Predicting High School Graduation Rates for Illinois Schools

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Presented by Dann Morr

Project Goal - Predict the graduation rate future cohort

What do variables regarding:

- The School

- Previous Cohorts

- Frosh, Sophomore and Junior year experiences

                    tell us about the Graduating Rate of Seniors?

Data

1 | Gathering

Datasets for

Academic Years
2012-13 thru 2018-19

Illinois
State Board of
Education

ILLINOIS
REPORT CARD

Data

1 | Gathering

Datasets for

Academic Years
2012-13 thru 2018-19

2 | Compiling

→ Identify common features

→ Filter data

→ Combine into one matrix

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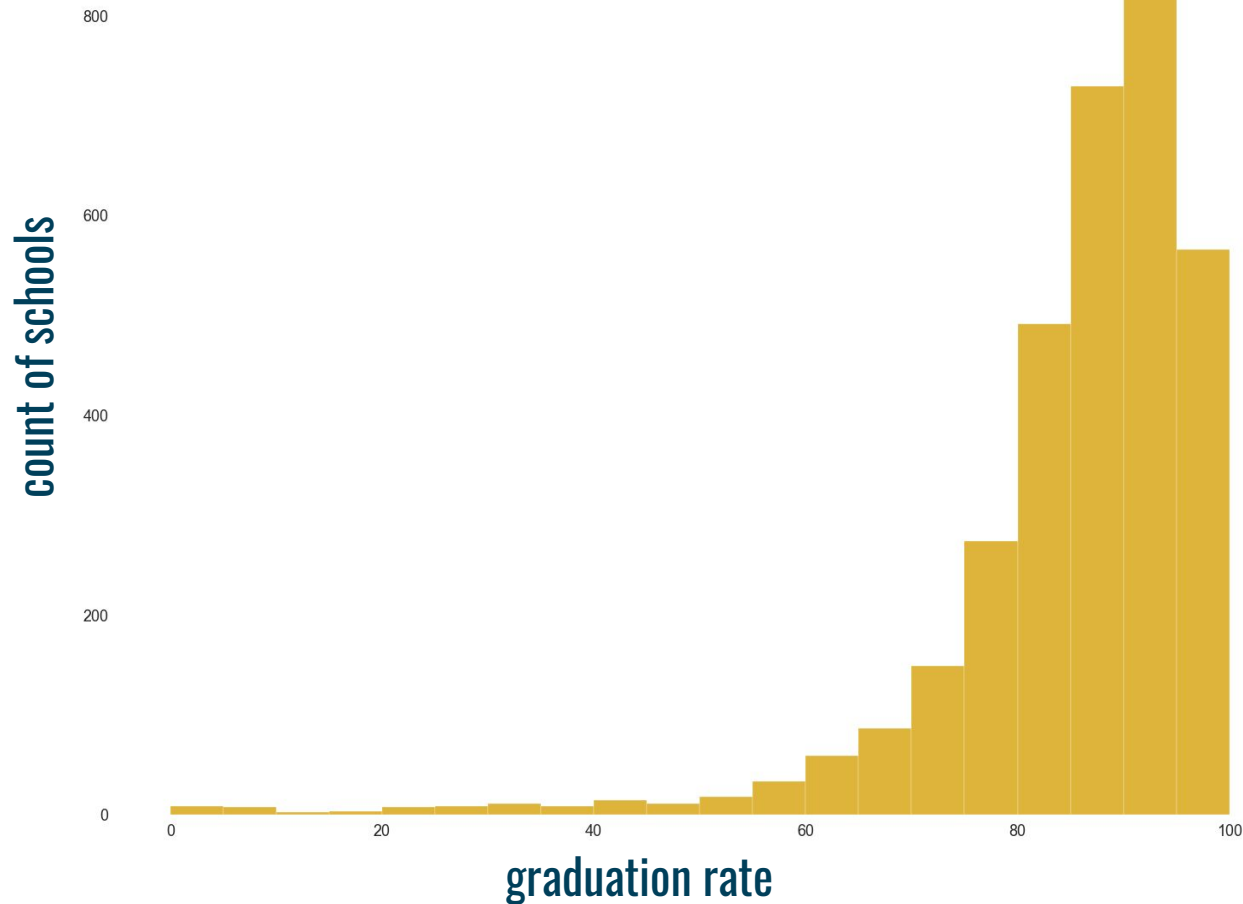
→ Combine into one matrix

3 | Analyzing

→ Identify target variable

→ Find correlations

→ Select models

Distribution of Graduation Rates - 2013 to 2019

Avg graduation rate:
85%

Majority of schools have graduation rate above 88%

count of schools

800

600

400

200

0

0   20   40   60   80   100

graduation rate

Definitions

4-Year Graduation

First year: 2016
Second year: 2017
Third year: 2018
Fourth year: 2019

Graduation: 2019

5-Year Graduation

First year: 2015
Second year: 2016
Third year: 2017
Fourth year: 2018
Fifth year: 2019

Graduation: 2019

First Simple Model

Linear Regression
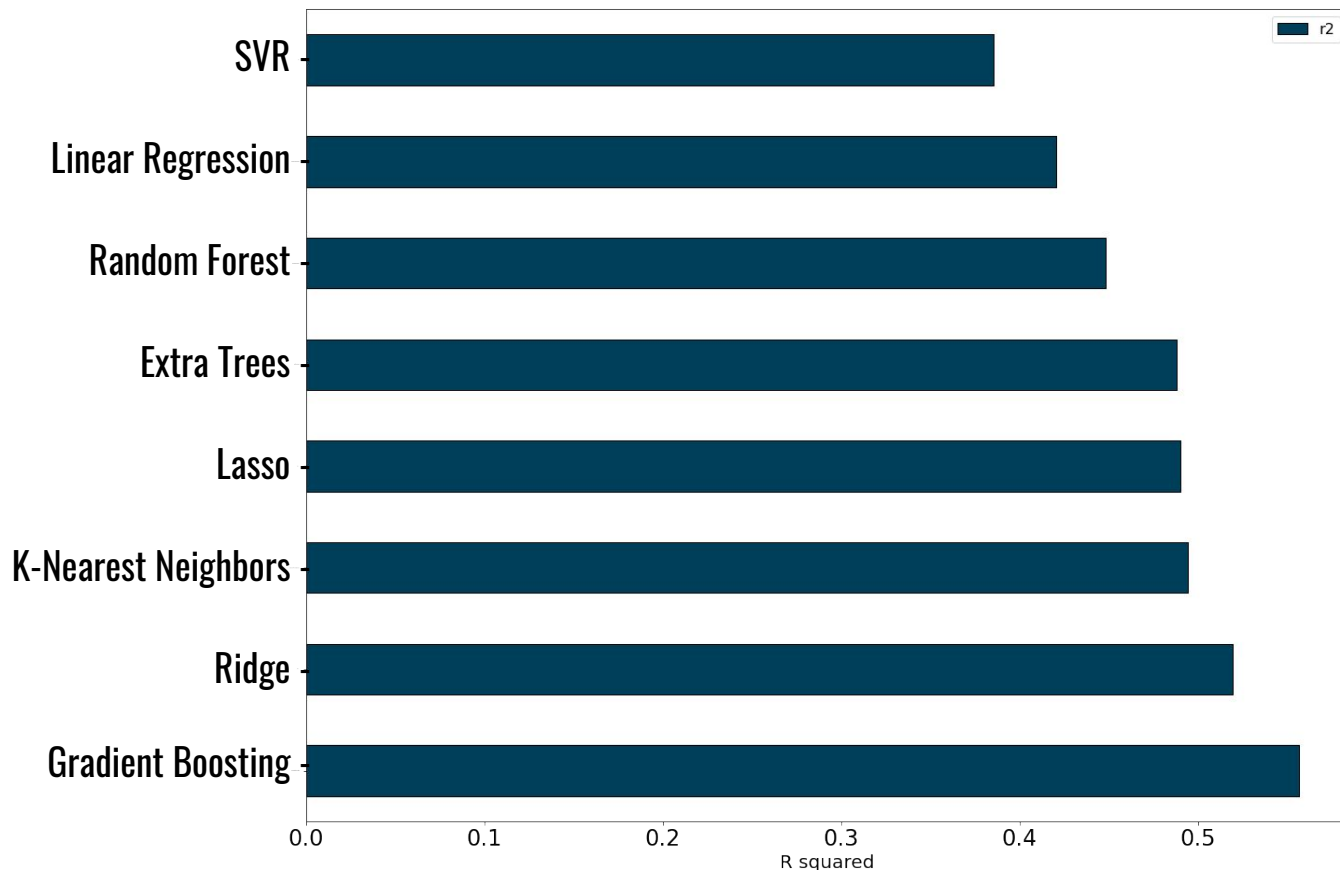
Result

Adjusted R-squared: 0.683

First Simple Model

Comparing Model Performance - based on R squared value

Gradient Boosting returns a score of 0.557

Future improvement steps

➜ **Hyper-tuning additional models**

◆ will different models perform better on test data?

➜ **Feature selection and engineering**

◆ add features from district-level reporting

◆ add school/municipality financial data

Contact

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