Project Part 1

Het Patel (7972424)

9 Nov 2023

```
nba <- read.csv("nbaplayers.csv")
```

DESCREPTION: This is dataset of 50 NBA players from 2022-23 regular season. This dataset has total of 539 players but because of the project I have taken the first 50 players from it. It has the following columns:

1) **Rank**: The standing of the player
2) **PLAYER**: Name of the player
3) **TEAM**: Team in which player play
4) **GP**: Games played in the season
5) **PTS**: Average points per game in that season
6) **FGA**: Field goals attempted per game in that season
7) **FTA**: Free throws attemplted per game in that season

Here's the URL where I found my dataset: dataset link

My response variable is PTS (average points per game)

My two explanatory variables are FGA (average field goals attempted) and FTA (Free throws attemplted per game)

```
nba2.lm <- lm(PTS ~ FGA, data = nba)
summary(nba2.lm)
```

```
##
## Call:
## lm(formula = PTS ~ FGA, data = nba)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -4.7984 -1.2507 -0.0895  1.4066  5.6579
##
## Coefficients:
##             Estimate Std. Error t value Pr(>|t|)
## (Intercept)   1.5844     3.0141   0.526    0.602
## FGA           1.2865     0.1661   7.744 5.38e-10 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 2.417 on 48 degrees of freedom
## Multiple R-squared:  0.5554, Adjusted R-squared:  0.5461
## F-statistic: 59.96 on 1 and 48 DF,  p-value: 5.385e-10
```

```r
# R^2 = 0.5554, Adj_r^2 = 0.5461


nba3.lm <- lm(PTS ~ FTA, data = nba)
summary(nba3.lm)
```

```
##
## Call:
## lm(formula = PTS ~ FTA, data = nba)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -5.0188 -1.5082 -0.2028  1.4257  5.8987
##
## Coefficients:
##             Estimate Std. Error t value Pr(>|t|)
## (Intercept)  17.5316     0.9221  19.013  < 2e-16 ***
## FTA           1.1939     0.1422   8.397 5.56e-11 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 2.307 on 48 degrees of freedom
## Multiple R-squared:  0.595,  Adjusted R-squared:  0.5866
## F-statistic: 70.52 on 1 and 48 DF,  p-value: 5.56e-11
```

```r
#R^2 = 0.595, Adj_r^2 = 0.5866
```

For $Y \sim X1$, $r^2 = 0.5554$ and $R^2_{adj} = 0.5461$ For $Y \sim X2$, $r^2 = 0.595$ and $R^2_{adj} = 0.5866$

```r
nba1.lm <- lm(PTS ~ FGA + FTA, data = nba)
summary(nba1.lm)
```

```
##
## Call:
## lm(formula = PTS ~ FGA + FTA, data = nba)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -2.5855 -0.9135  0.0929  0.6659  3.5350
##
## Coefficients:
##             Estimate Std. Error t value Pr(>|t|)
## (Intercept)  2.14808    1.68813   1.272    0.209
## FGA          0.94858    0.09861   9.620 1.10e-12 ***
## FTA          0.91111    0.08842  10.304 1.21e-13 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 1.353 on 47 degrees of freedom
## Multiple R-squared:  0.8636, Adjusted R-squared:  0.8578
## F-statistic: 148.8 on 2 and 47 DF,  p-value: < 2.2e-16
```

```
# Adj_r^2 = 0.8578
```

For $Y \sim X1 + X2$, $R^2_{adj} = 0.8578$