Course Friction Explorer

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Introduction

CPSC 310 is a large introductory Software Engineering course.

Students work on a large project throughout the course. During the term they seek help from teaching staff.

They want find out more about the course i.e. students, TAs.
Introduction
Problem

When a student is struggling in the course, the staffs don’t have easy access to information to determine the cause.

Typically the most reliable signal that a student is falling behind is low scores on assessments.

Limited possibility for intervention
Project Motivations

- Explore student experiences and search for students with specific grade outcomes
- Identify possible causes for students’ outcome
- Identify patterns of struggle or friction for a student prior to receiving a final grade.
  - Repeated/ineffectual use of resources
  - Non-standard use of version control
  - Sudden changes to work patterns
Input Data

- CPSC 310 data collected in 2020W2
- Linked previously as part of CPSC 310 course QA work
- Student and TA identifiers are anonymized

- 409 people (students + TAs)
- 2366 Office Hours visits
- 5801 Piazza contributions
- 25488 Autotest results
An interactive dashboard

- Drivers chart ➔ visualize factors contributing to an attribute
- Scatterplot, bubble chart, bar chart ➔ visualize correlation between attributes
- Custom filters and groups

Figure 1: Visier drivers chart of voluntary turnover rate
Figure 2: Power BI key influencers visualization
An interactive explainer, “How to Succeed in a Software Engineering course”

- Similar visualizations to the dashboard
- Guided
- Less flexibility to customize, explore

Thank you!