InsightVis: Course Dashboard For CPSC 310

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Background - The class

- CPSC 310 is a project-heavy course, and a requirement of the Computer Science Major

- Roughly 180 or 360 students per term working in pairs, meaning we have 90 to 180 teams
Background - The project

- Students are tasked to build a simple data storage and query language system
- Students are marked by their project’s ability to pass a suite of automated tests, and their own tests’ coverage of their code
Background - Test features

- Tests require one or more features of the system to pass.
- Students get feedback on how well they are performing in relation to these features.
Background - The data

- We have records of test results for all the students' commits (100MB JSON file for one term)

- We also have their git repositories, which means entire project histories (separately on GitHub)

- One challenge was pre-processing this data into something friendly
Target use cases

- Enable course staff/TAs to get an overview of how the class is doing
- Identify exceptional or struggling teams
- Find correlations between project qualities and performance
- Provide an overview of how an individual team is doing to guide TA assistance
- (Stretch) Learn more about the test suite used in the course to identify improvements
Changes and lessons learned

- Originally intended for the class view to be just the configurable scatterplot, and the team view would be a flow/sankey diagram. A tests view was a stretch goal.
  - Implement in D3

- Would have been less information, less useful, and harder to use quickly

- Moved to value more functionality over doing it ourselves, accuracy over coolness
  - Used Plotly.js
  - Aligned scales everywhere
Limitations and future work

● Scaling for different screens, data sizes

● Add search by student name or csid to team view

● Broadly make the UI look better
  ○ E.g. Different background for the sidebar, nicer mouseover highlighting

● The hard one, actually integrate into our dashboard and use live data from the database
Questions?
Something went wrong, backup images!
Class Overview

InsightVis

D1 Score Summary

Preconfigured Scatterplots For D1

D1: Student Tests vs Pass Count

D1: Coverage vs Pass Count

D1: Loc vs Pass Count

D1: Regression vs Pass Count

D1: Student Tests vs Coverage

D1: Loc vs Coverage

Top 15 Failed Tests For D1

Feature Status For D1

Scroll down for custom scatterplot
Global Stats
Most failed tests/features

Top 15 Failed Tests For D1

Feature Status For D1
Scatterplots
Configurable scatterplot
Team view

- Member Name: (a0y0b)
- Member Name (w9z0b)
- Repo link
- Overall: 90.91%
- Tests: 88.64%
- Coverage: 100%

Test History

Feature Status

- ArbiDataset
- RemoveDataset
- U5Dataset
- LT
- EQ
- AND
- OR
- KST
- IS
- Webcards
- invStCase