Baseball_Analysis

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Required Packages

```
library(tidyverse)
library(xtable)
library(BiaDiss)
```

First we break the data into 3 datasets by age group.

```
age.1.data <- BattersGrouped %>% filter(GROUP==1) %>% select(HR:OTHER)
age.2.data <- BattersGrouped %>% filter(GROUP==2) %>% select(HR:OTHER)
age.3.data <- BattersGrouped %>% filter(GROUP==3) %>% select(HR:OTHER)
```

Check the correlation structure for each age group. Are they similar enough to combine? Are there positive and negative correlations? This code creates Table 7.2 on page 106. ## Check Correlation Structure

```
(b1 <- round(cor(age.1.data), 4))
```

```
##              HR  TRIPLE  DOUBLE  SINGLE     OUT   OTHER
## HR       1.0000 -0.0209  0.1248 -0.0388 -0.2047  0.0379
## TRIPLE  -0.0209  1.0000 -0.0287  0.0368 -0.1060 -0.0240
## DOUBLE   0.1248 -0.0287  1.0000  0.0366 -0.3335 -0.0469
## SINGLE  -0.0388  0.0368  0.0366  1.0000 -0.7152 -0.1306
## OUT     -0.2047 -0.1060 -0.3335 -0.7152  1.0000 -0.4824
## OTHER    0.0379 -0.0240 -0.0469 -0.1306 -0.4824  1.0000
```

```
(b2 <- round(cor(age.2.data), 4))
```

```
##              HR  TRIPLE  DOUBLE  SINGLE     OUT   OTHER
## HR       1.0000 -0.0130  0.0876 -0.0716 -0.2925  0.0701
## TRIPLE  -0.0130  1.0000  0.0377  0.0268 -0.1049 -0.0197
## DOUBLE   0.0876  0.0377  1.0000 -0.0134 -0.3159  0.0033
## SINGLE  -0.0716  0.0268 -0.0134  1.0000 -0.6774 -0.1206
## OUT     -0.2925 -0.1049 -0.3159 -0.6774  1.0000 -0.5062
## OTHER    0.0701 -0.0197  0.0033 -0.1206 -0.5062  1.0000
```

```
(b3 <- round(cor(age.3.data), 4))
```

```
##              HR  TRIPLE  DOUBLE  SINGLE     OUT   OTHER
## HR       1.0000 -0.0663  0.1744 -0.1268 -0.2945  0.1751
## TRIPLE  -0.0663  1.0000 -0.0513 -0.0073 -0.0343 -0.0932
## DOUBLE   0.1744 -0.0513  1.0000  0.0907 -0.3803  0.0237
## SINGLE  -0.1268 -0.0073  0.0907  1.0000 -0.6037 -0.0739
## OUT     -0.2945 -0.0343 -0.3803 -0.6037  1.0000 -0.6478
## OTHER    0.1751 -0.0932  0.0237 -0.0739 -0.6478  1.0000
```

```
#Create the latex code for the table 7.2.
#xtable(b1, type=latex, digits = c(0, rep(4, 6)))
```

```
#xtable(b2, type=latex, digits = c(0, rep(4, 6)))
#xtable(b3, type=latex, digits = c(0, rep(4, 6)))
```

If we combine the three age groups into a single group, will the correlations be similar to what we saw when the data was parsed into age groups? This code creates table 7.4 on page 107.

```
temp <- BattersGrouped %>% select(HR:OTHER)
(group.cor <- round(cor(temp), 3))
```

```
##              HR TRIPLE DOUBLE SINGLE    OUT  OTHER
## HR       1.000 -0.022  0.097 -0.070 -0.280  0.076
## TRIPLE  -0.022  1.000  0.014  0.025 -0.093 -0.034
## DOUBLE   0.097  0.014  1.000  0.003 -0.324 -0.004
## SINGLE  -0.070  0.025  0.003  1.000 -0.677 -0.118
## OUT     -0.280 -0.093 -0.324 -0.677  1.000 -0.517
## OTHER    0.076 -0.034 -0.004 -0.118 -0.517  1.000
```

```
#Creates latex code for table 7.4.
#xtable(group.cor, type=latex, digits = c(0, rep(4, 6)))
```