

Predicting Teacher Turnover

Meaghan Ross

BUSINESS CONTEXT

- Teacher turnover is key factor in teacher shortages.
- High turnover rates = ↓ student achievement & ↑ costs

16%
Nationally

\$2.2B
Yearly

BUSINESS CONTEXT

- 25% + turnover rates in some Philadelphia schools
- Model allows SDP to identify teacher turnover.
 - ▷ Provide intervention
 - ▷ Prepare earlier to fill vacancies



TEACHER PROFILE



Name: Alphabet, May

Gender: F

Title Description: Teacher, Full Time

Salary: \$47,278

School Name: Penn Tre

Admissions

Enrollment: 3

ELL: 8%

Economically Disadvantaged: 100%

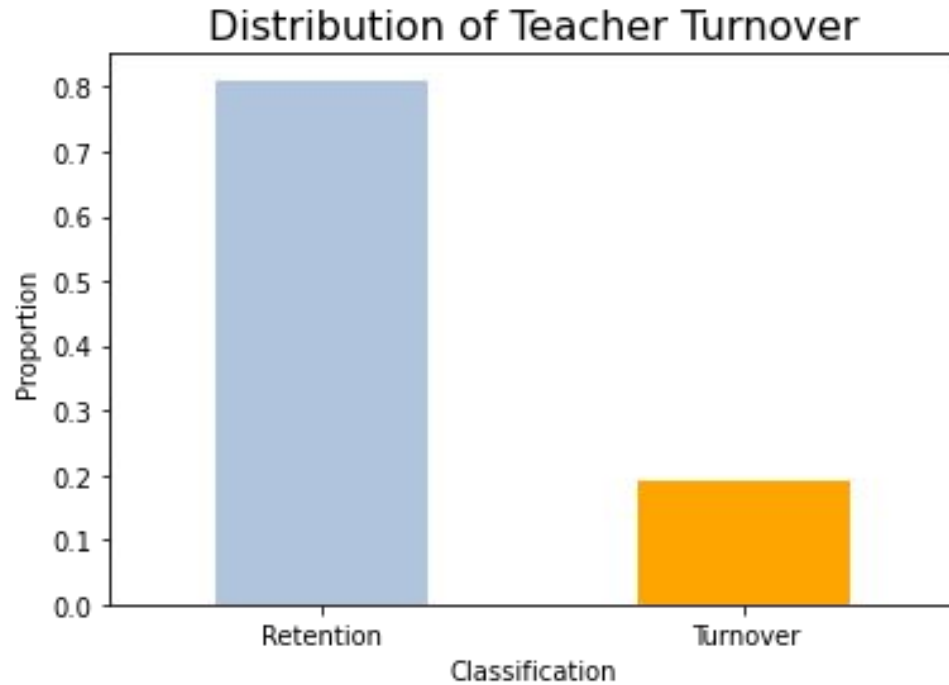
Intervention Score: 5 - WATCH

Movement Score: 5 - INTERVENE

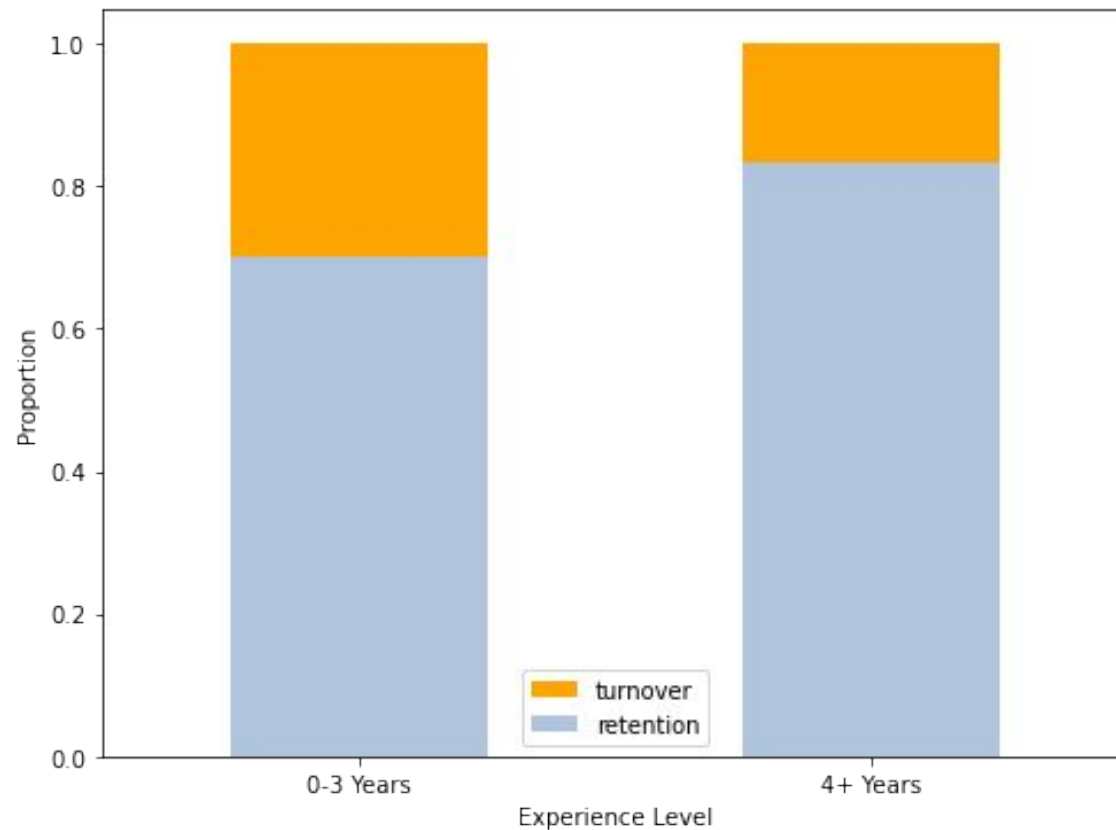
Progress Score: 51 - REINFORCE

Climate Score: 62 - REINFORCE

DATA UNDERSTANDING



Teaching Experience vs. Teacher Turnover

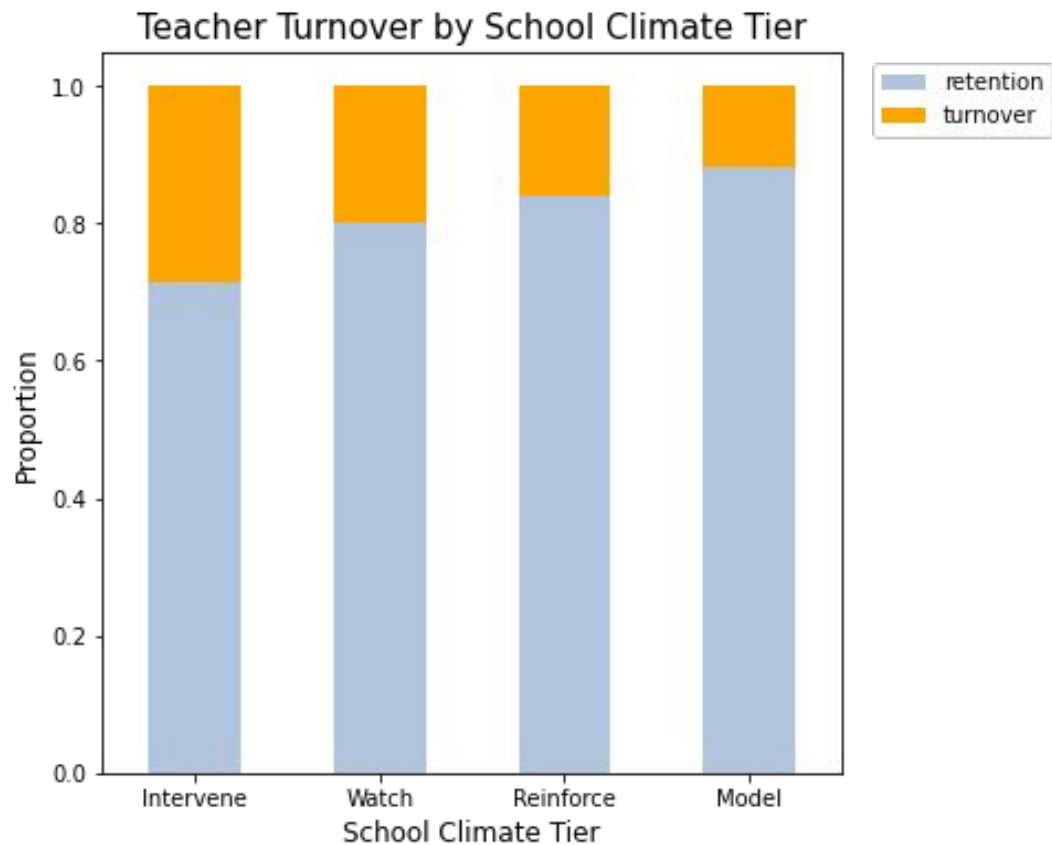


INTERVENE Earned 0-24% of possible points

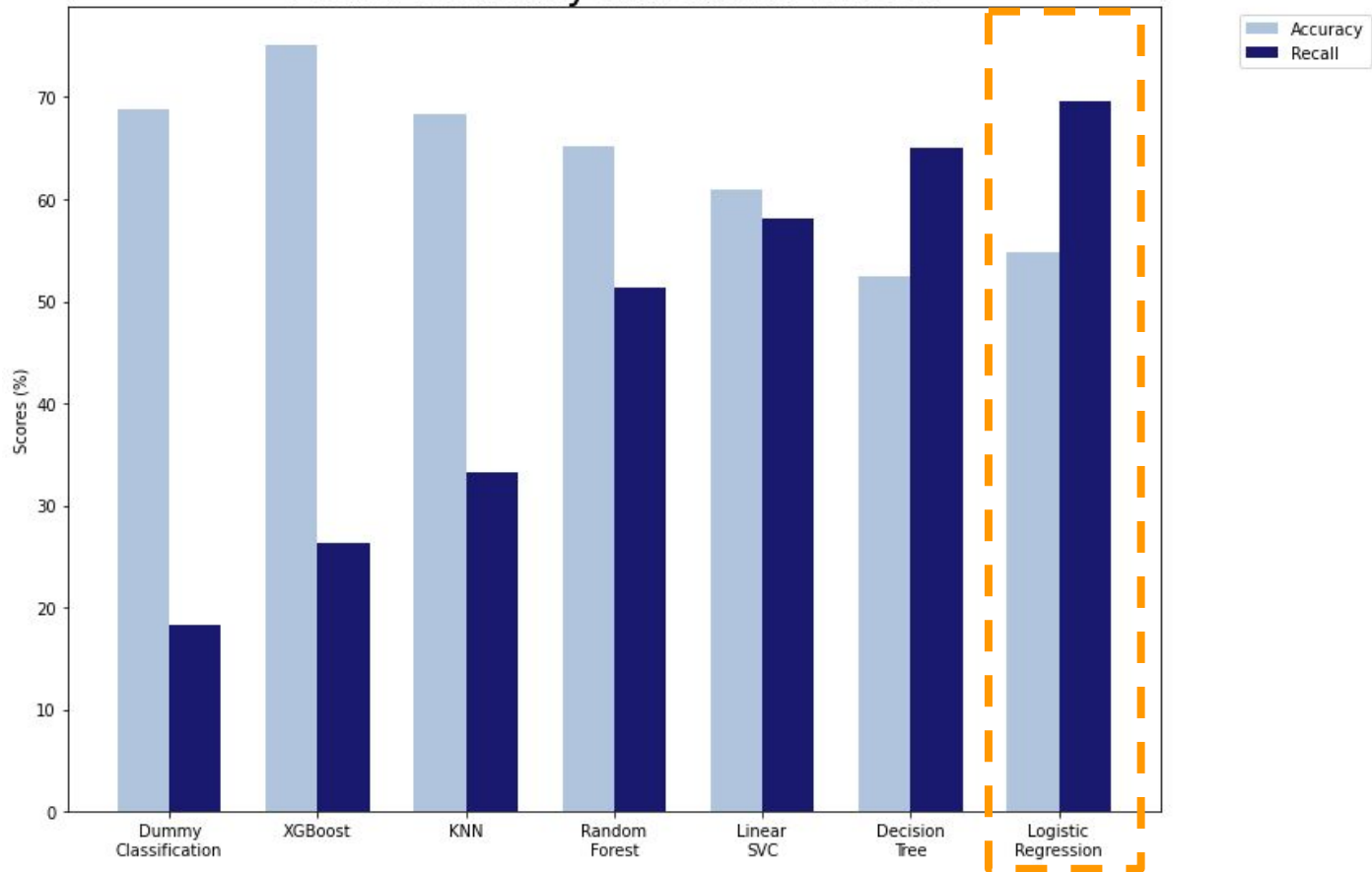
WATCH Earned 25-49% of possible points

REINFORCE Earned 50-74% of possible points

MODEL Earned 75-100% of possible points




Model Accuracy and Recall Scores



MODEL PERFORMANCE

- Of teachers who turnover, model correctly predicts outcome 63% of the time.



TEACHER PROFILE

Name: Alphabet, May
Title Description: Teacher, Full Time
Salary: \$47,278

School Name: Pennington
Admission: 36 - WATCH
Enrollment: 8%
ELL: 8%
Economically disadvantaged: 100%

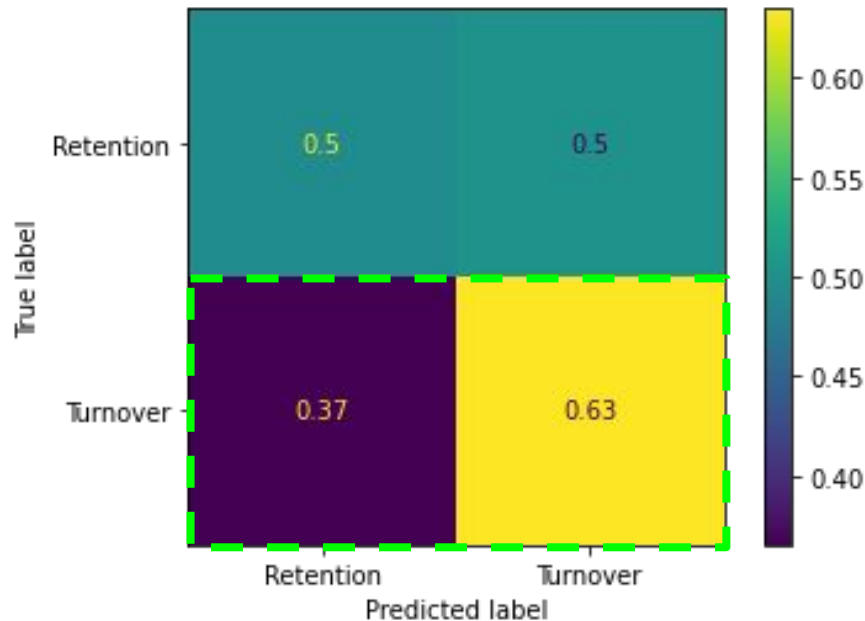
Gender: Female

Achievement Score: 5 - INTERVENE

Progress Score: S1 - REINFORCE

Climate Score: 62 - REINFORCE

TURNOVER



CONCLUSIONS

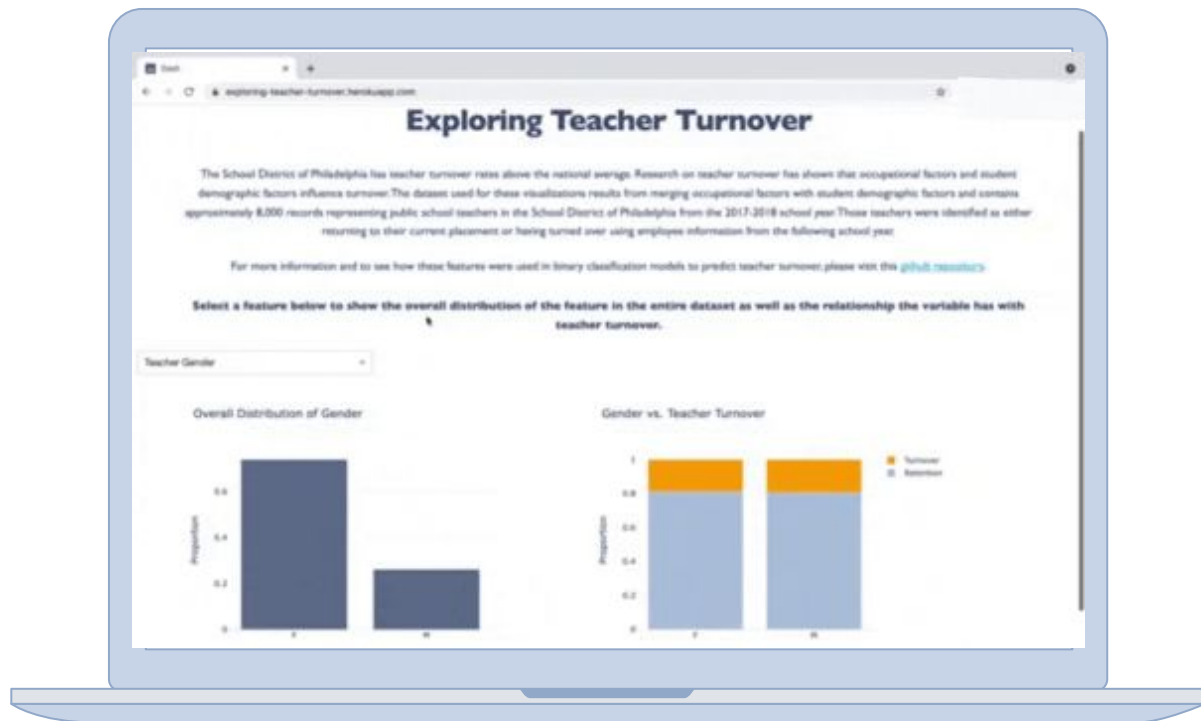
- Maximized turnover predictions in Logistic Regression model.
- Model could be deployed to School District of Philadelphia to predict teacher turnover.

FUTURE EXPANSIONS

1. Include additional teacher level data such as:
 - Teacher certification pathway,
 - Subject taught
 - Evaluation scores
2. Explore whether model can be used in other large urban school districts.

DEPLOYMENT

Built an interactive data visualization application and it's live on Heroku!





Thank you! Any questions?

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