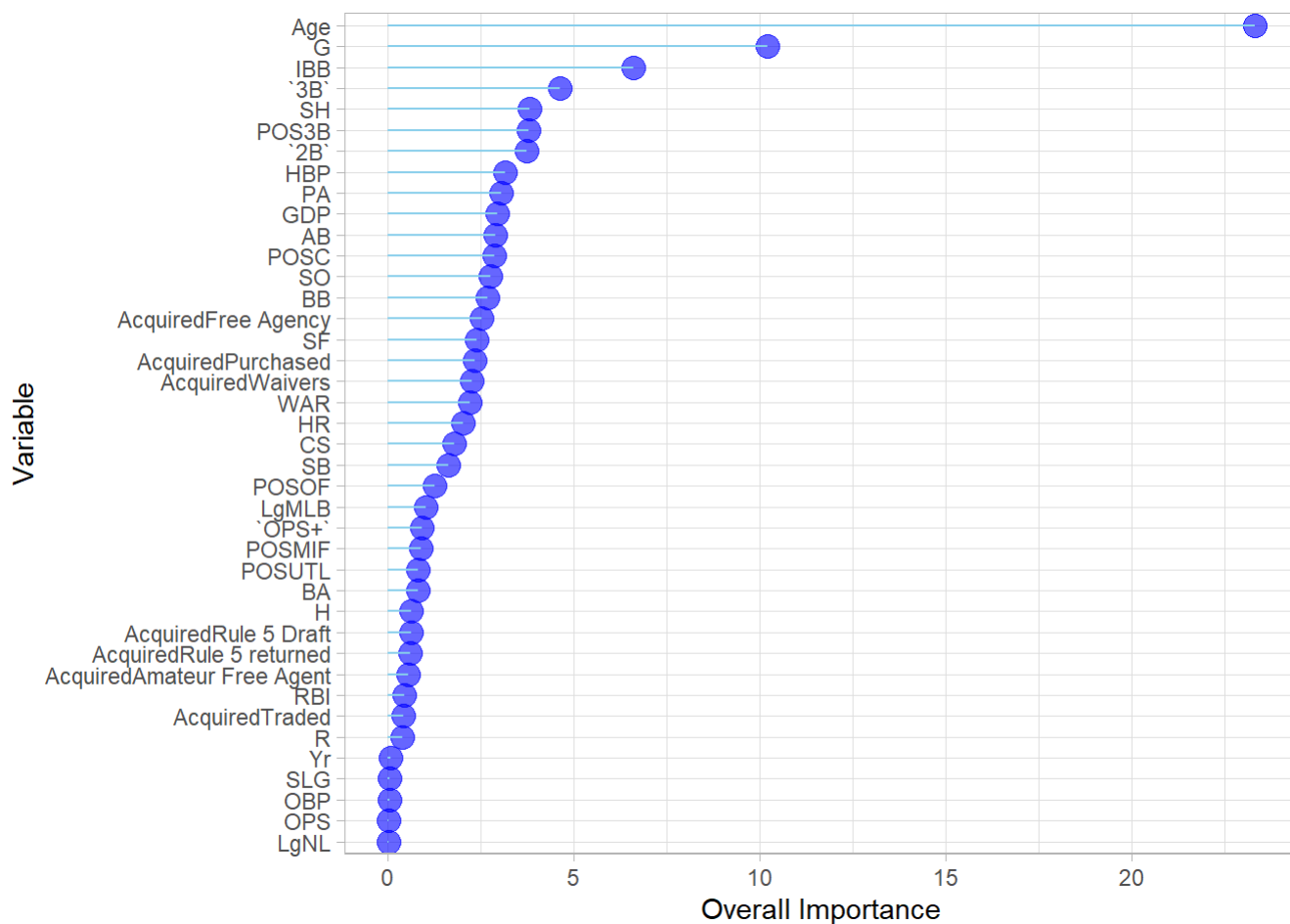


MLB Player Performance and Salary

This report analyzes the relationship between Major League Baseball hitting performance and salary. The data was scrubbed from various sports statistics websites, most notably sports-reference.com and ESPN. The analysis seeks to create visualizations that display clear insights within the dataset, as well as build an effective machine learning model to predict a player's salary. The data uses statistics from the 2016 to 2019 seasons.

Visualizations and Insights

Importance By Feature



Insights:

- National League, SLG, OBP and OPS are surprisingly the lowest predictors of salary.
- Age, Games Played, and Intentional Walks are the highest.

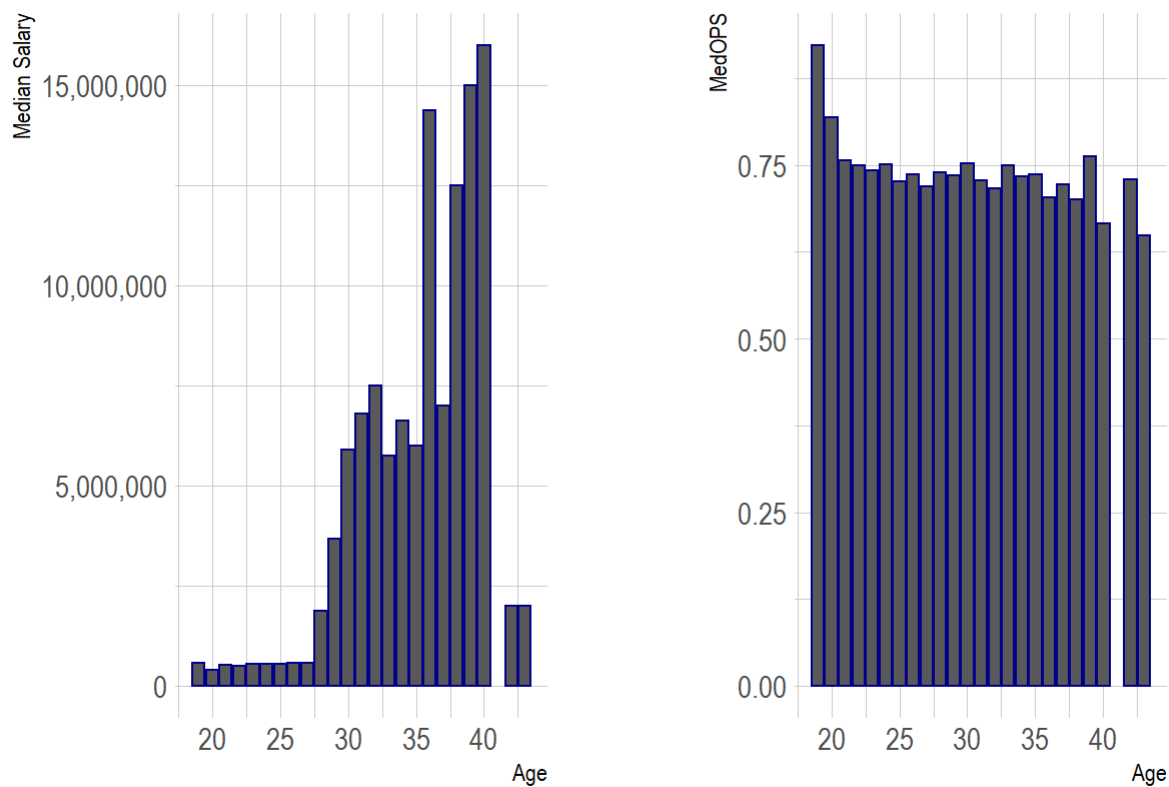
Position Group Salaries and Performance

POS	Players	Average_WAR	Average_Age	Average_Salary	Median_Salary
1B	89	1.64	29.19	7812585	4200000
3B	31	3.74	28.97	11489428	11750000
C	86	0.81	30.07	3675629	2000000
MIF	129	2.53	26.67	5271733	3125000
OF	451	1.73	27.93	5182733	1400000
UTL	987	1.09	28.91	4487517	1550000

Insights:

- Third Basemen have the highest Wins-Above-Replacement and Average Salaries.
- Catchers are the oldest average age group.
- Utility players (players who play multiple positions, IF and OF) are the largest player group.

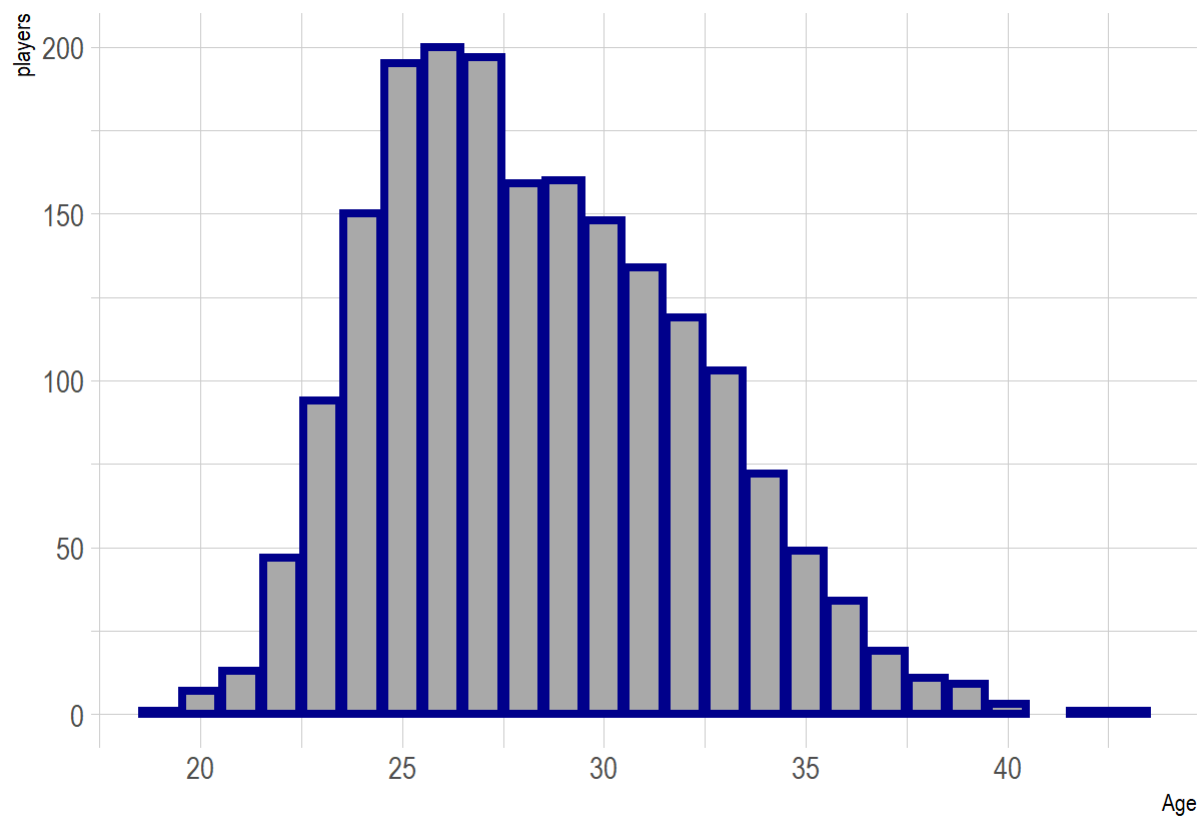
Median Salary and OPS by Age



Insights:

- If you're still playing baseball after age 27, you are very rich.
- There is a clear drop-off in hitting performance as players get older.
- Players aged 19-21 who make the league are highly productive hitters, but underpaid.

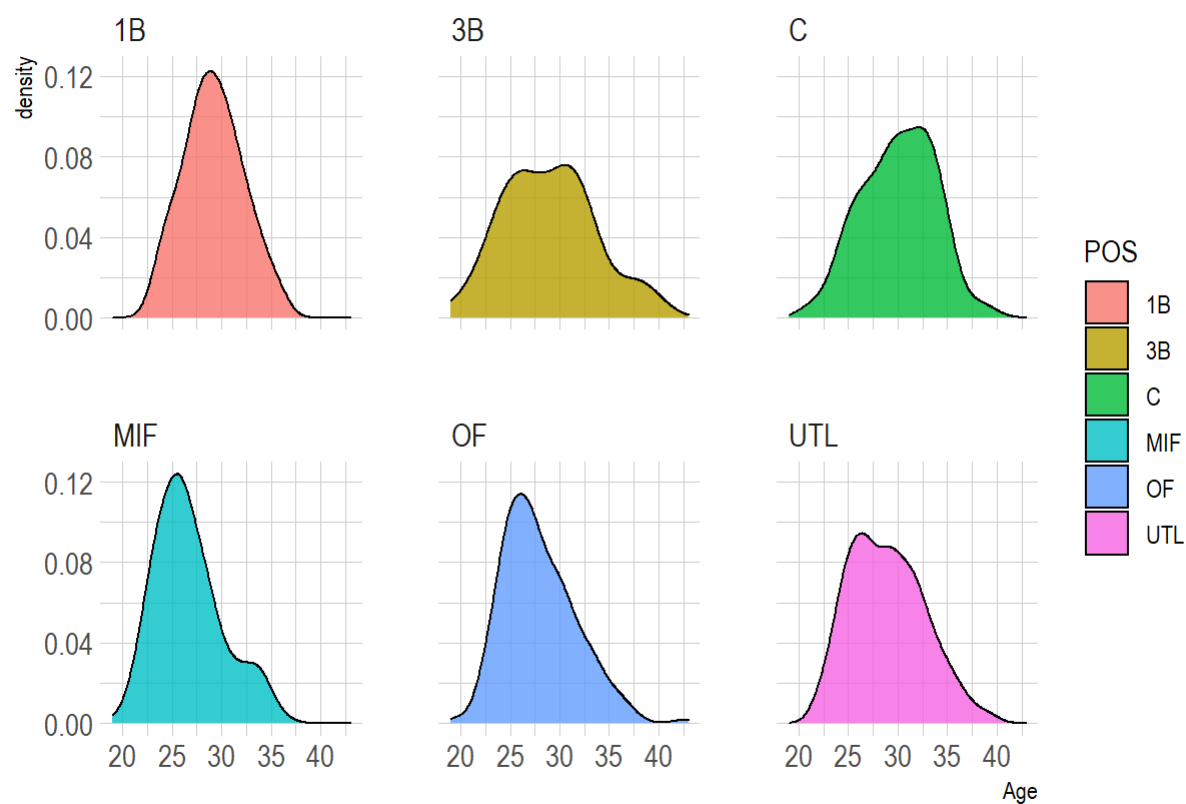
Average MLB Age



Insights:

- The average age of a player in the MLB is 28.
- The distribution is skewed towards older players.

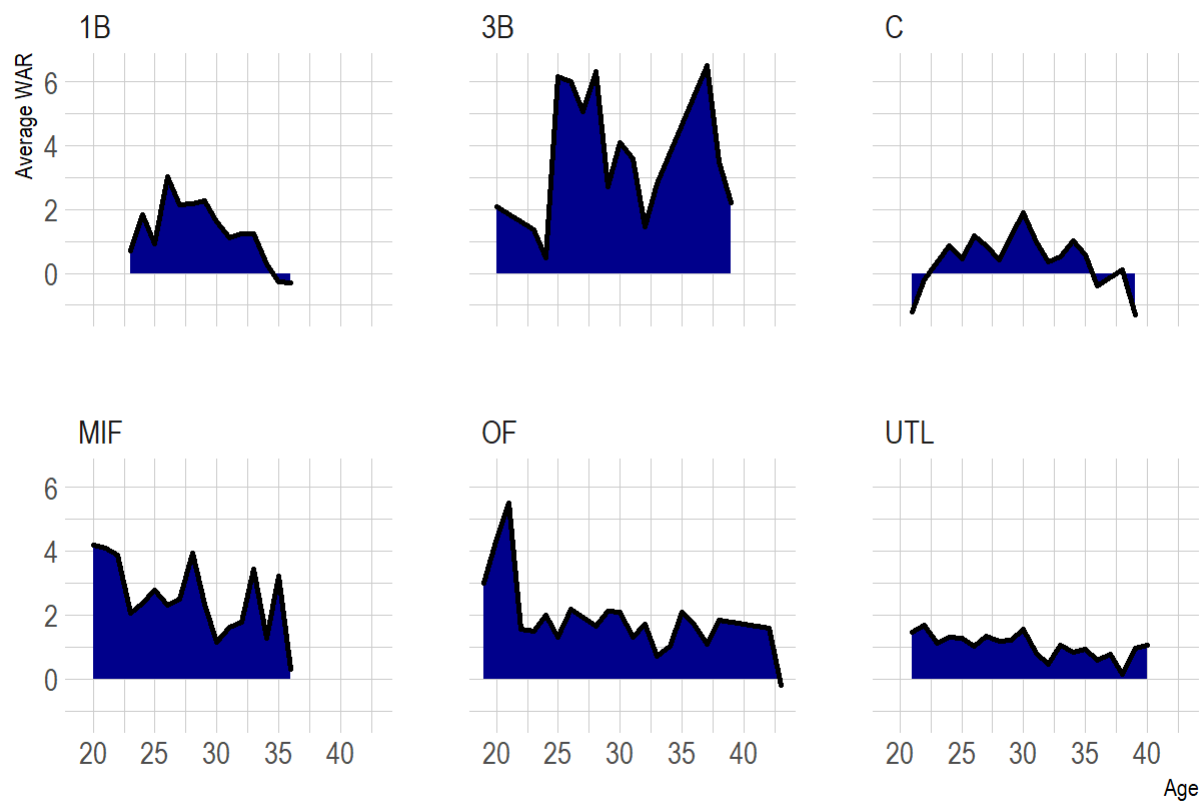
MLB Age Distribution by Position



Insights:

- Middle Infielders are the youngest position group.
- Catchers are the oldest position group.

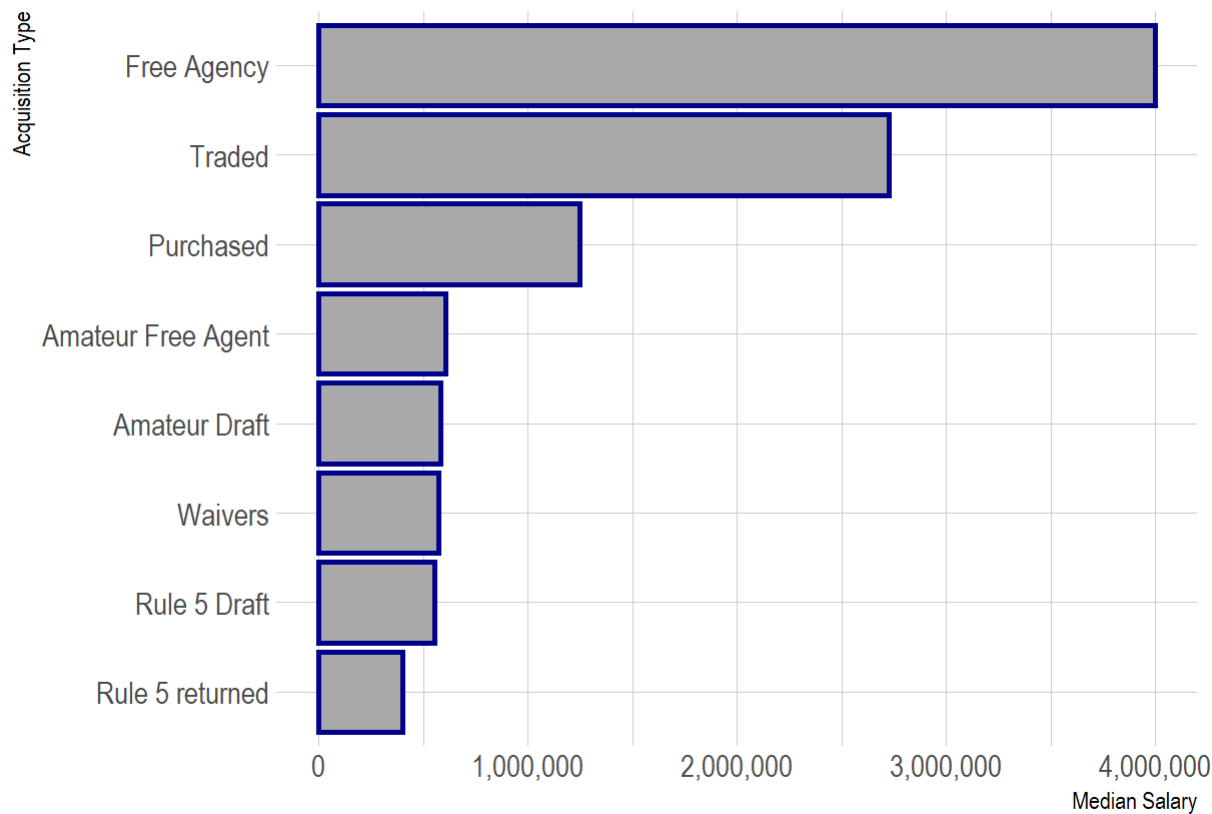
Average WAR By Position and Age



Insights:

- First Basemen have the shortest careers.
- Young Outfielders are highly valuable players.
- WAR generally drops off as players get older.

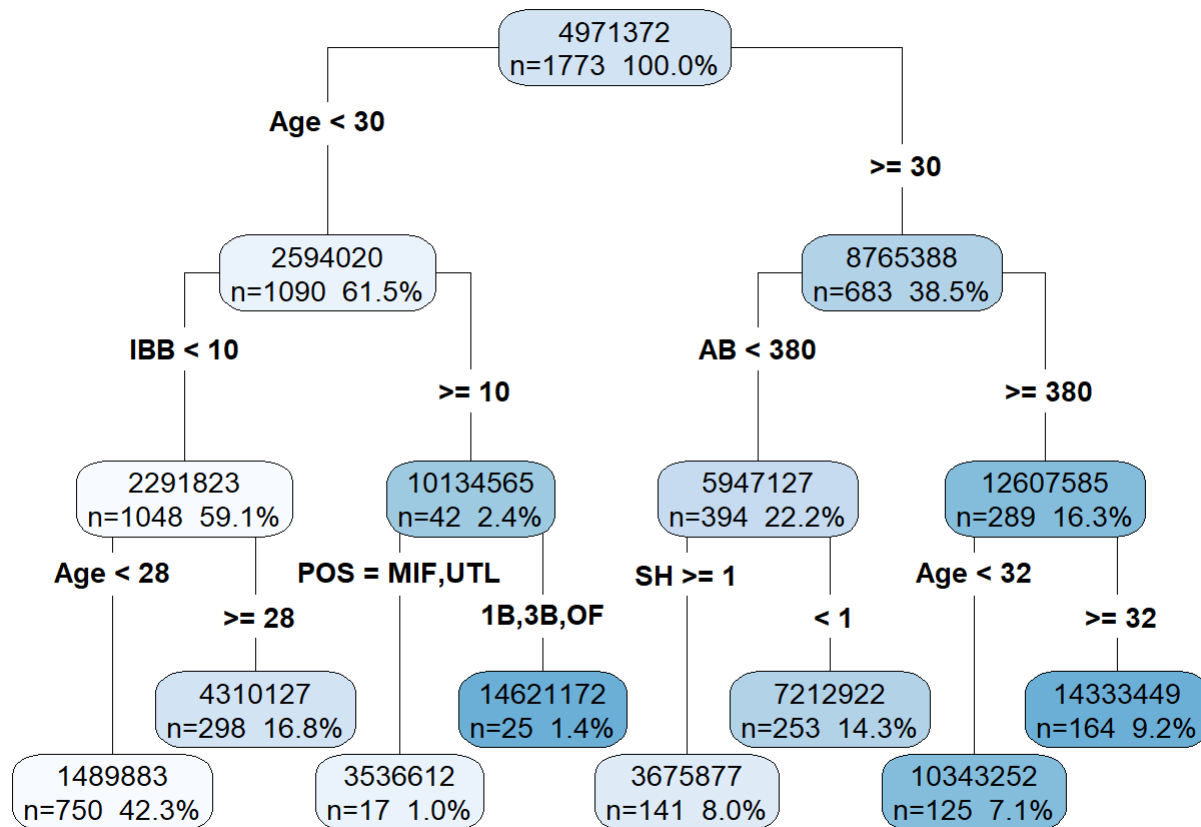
Median Salary By Acquisition Type



Insights:

- Players acquired through free agency are paid the highest.
- Amateur players who initially make the league are paid the least.

MLB Salary Decision Tree



Insights:

- The node with the highest entropy is Age < 30, which tells me that players older than 30 are expensive.
- The next highest nodes are AB's and Intentional Walks. This tells me that players who have more batting opportunities are paid more.
- Players who are Intentionally Walked more often are usually dangerous hitters for opposing teams, which equates to a larger salary.

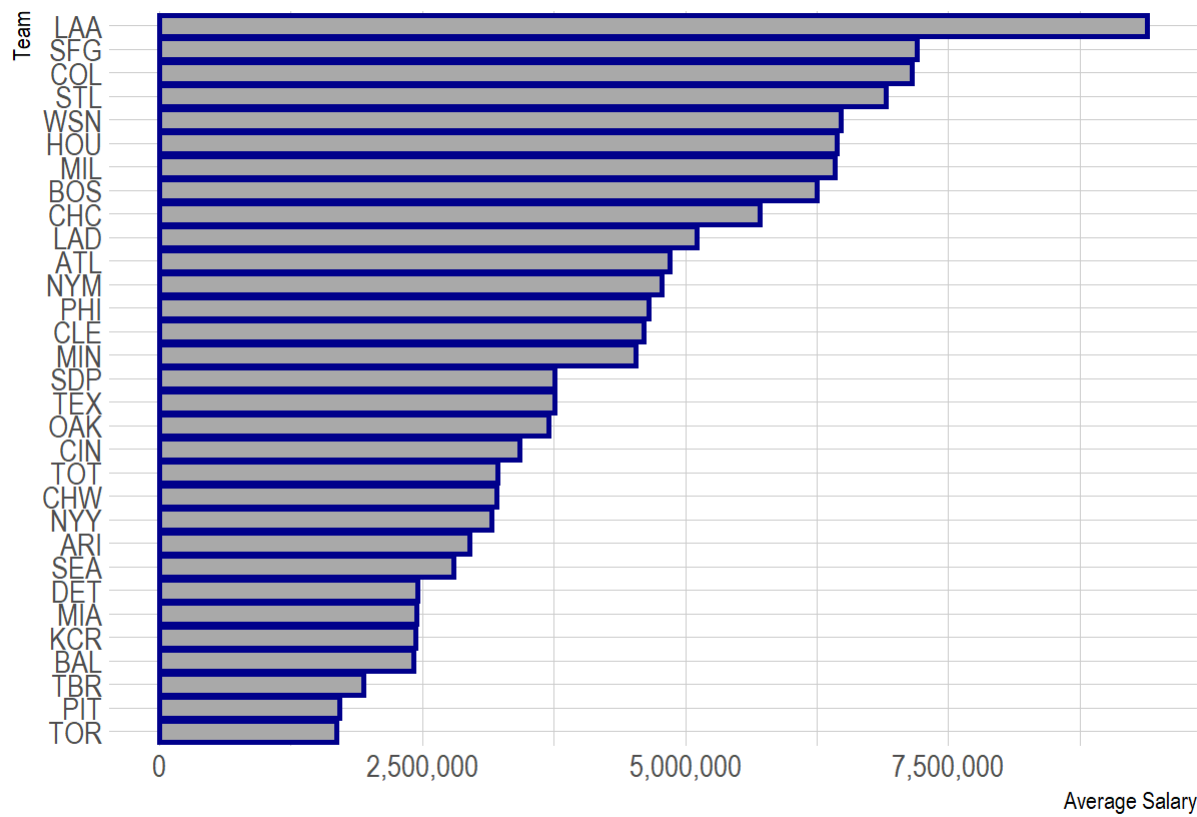
Performance By Acquisition Type Table

Acquired	Players	Average_Age	Average_Salary	Median_Salary	Average_WAR	Plate_Appearances
Amateur Draft	455	26.78022	4432989	584000	2.1395604	427.8615
Amateur Free Agent	147	25.16327	2770627	604500	1.8047619	453.5646
Free Agency	426	31.84977	7069941	4000000	0.8176056	364.8944
Purchased	27	29.33333	1791033	1250000	0.7000000	274.1481
Rule 5 Draft	28	25.64286	1116515	553750	0.6214286	318.1786
Rule 5 returned	1	26.00000	400000	400000	1.0000000	163.0000
Traded	614	28.56678	5132339	2725000	1.3928339	385.9658
Waivers	75	28.30667	1958387	572500	0.5146667	302.3200

Insights:

- The average free agent is 31.8 years old, has a .818 WAR, and makes \$4 million.
- Amateur players are the youngest, cheapest, and most valuable hitters.
- Most players are either drafted, picked up as free agents, or traded.

Average Salary Per Team



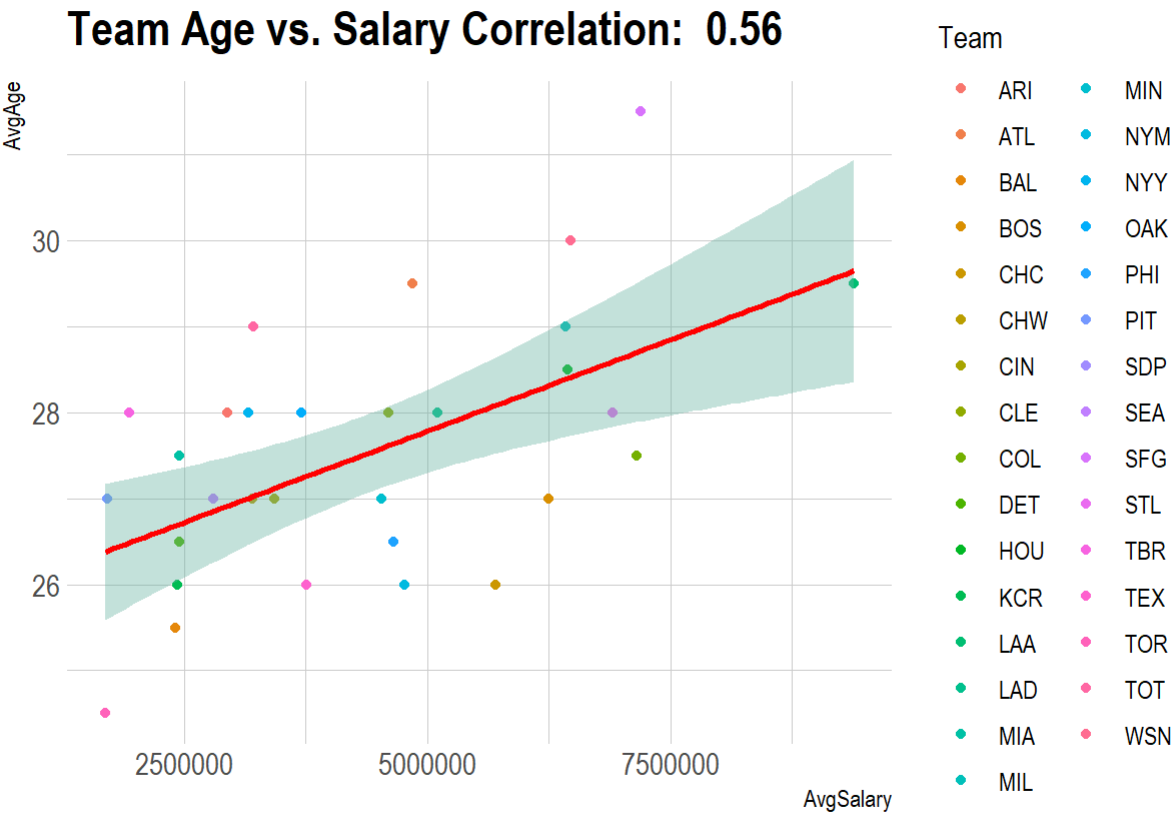
Insights:

- The Los Angeles Angels have the highest average salary for position players.
- The top 4 highest paying teams are west of the Mississippi River.

Average Salary By Team

```
## [1] "Team Age vs. Salary Correlation: 0.56"
```

```
## `geom_smooth()` using formula 'y ~ x'
```



Insights:

- The positive correlation of .56 tells me that the teams with the highest average salaries are also older.