

# Evaluating Statistical Models for Predicting Next-Season Wins Above Replacement

Group 3

2025-12-05

```
library(knitr)
library(ggplot2)
```

```
#Introduction
```

## Background and Motivation

Wins Above Placement (WAR) is one of the most widely used metrics in modern baseball analytics. It estimates the total number of wins a player contributes to their team compared to a player who could be readily called up from the minor league, or signed for a low cost. Since WAR combines many aspects of performance: hitting, defense, positional value, and baserunning, it is viewed as a comprehensive measure of a player's overall value.

```
##Purpose
```

```
##Data Cleaning
```

```
....
```

```
##Methods
```

```
##OLS
```

The Ordinary Least Squares ... explain the method...

Our OLS model outputs an  $R^2$  value of 0.8219. Meaning that it explains about 82% of the variation in WAR using batting statistics.

It also outputted a Residual Standard Error of 0.73, confirming the model's predictions are consistently within about 0.7-0.8 WAR of the true value

```
##LASSO
```

Least Absolute Shrinkage and Selection Operator... explain

Our LASSO model performs both regularization and feature selection of the data #BOOSTING

```
##GRAPHS
```

```
##OLS Scatterplot
```

```
##LASSO Scatterplot
```

```
##BOOSTING Scatterplot
```

```
##Comparison BAR graphs
```

```
##CONCLUSION
```