STAT 447 Final Project Report

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Purpose

The purpose of this application is to analyze the dataset of course grades from the University of Washington Seattle. For analysis, we chose a dataset of class information for each class taught at the University of Washington Seattle from Fall 2010 to Fall 2015. We were particularly interested in the breakdown of the letter grading within each class. This data is anonymized and can be manipulated to highlight features which are important to current University of Washington Seattle students. Using our visualizations and this data, the user can discover which classes have a higher average GPA when stratified by year.

Data

The data for this analysis comes from a Final Project students from the University of Washington Seattle worked on in a course called INFO 201: Technical Foundations of Informatics. The dataset is primarily divided into several columns which consists of the Year, Quarter, Class, Title, Instructor, Student Count, Average GPA, and multiple columns for letter grades (A, A-, B+, B, B-, C+, C, C-, D+, D, D-, F, and W). We decided to have the app be filtered mainly by 3 of these columns, which are the Class, Instructor, and Year. The Class would be conditionally dependent on the Year, and the Instructor would be conditionally dependent on both the Class and Year.

Interactive Features

The app will feature several interactive components to aid in data visualization and analysis:

- Dropdown Menus: Users can select the Year, Class, and Instructor from dropdown menus to filter the dataset accordingly.
- Dynamic Plots: Upon selection, dynamic plots will update to show the distribution of grades for the selected class, including histograms and box plots.
- Summary Statistics: A dynamic text output will display summary statistics like mean, median, and mode of the grades for the selected filters.

Conclusion

This project allows University of Washington Seattle students to better understand the grading patterns across different courses and instructors, potentially aiding in course selection and academic planning. The use of R Markdown and Shiny has enabled us to build a comprehensive, interactive tool which can evolve with further insights and data contributions.