

Online Outcomes

Predicting Success in Virtual Learning





Goal

To implement a model to predict unsatisfactory outcomes and develop recommendations to avoid and/or remedy those outcomes.

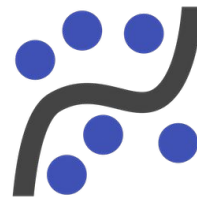


Business Understanding

- Pre-pandemic, online education was projected to be a \$350 billion industry by 2025.
- Covid-19 greatly accelerated this trend, amplifying opportunities and concerns.
- Online education institutions and students can benefit from improved student outcomes.



Methods





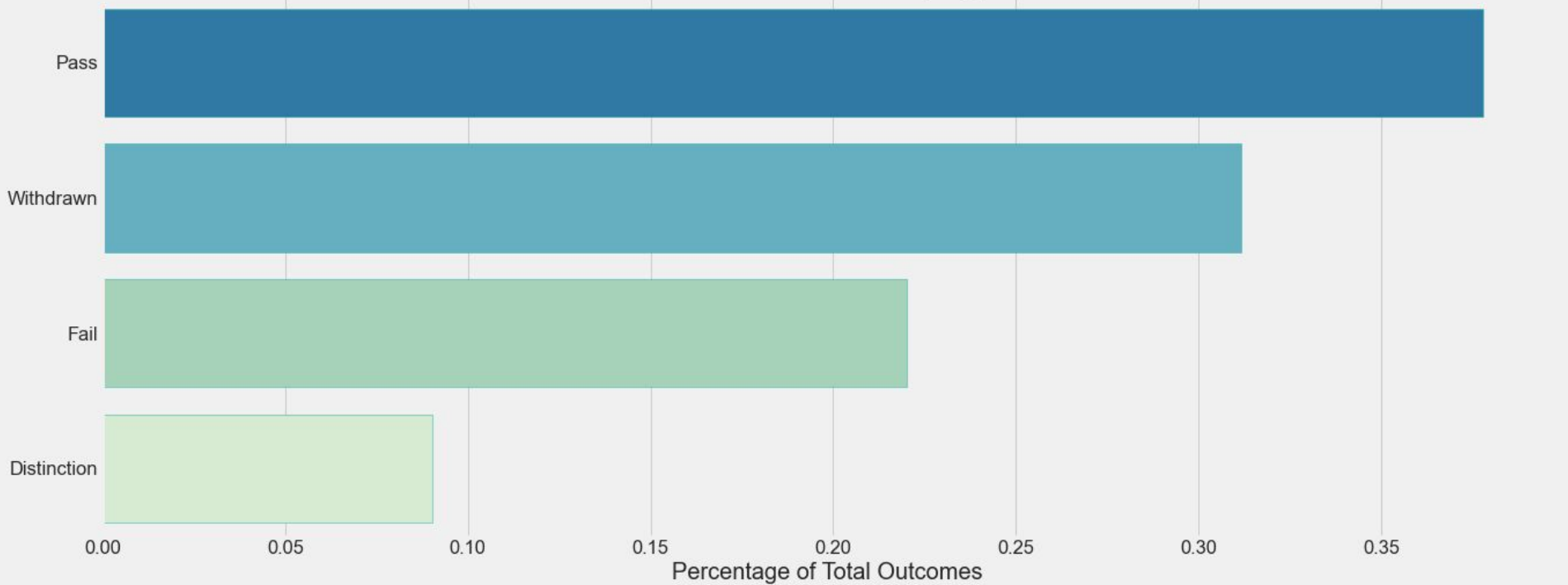
Data

- The Open University Learning Analytics dataset.
- 19,458 rows of tabular data
- 14 columns (13 features plus the target).



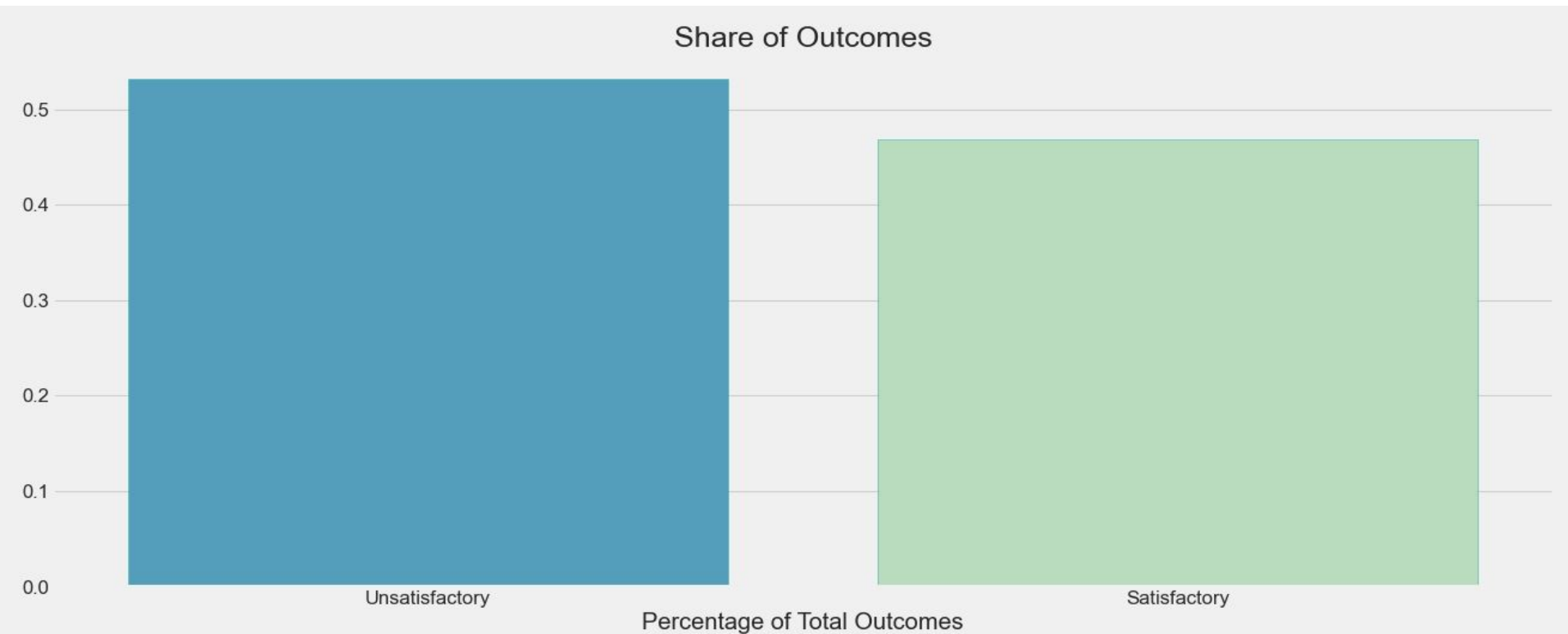
Class Distribution

Share of Outcomes by Type





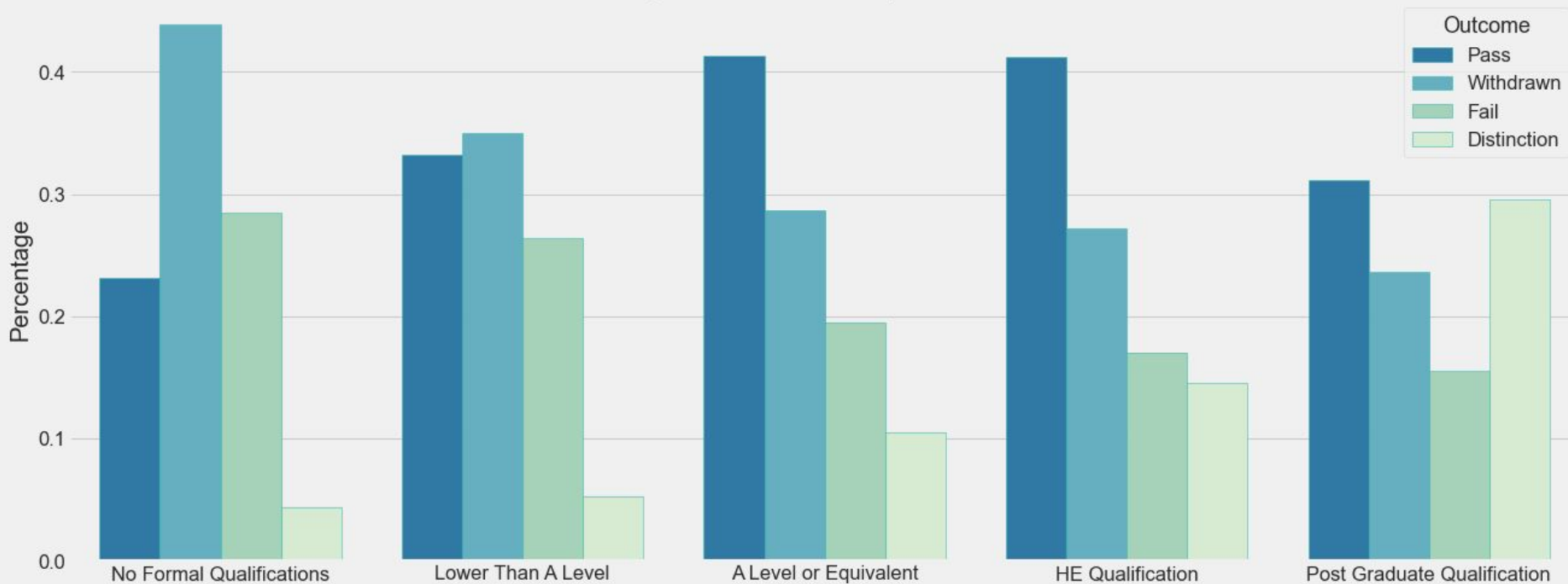
Share of Outcomes





Outcomes by Education Level

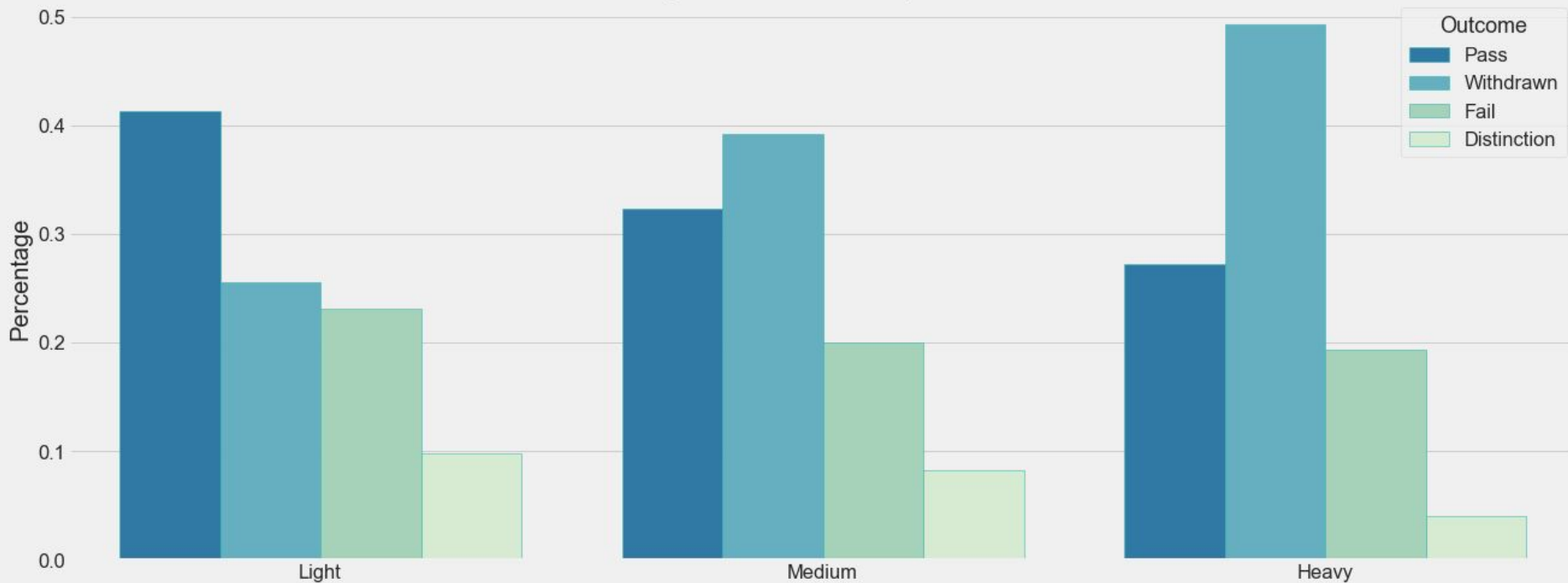
Percentage of Outcomes By Education Level





Outcomes by Course Load

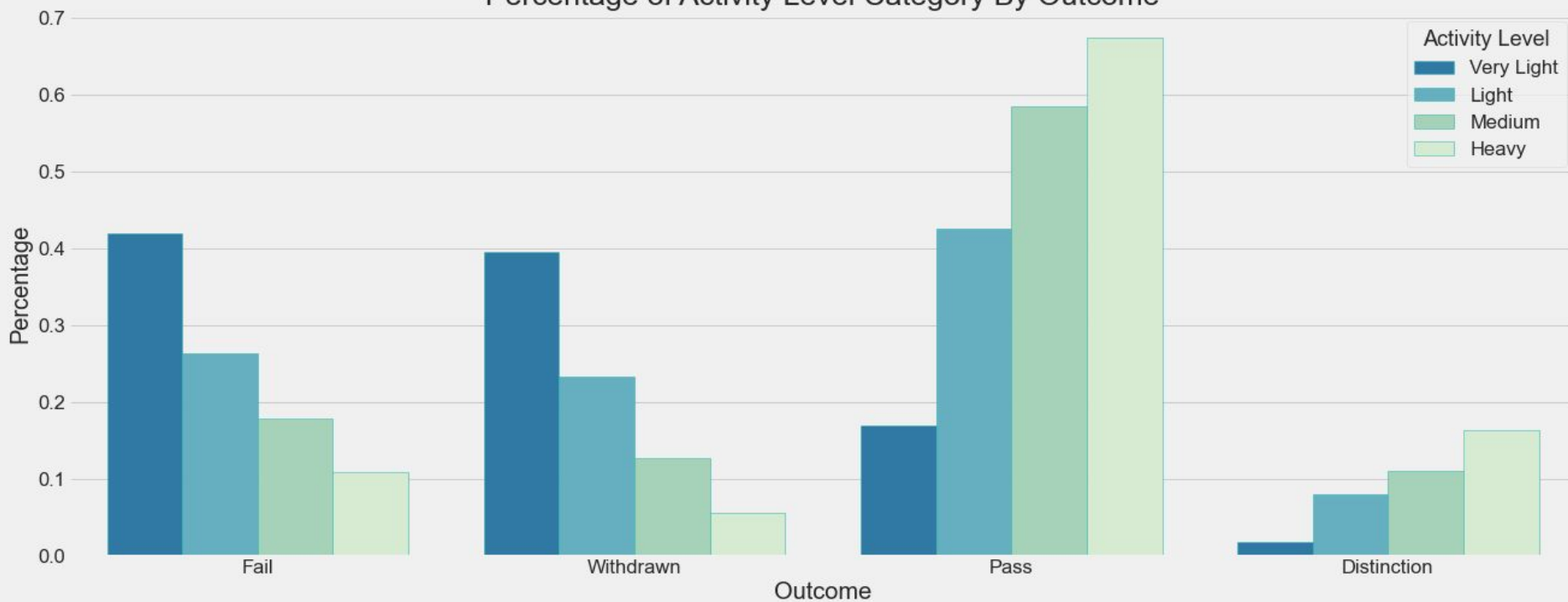
Percentage of Outcomes by Course Load





Activity Level & Outcomes

Percentage of Activity Level Category By Outcome

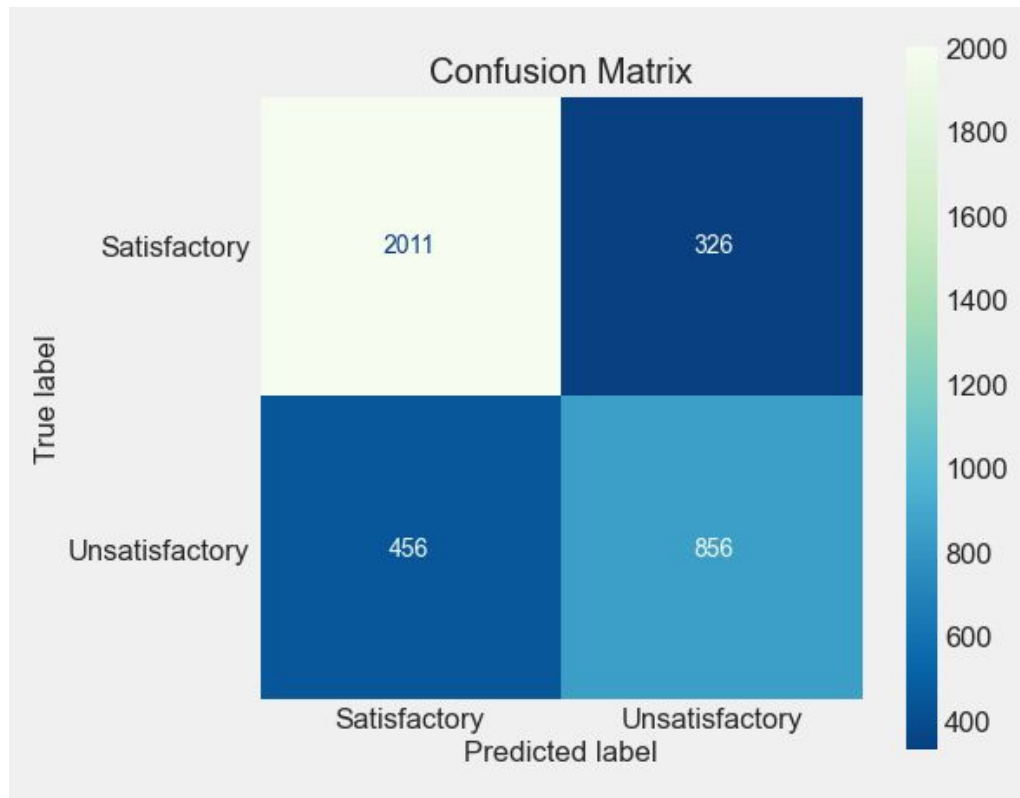




Recommendations

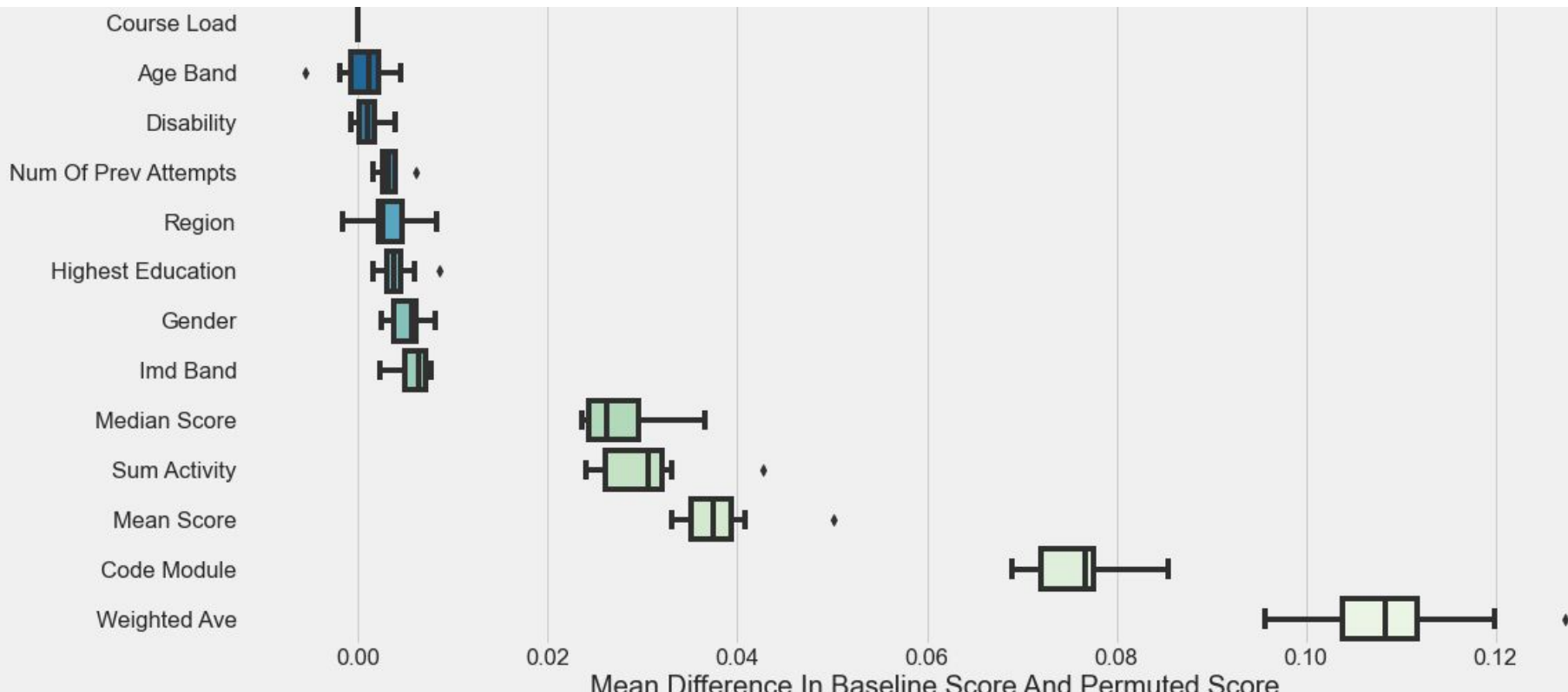
- Implement preemptive outreach and support programs for non-traditional learners.
- Counsel students to maintain modest course loads.
- Advise students to maintain medium or higher online activity levels.

Model: F1=.69 (Recall=.65, Precision=.72)





Permutation Importances





Next Steps

- Developing a multiclass classifier.
- Rescaling the data by individual module.
- Exploring the types of activities that drive outcomes.

Thank You!

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