Predicting MLB Salaries

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Can rookie stats predict a player's salary in 6 years?
Contract negotiations
Retain talent

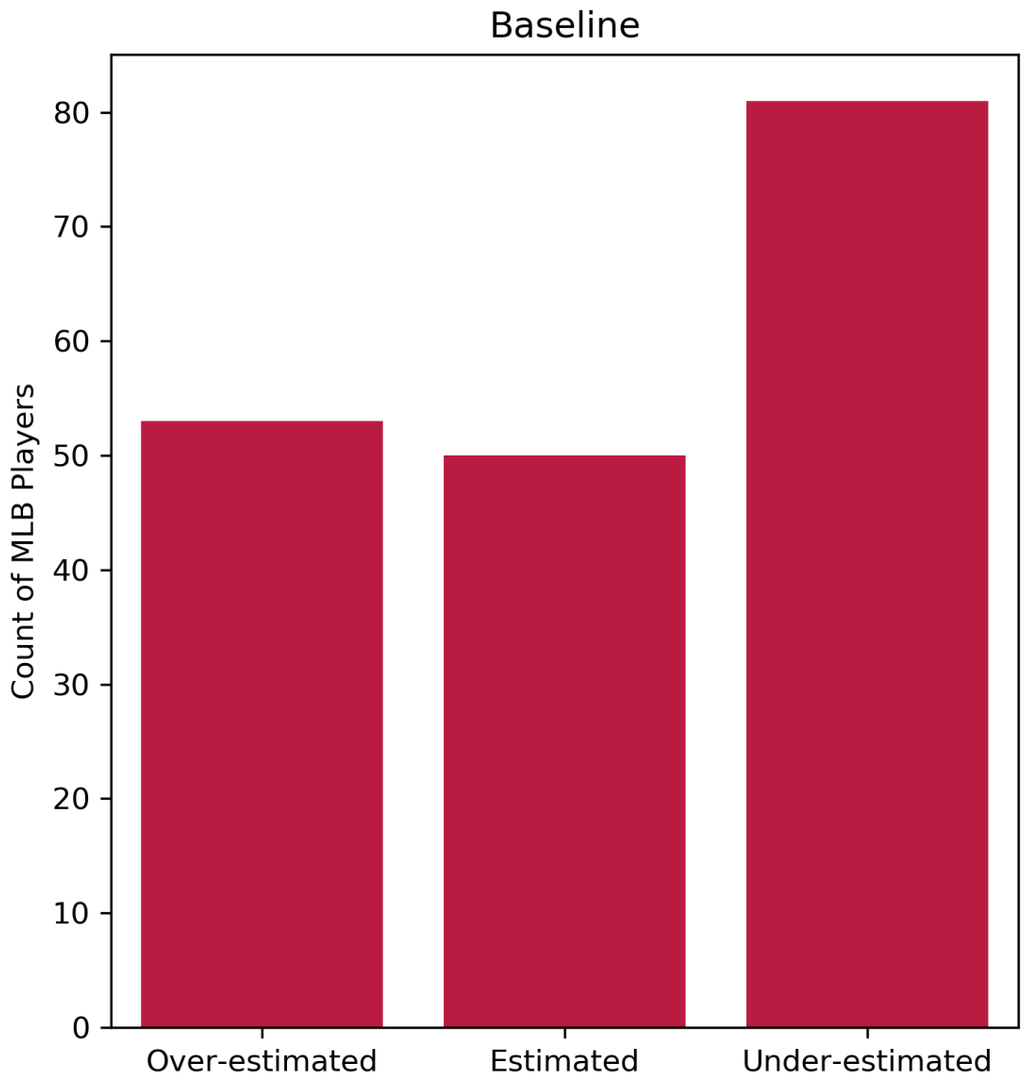
BASEBALL REFERENCE

Rookie stats 1985 - 2017

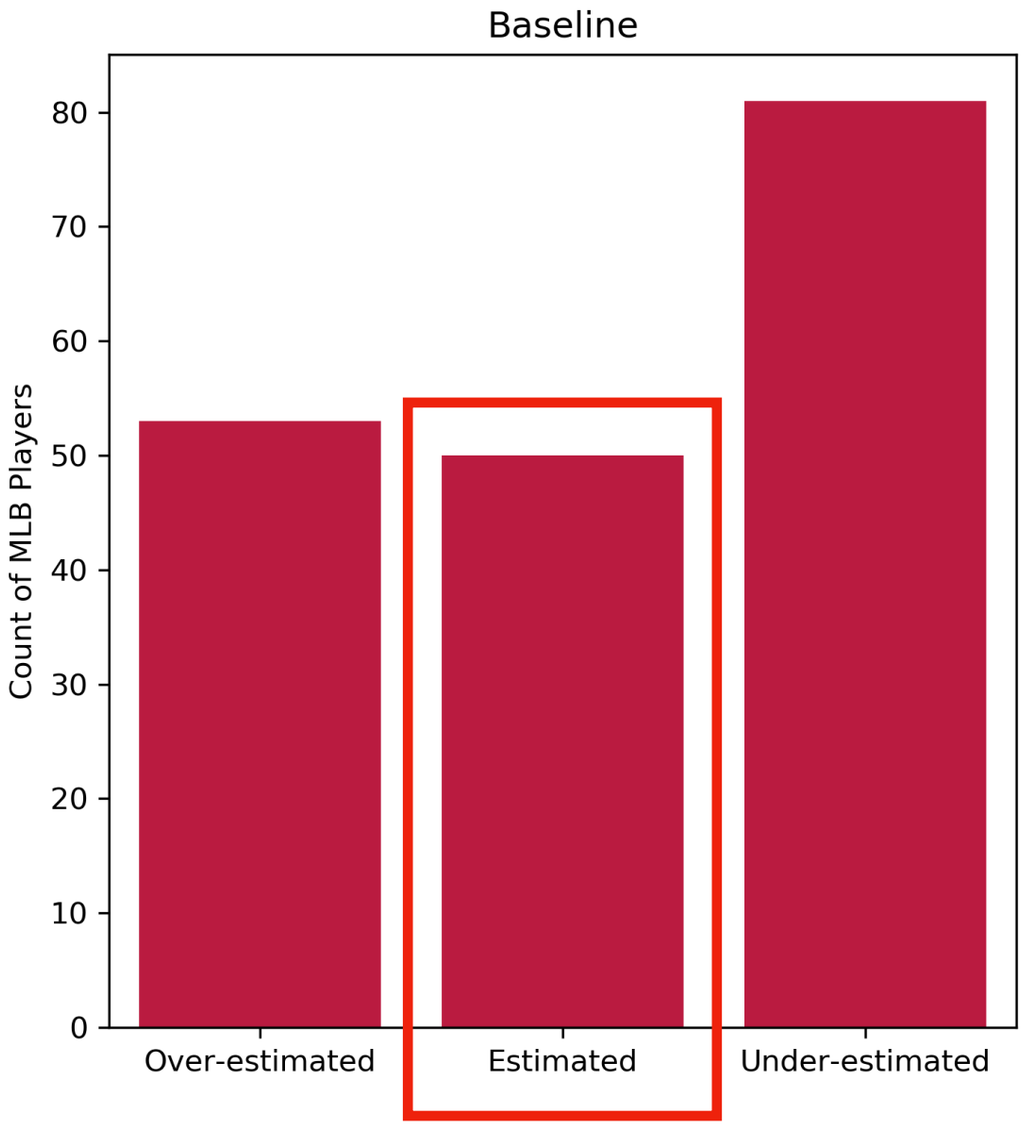
Filtered to only batters and played for at least 6 seasons

Built linear models to predict salary in the 6th year

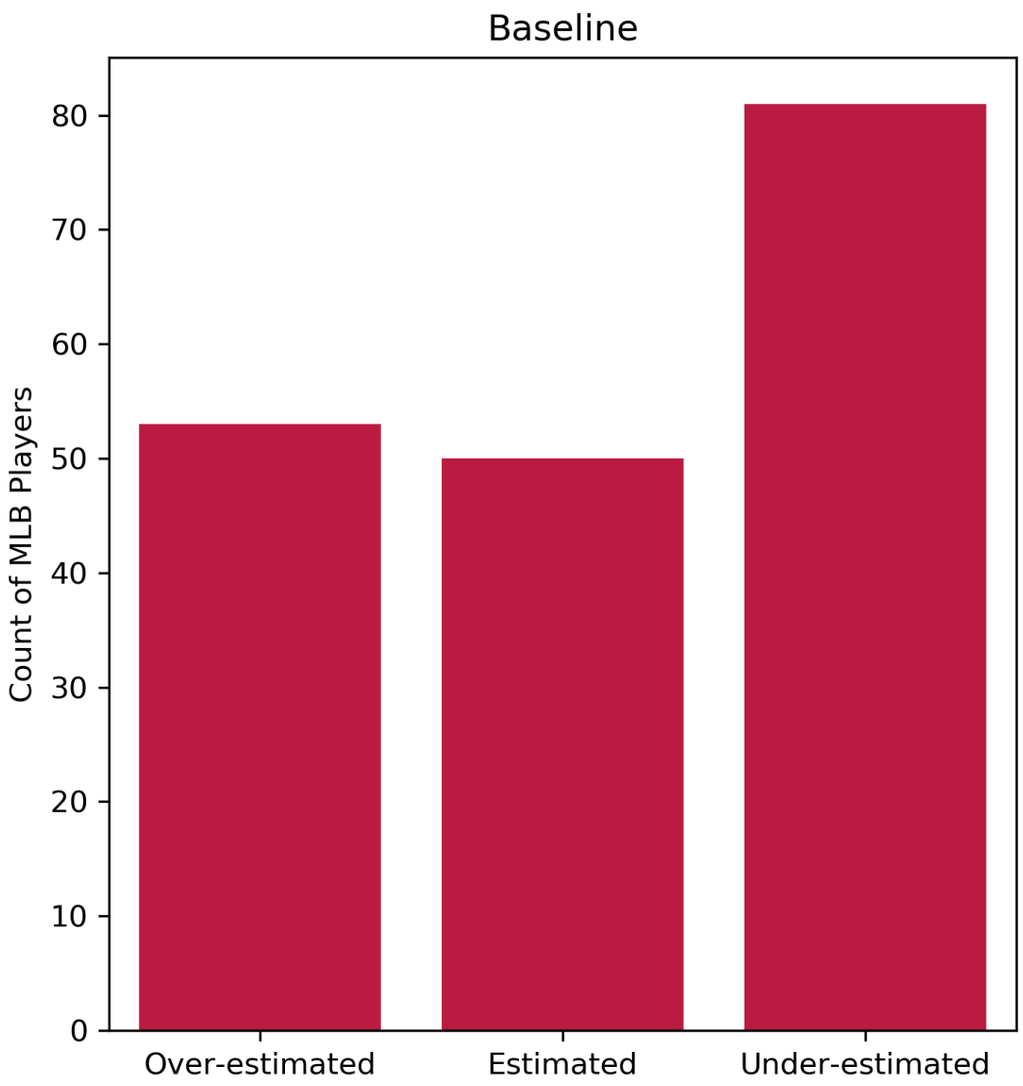
6^{th}-Year Salary Prediction Accuracy

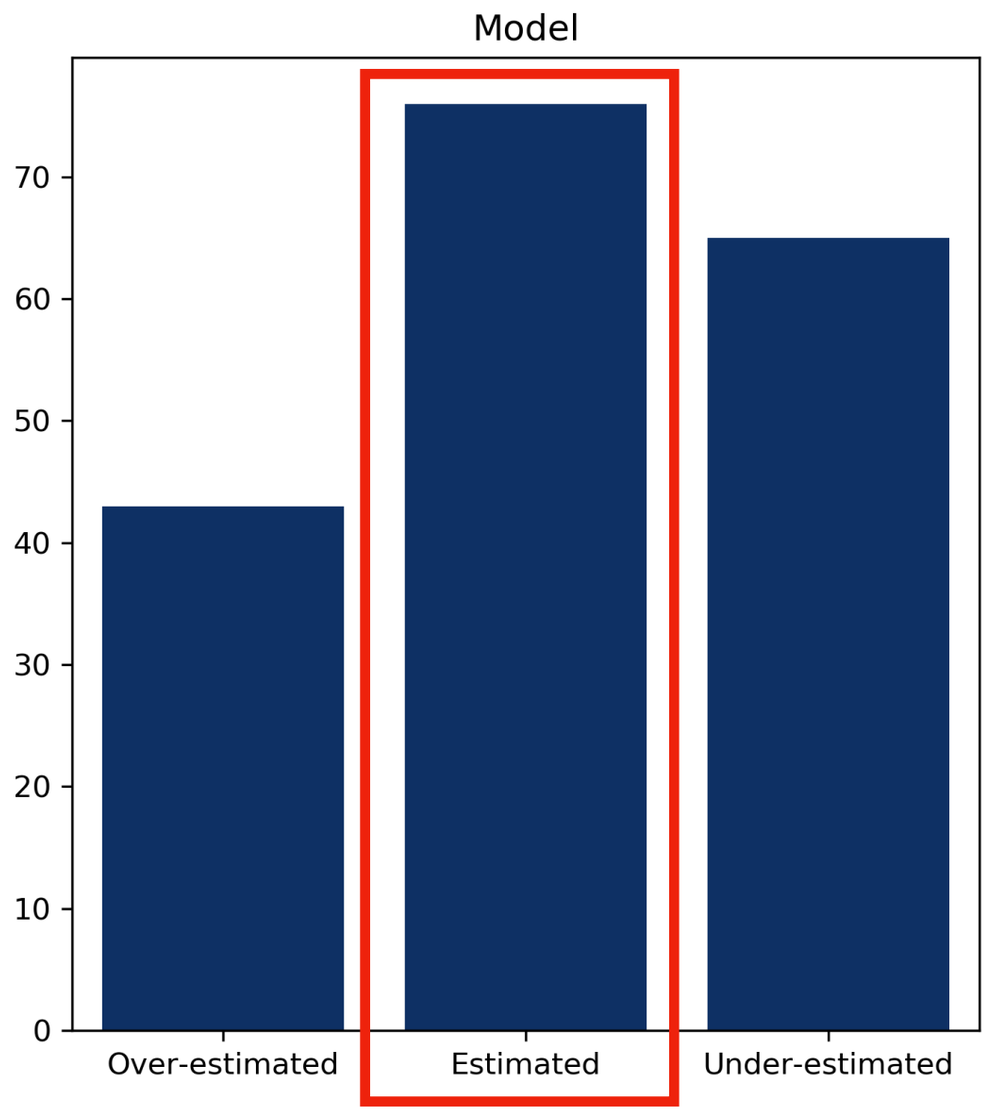


6^{th}-Year Salary Prediction Accuracy



6^{th}-Year Salary Prediction Accuracy





Future Work

Consider saber metric data

Build a model by position

Consider first 2 season in MLB

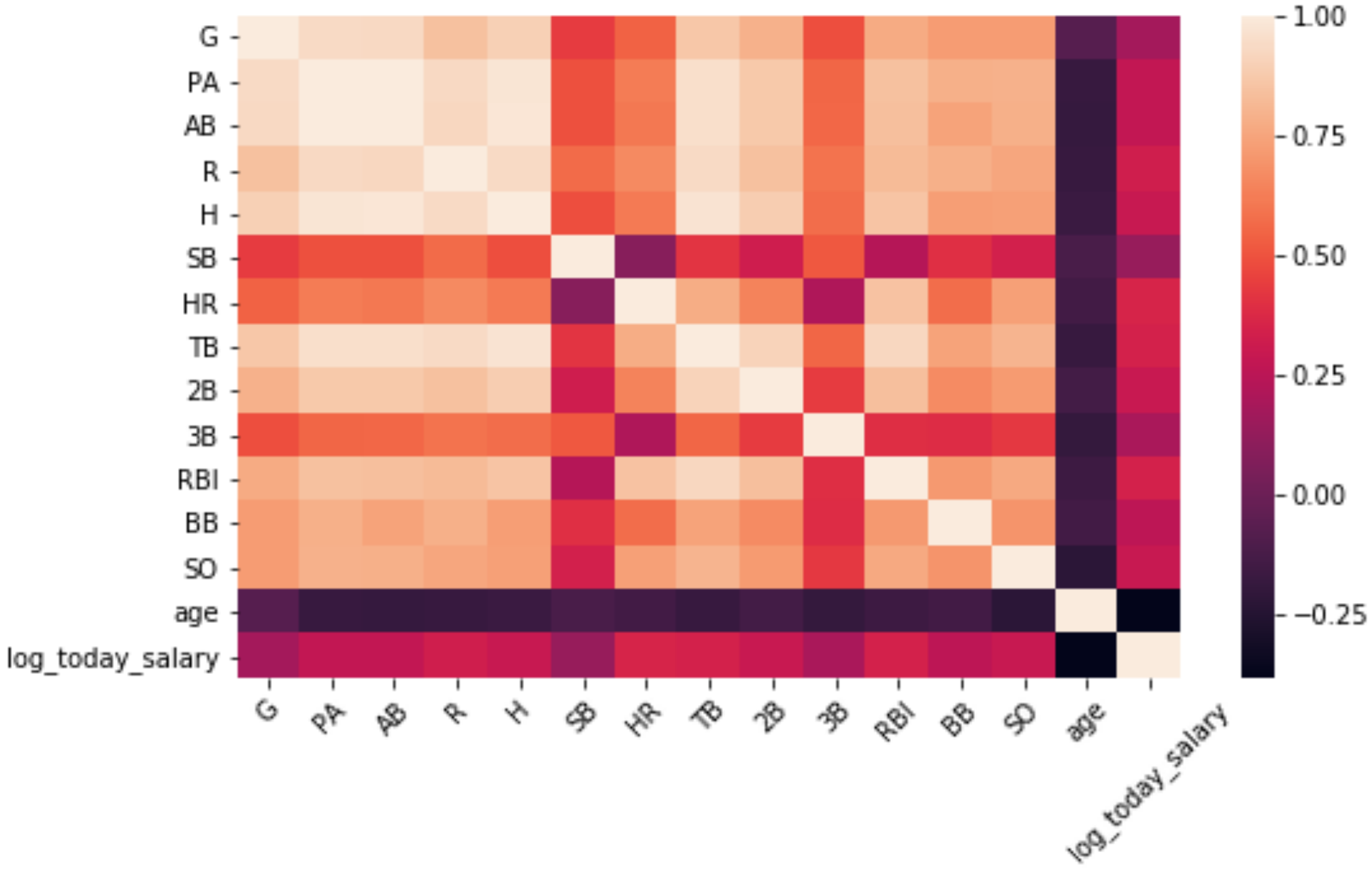
Thank You

Appendix

Train Data Statistics

	G	PA	AB	R	H	SB	HR	TB	2B	3B	RBI	BB	SO	age
count	735	735	735	735	735	735	735	735	735	735	735	735	735	735
mean	87	308	277	36	73	6	7	112	14	2	32	24	52	24
std	36	160	144	23	42	9	6	66	9	2	21	16	31	2
min	3	9	8	0	0	0	0	0	0	0	0	0	1	19
25%	57	179	161.5	19.5	41	1	2	61	7	0	16.5	12	29	23
50%	85	275	244	31	64	3	5	95	12	2	27	20	46	24
75%	115	429.5	384	51	101	8	9	154.5	19	3	44	32	70	25
max	162	734	684	122	209	110	37	365	47	12	130	91	185	32

Correlation Matrix

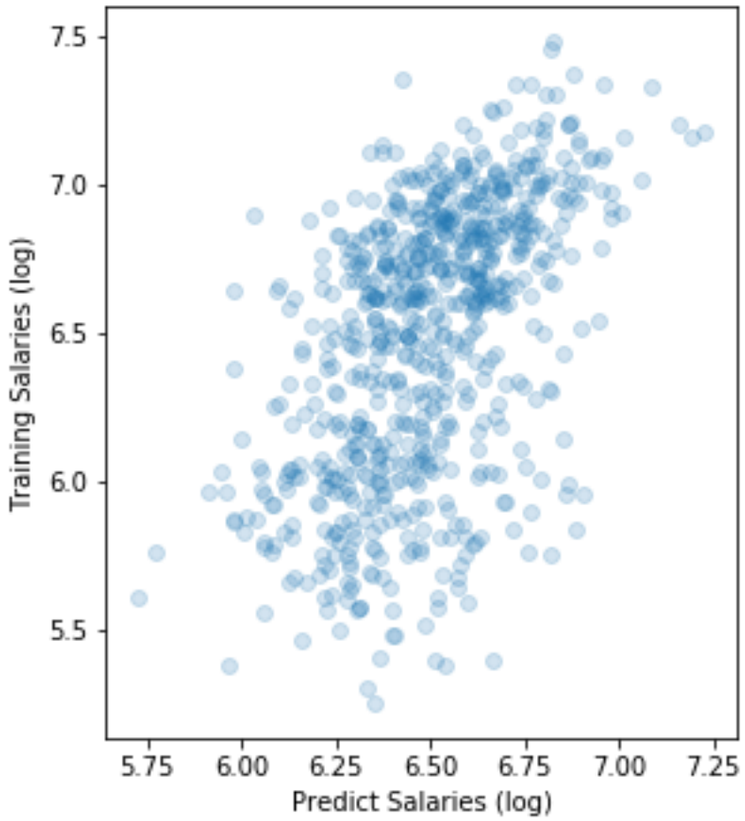


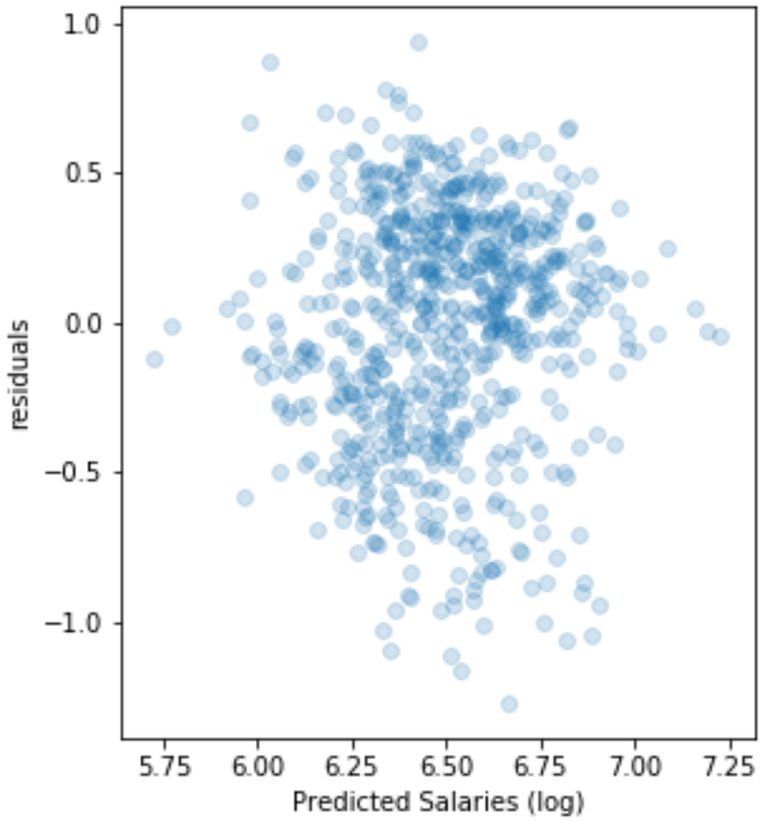
Model Selection

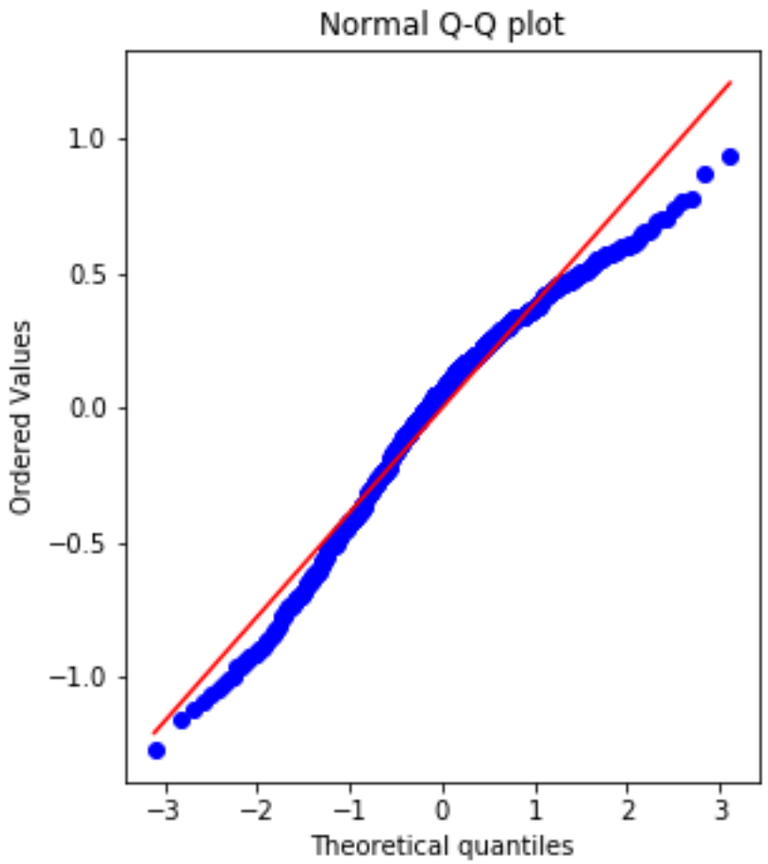
- **Utilized 10-fold cross validation comparing standard OLS with Lasso regularization.**
- **Features were standardized and polynomial features were added to find the best general fit.**

Run	Model	MSE
0	lasso poly 3 cv - 0.01	0.161218
1	lasso poly 2 cv - 0.01	0.161348
2	lasso poly 4 cv - 0.01	0.161483
3	lasso poly 5 cv - 0.01	0.162328
4	lasso cv - 0.01	0.162541
5	linear model - cv10	0.163087

Best Model Goodness of Fit







Best Model Coefficients

	Coef
age	-0.174874
G^2	-0.034479
G age	-0.028781
R age^2	0.032096
SB^2 HR	0.009415
SB 3B BB	0.01288
SB BB^2	0.007684
HR age^2	0.098267
TB age^2	0.024179
2B age^2	0.026535
3B BB age	0.005021
RBI age^2	0.01861
SO^3	-0.013046