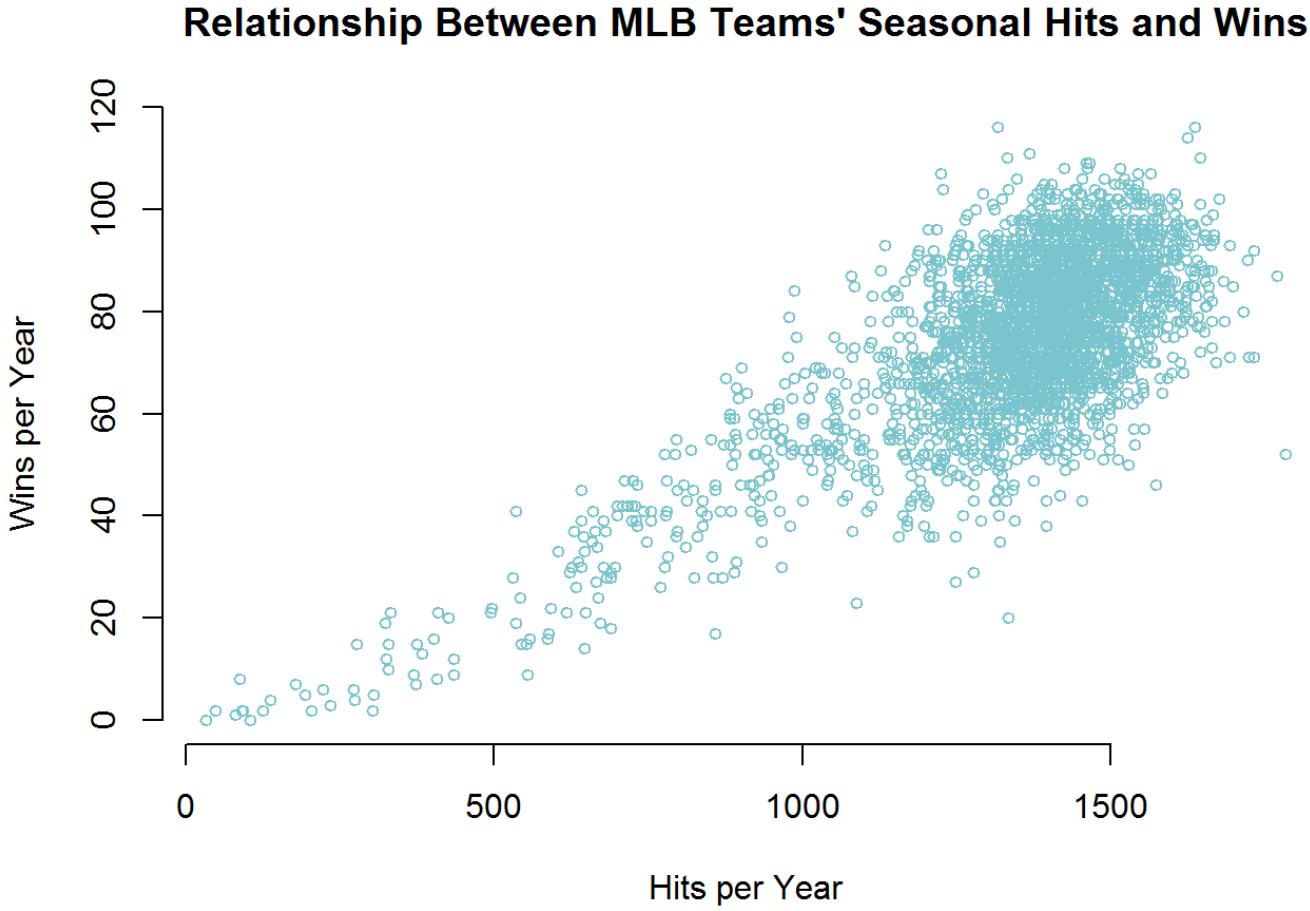
```
library("Lahman")
data(Teams)
```

Question 1. Examine the relationship between Hits and Wins using a scatterplot. Use meaningful labels and a visually appealing style.

```
hits <- Teams$H
wins <- Teams$W
plot(
  x=hits, y=wins,
  xlab="Hits per Year",
  ylab="Wins per Year",
  main="Relationship Between MLB Teams' Seasonal Hits and Wins",
  pch=1,
  col="cadetblue3",
  cex=.75,
  bty="n"
  )
```

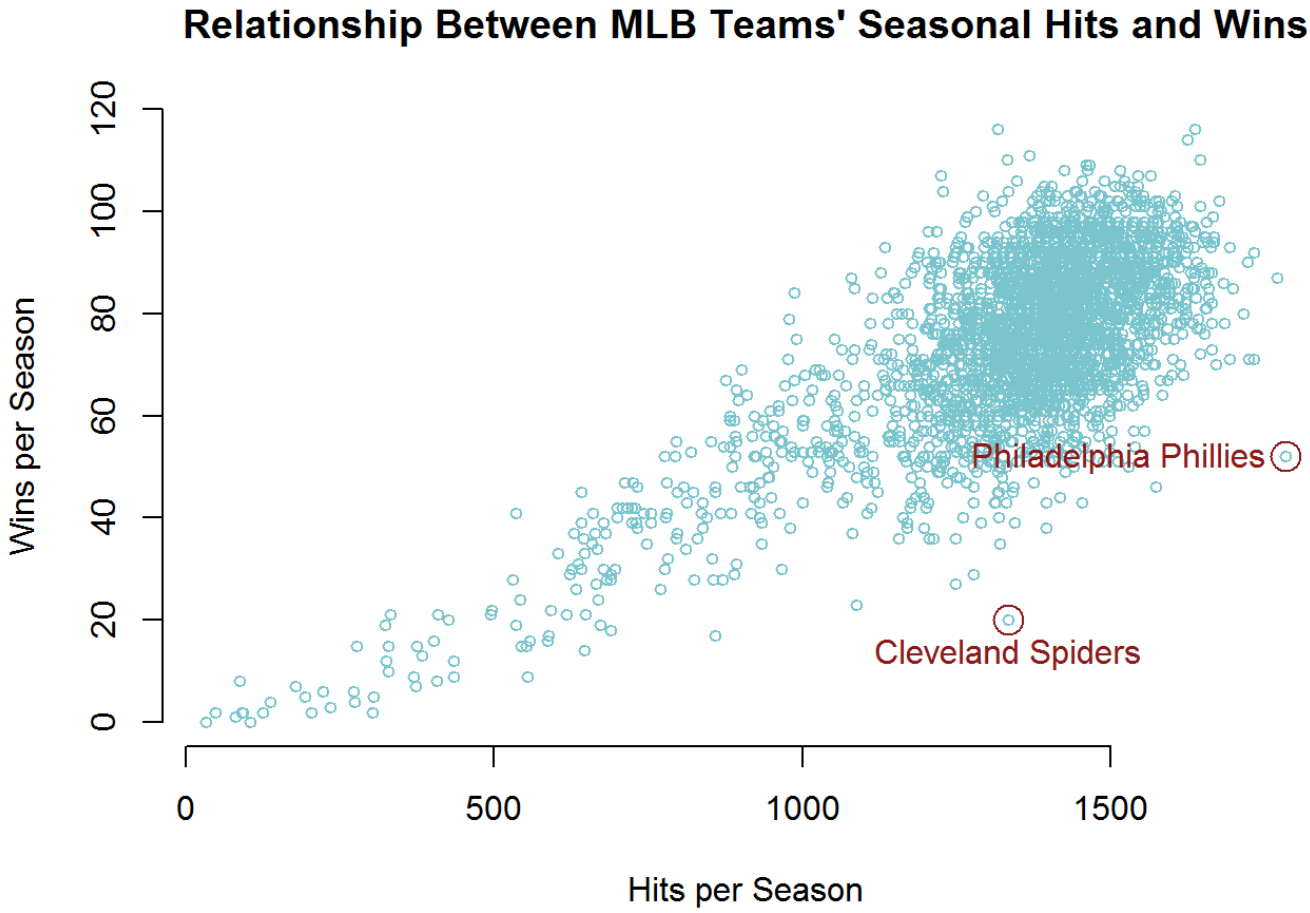


Question 2. Annotate two outliers on the graph with the team name.

The Identify function was used to identify two outlier points(observations 369 and 875).

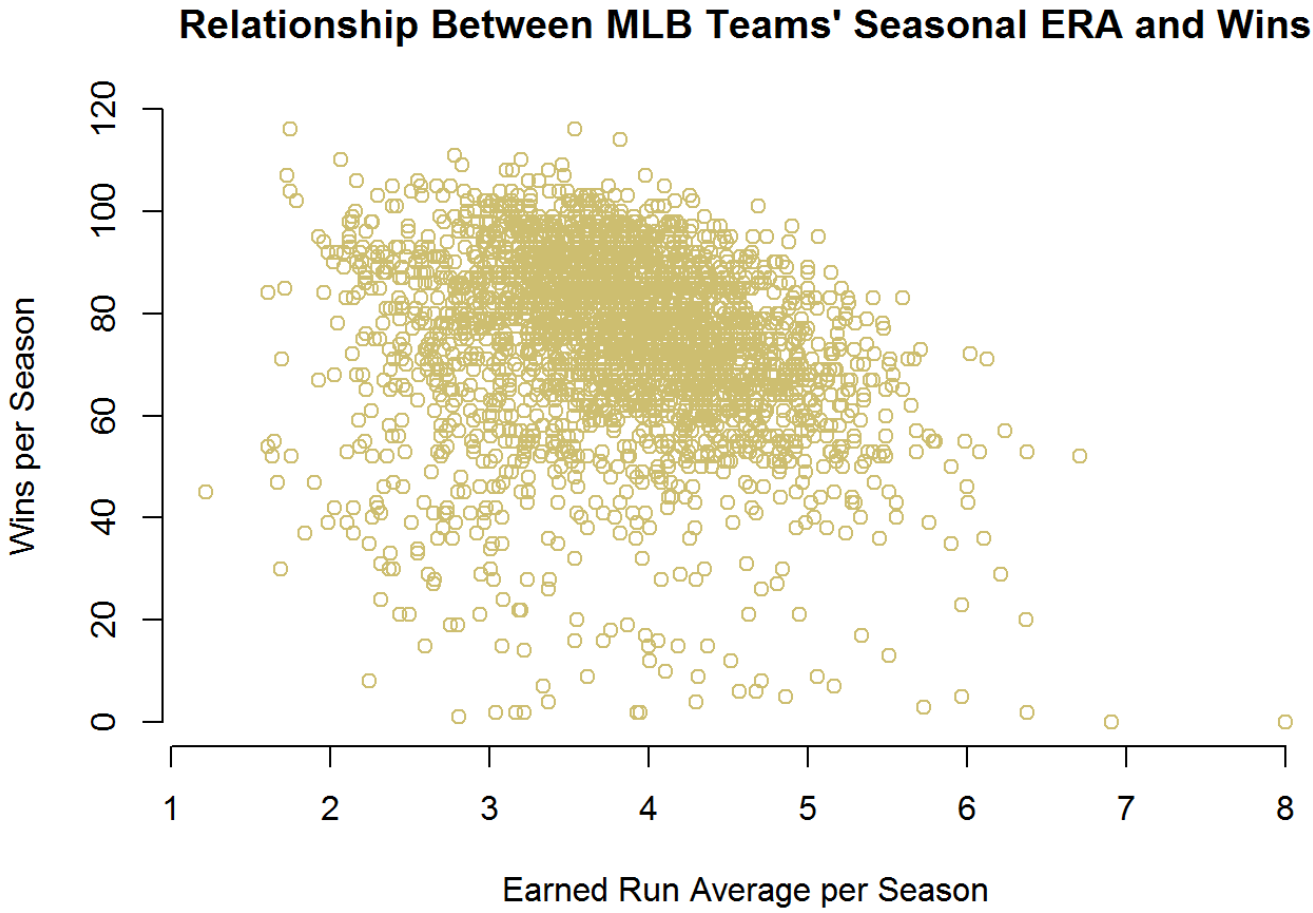
```
hits <- Teams$H
wins <- Teams$W
plot(
  x=hits, y=wins,
  xlab="Hits per Season",
  ylab="Wins per Season",
  main="Relationship Between MLB Teams' Seasonal Hits and Wins",
  pch=1,
  col="cadetblue3",
  cex=.75,
  bty="n"
  )
outlier1 <- Teams[369,]
outlier1.x <- outlier1$H
outlier1.y <- outlier1$W
points( x=outlier1.x, y=outlier1.y, pch=1, cex=2, col="firebrick4" )
text( x=outlier1.x, y=outlier1.y, labels=outlier1$name, pos=1, col="firebrick4" )

outlier2 <- Teams[875,]
outlier2.x <- outlier2$H
outlier2.y <- outlier2$W
points( x=outlier2.x, y=outlier2.y, pch=1, cex=2, col="firebrick4" )
text( x=outlier2.x, y=outlier2.y, labels=outlier2$name, pos=2, col="firebrick4" )
```



Question 3. Examine the relationship between ERA and Wins using a scatterplot. Use meaningful labels and a visually appealing style.

```
era <- Teams$ERA
wins <- Teams$W
plot.era.win <- plot(
  x=era, y=wins,
  xlab="Earned Run Average per Season",
  ylab="Wins per Season",
  main="Relationship Between MLB Teams' Seasonal ERA and Wins",
  pch=1,
  col="lightgoldenrod3",
  cex=1,
  bty="n"
  )
```

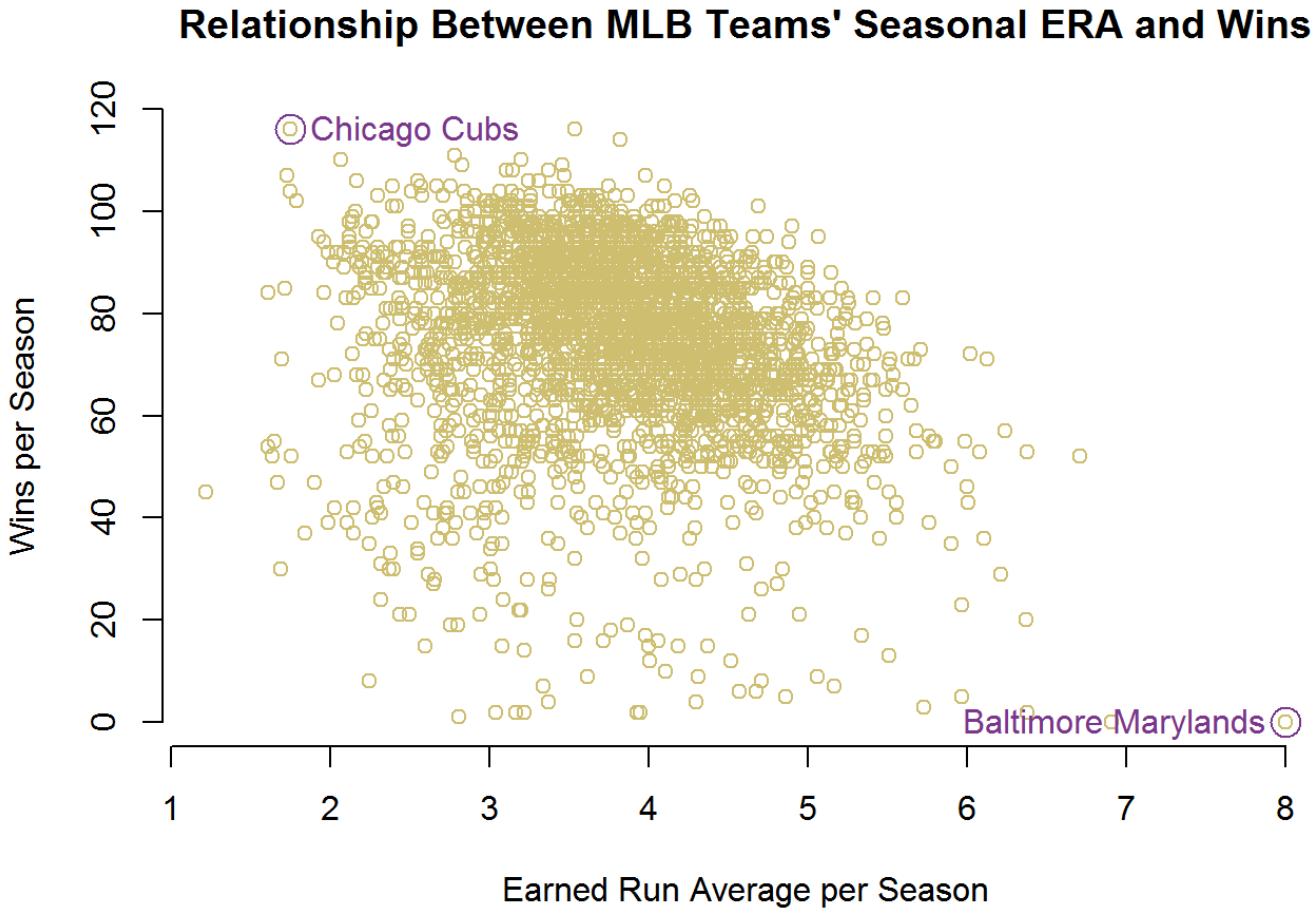


Question 4. Annotate two outliers on the graph with the team name.

The Identify function was used to identify two outlier points (observations 22 and 468).

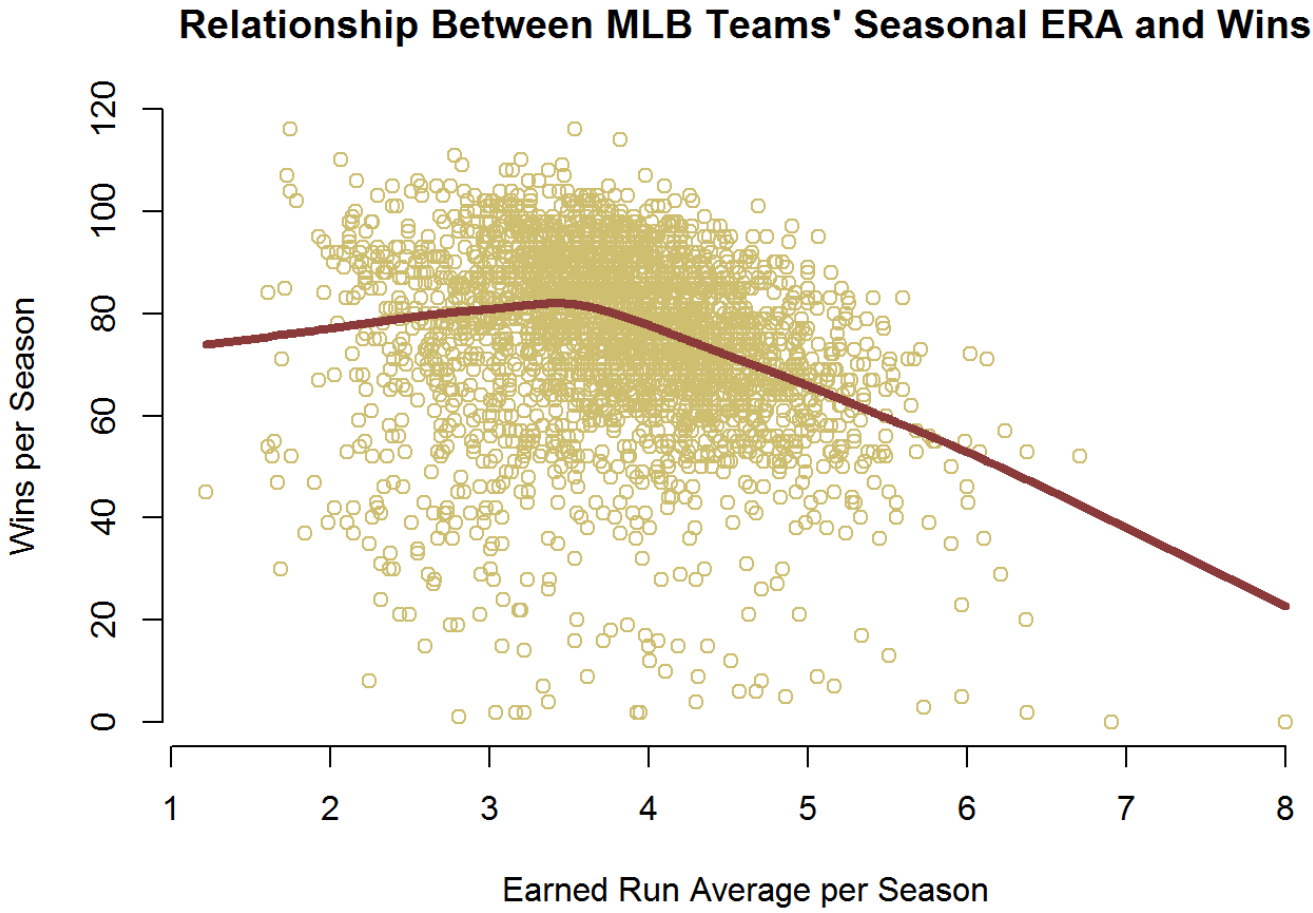
```
era <- Teams$ERA
wins <- Teams$W
plot.era.win <- plot(
  x=era, y=wins,
  xlab="Earned Run Average per Season",
  ylab="Wins per Season",
  main="Relationship Between MLB Teams' Seasonal ERA and Wins",
  pch=1,
  col="lightgoldenrod3",
  cex=1,
  bty="n"
  )
outlier3 <- Teams[22,]
outlier3.x <- outlier3$ERA
outlier3.y <- outlier3$W
points( x=outlier3.x, y=outlier3.y, pch=1, cex=2, col="mediumorchid4" )
text( x=outlier3.x, y=outlier3.y, labels=outlier3$name, pos=2, col="mediumorchid4" )

outlier4 <- Teams[468,]
outlier4.x <- outlier4$ERA
outlier4.y <- outlier4$W
points( x=outlier4.x, y=outlier4.y, pch=1, cex=2, col="mediumorchid4" )
text( x=outlier4.x, y=outlier4.y, labels=outlier4$name, pos=4, col="mediumorchid4" )
```

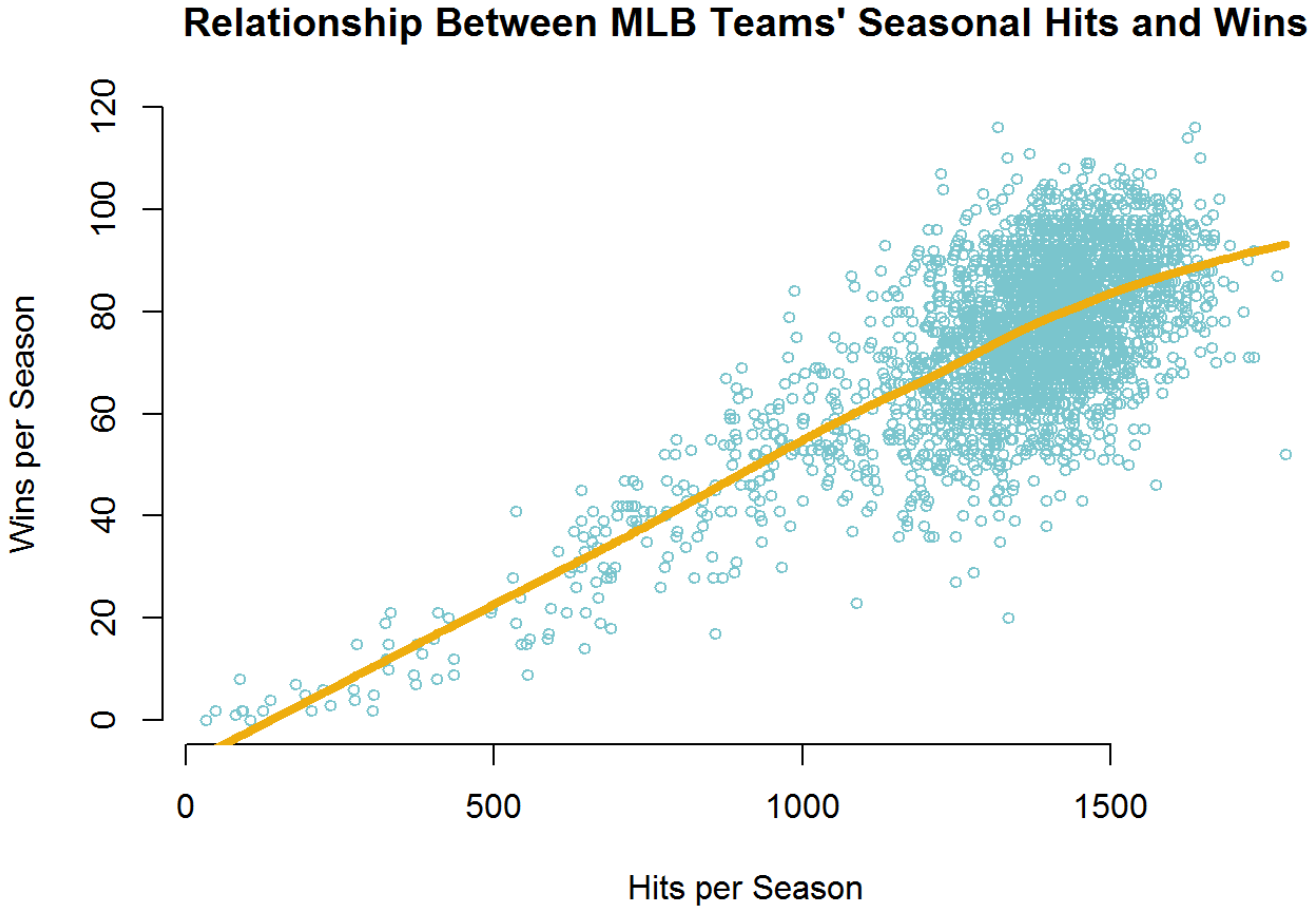


Question 5. BONUS - add a trend line to the scatterplot to highlight the relationship.

```
era <- Teams$ERA
wins <- Teams$W
plot.era.win <- plot(
  x=era, y=wins,
  xlab="Earned Run Average per Season",
  ylab="Wins per Season",
  main="Relationship Between MLB Teams' Seasonal ERA and Wins",
  pch=1,
  col="lightgoldenrod3",
  cex=1,
  bty="n"
  )
lines( lowess( era, wins ), col="indianred4", lwd=4 )
```




```
hits <- Teams$H
wins <- Teams$W
plot(
  x=hits, y=wins,
  xlab="Hits per Season",
  ylab="Wins per Season",
  main="Relationship Between MLB Teams' Seasonal Hits and Wins",
  pch=1,
  col="cadetblue3",
  cex=.75,
  bty="n"
  )
lines( lowess( hits, wins ), col="darkgoldenrod2", lwd=4 )
```


Relationship Between MLB Teams' Seasonal Hits and Wins
Wins per Season
0
20
40
60
80
100
120
0
500
1000
1500
Hits per Season