# 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.
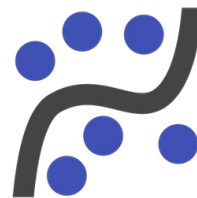
# Business Understanding

- 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.
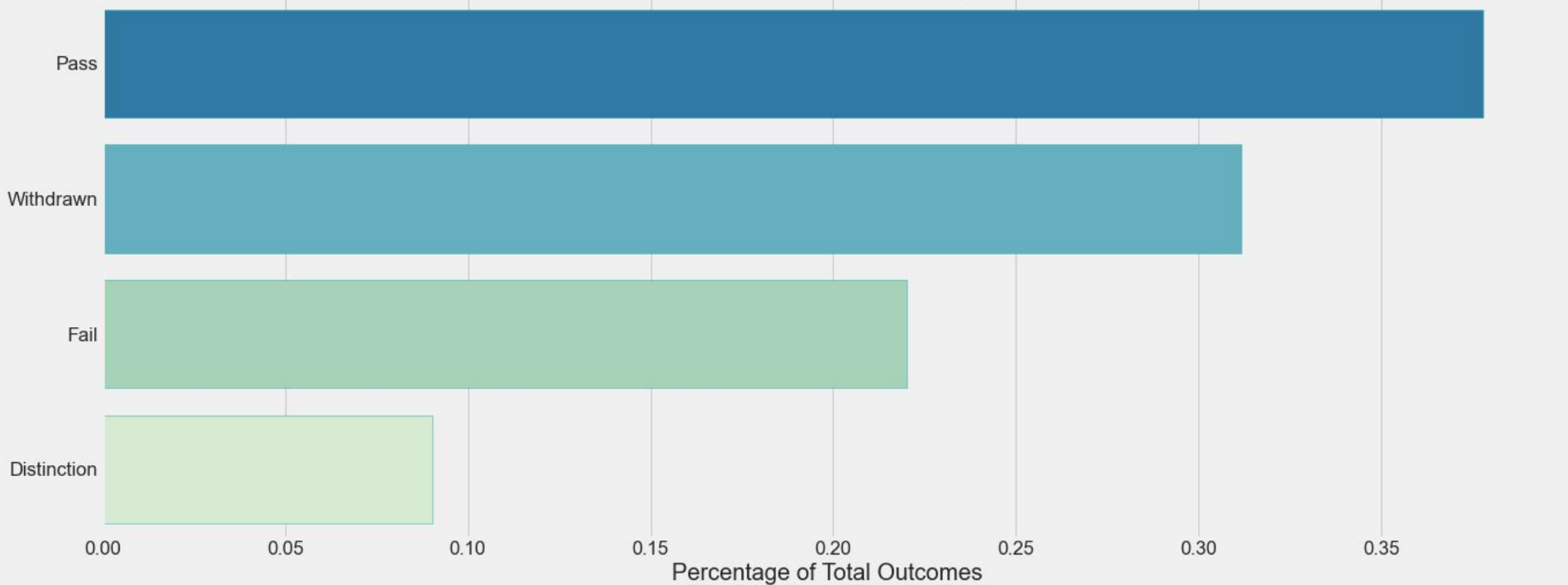
# Methods

# Data

- The Open University Learning Analytics dataset.
- 19,458 rows of tabular data
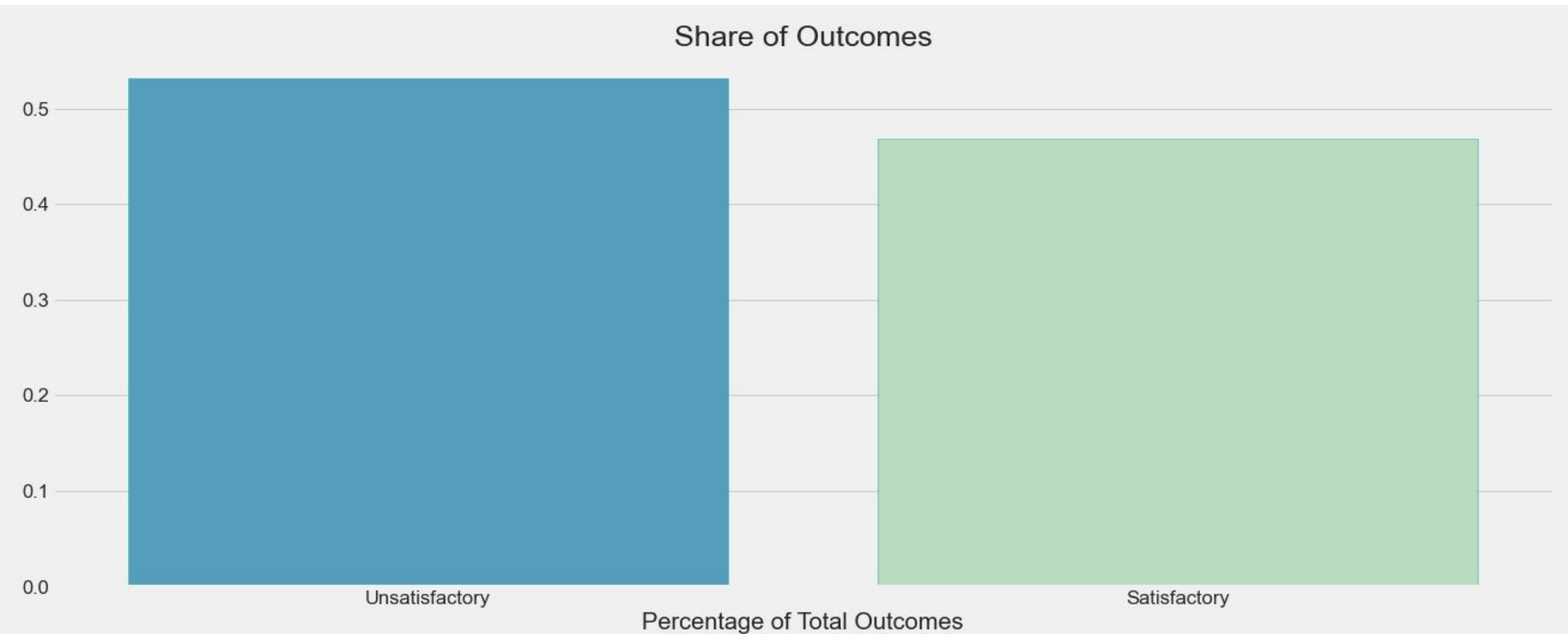- 13 columns (12 features plus the target).
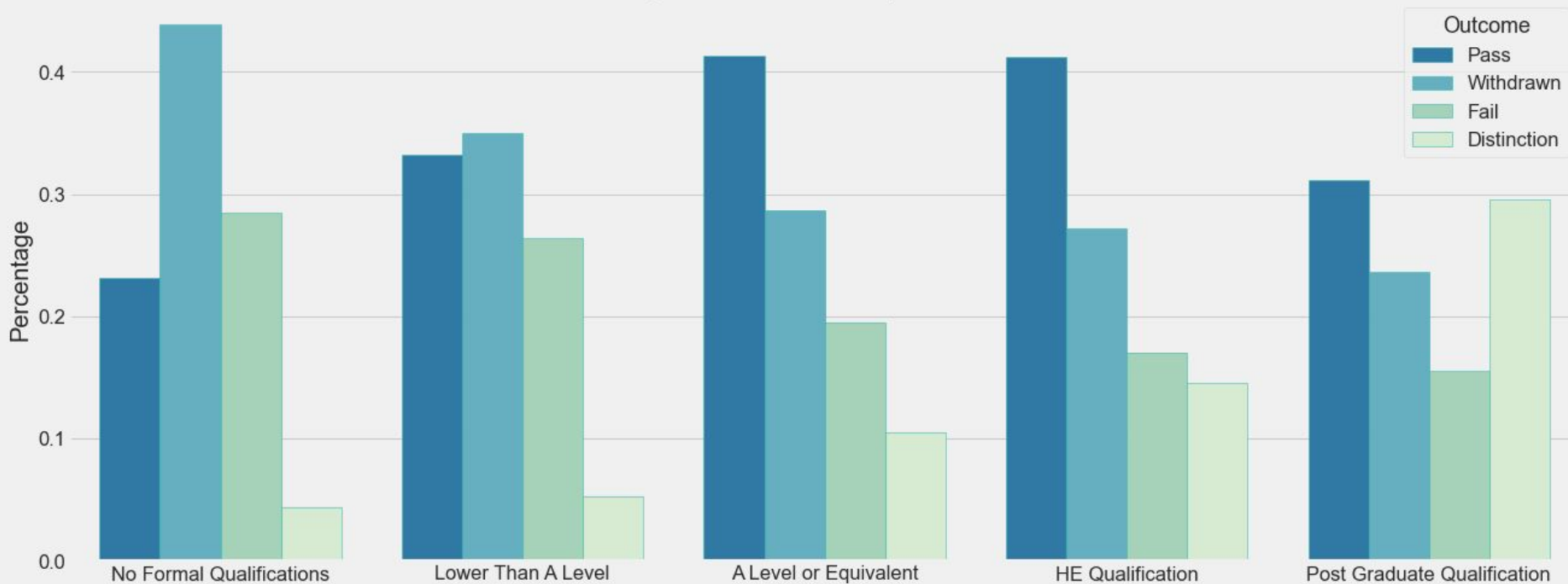
# Class Distribution

# Share of Outcomes

# Outcomes by Education Level
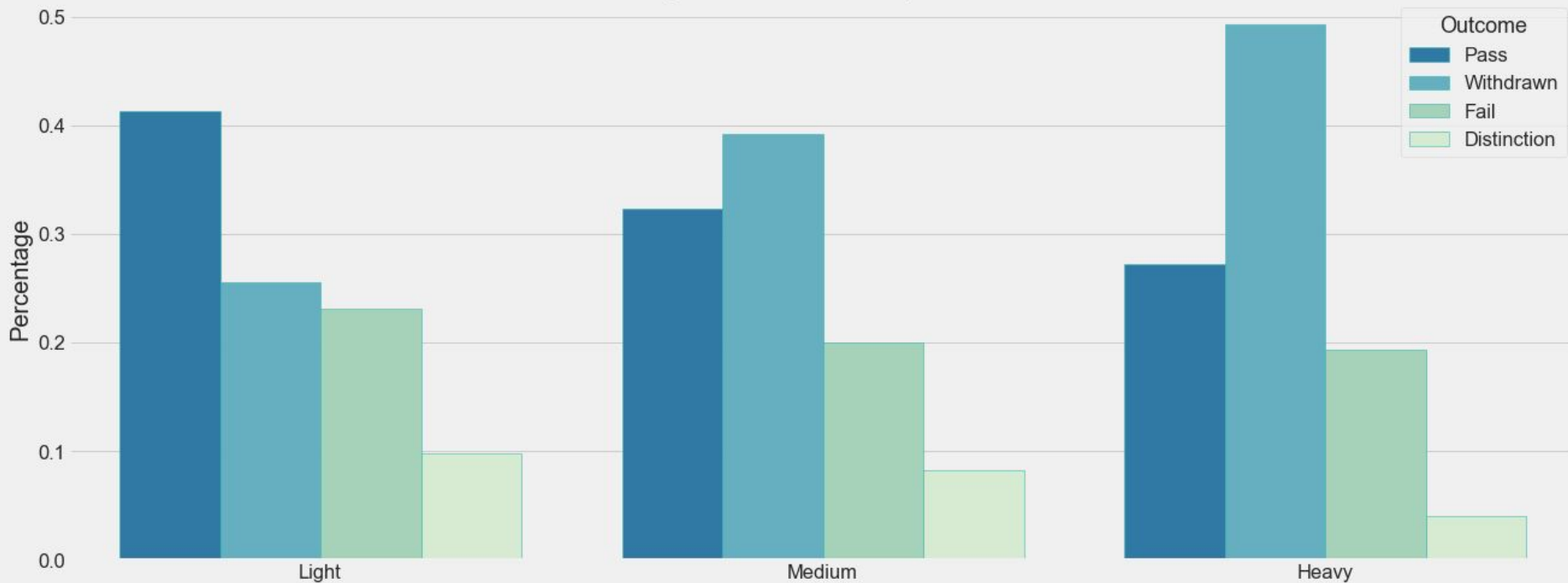


Percentage of Outcomes By Education Level

# Outcomes by Course Load



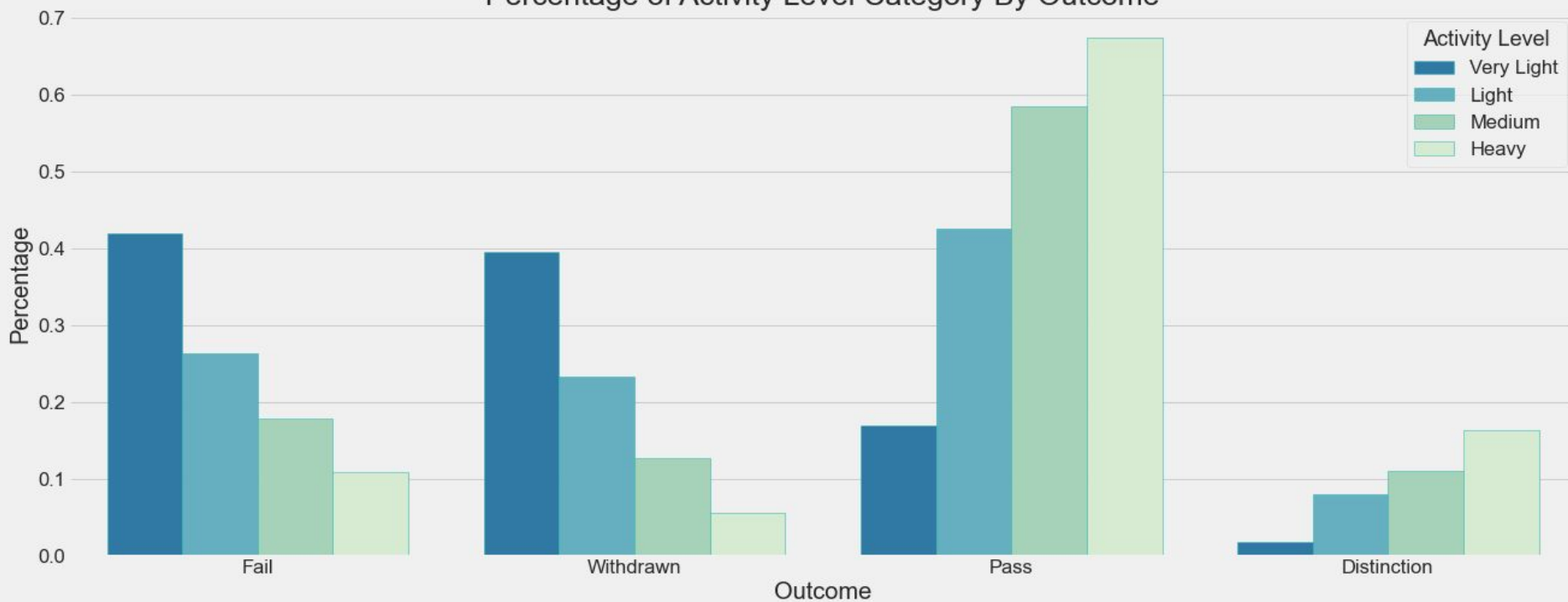Percentage of Outcomes by Course Load

# Activity Level & Outcomes



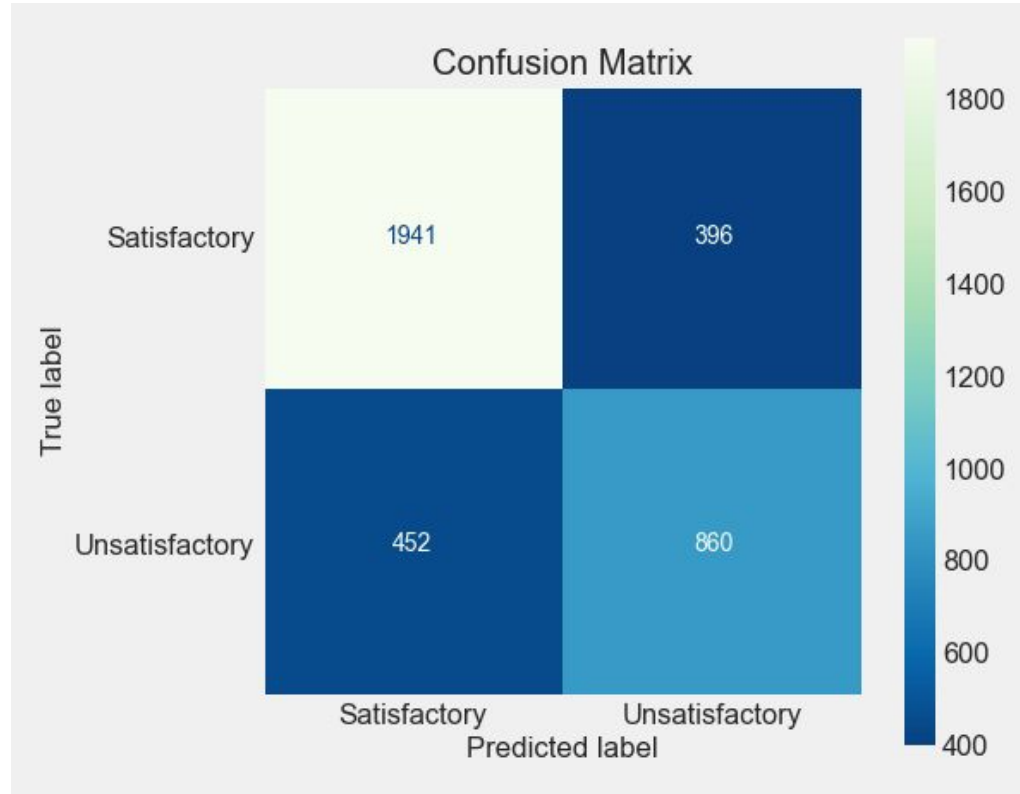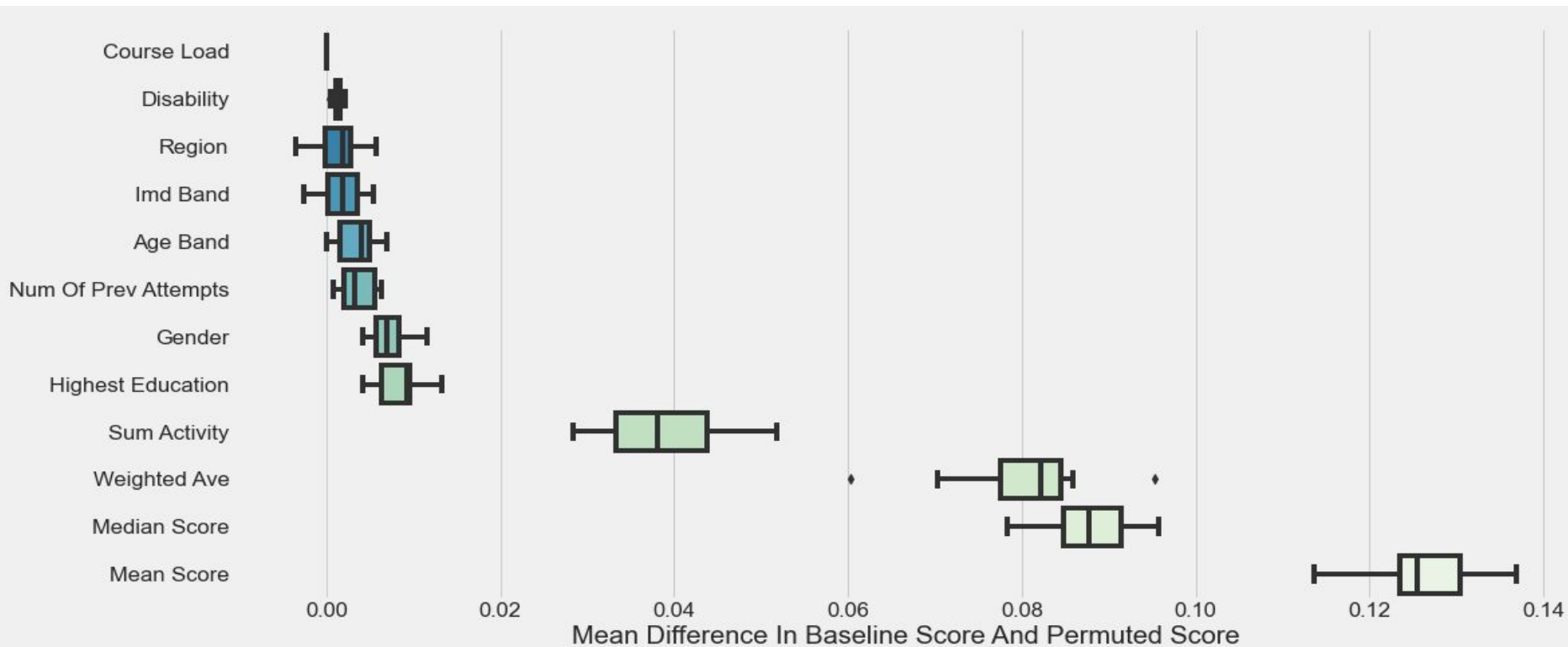Percentage of Activity Level Category By Outcome

# Recommendations

- Preemptive outreach and support programs for non-traditional learners and lower income students.
- Counsel students to maintain a modest course load.
- Encourage students to maintain a medium or higher online activity level

# Model: F1=.67 (Recall=.66, Precision=.68)

# **Permutation Importances**

# Next Steps

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

# Thank You!

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