

Intuitive Visualization of Standardized Test Data for College Place School District

Senior Project Presentation
Sydney Randall & Nolan Chinn

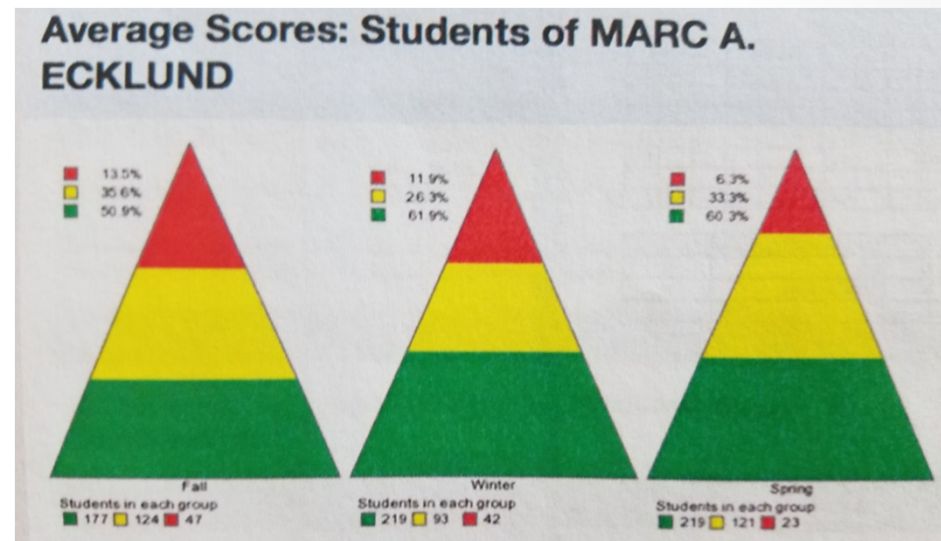


COLLEGE PLACE PUBLIC SCHOOLS

Focusing on Kids and Their Learning

Background

- Purpose: College Place School District wanted a better system to view student progress reflected by standardized test data. Ultimately, a tool that helps teachers identify at-risk students.



Current solution:

- Semantically unclear
- Not easily understood
- Interpreting data requires training

Project Goals

- Simple viewing of student performance
 - Easy to read and understand
 - Easy to access
 - Easy to extrapolate trends of data
 - Easily expandable

Scope

- Focus on benefiting teachers
- Class grades not taken into consideration
- Visualize data
- Rudimentary prediction and comparison

Project Process

1.Determine requirements

- Held meetings
- Researched existing solutions
- Proposed solution to customer

2.Design

- Defined project scope
- Researched and chose technologies
- Decided on application structure

3.Programming and Testing

- Code tested as it was written

Technical Steps

Methods of the System

- Tools Used:
 - Angular: front-end web framework
 - D3 Library: graphical library
 - TypeScript: JavaScript superset
 - Git/GitHub: version control/storage

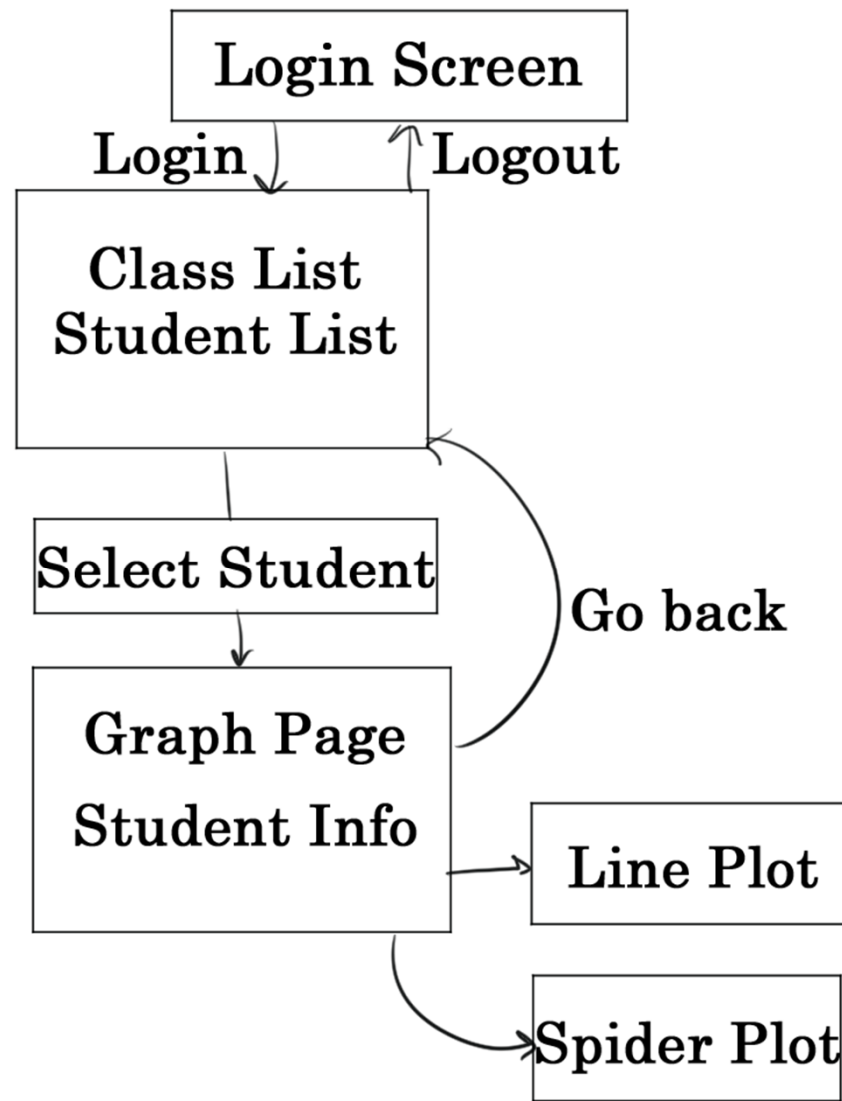
Challenges

- No access to authentication system
 - Unable to use the school's existing sign-on solution
 - Overcome by simulating a sign-on via user selection
- No access to real data
 - Didn't have the clearance to view sensitive student data
 - Overcome by generating data based off of exported templates

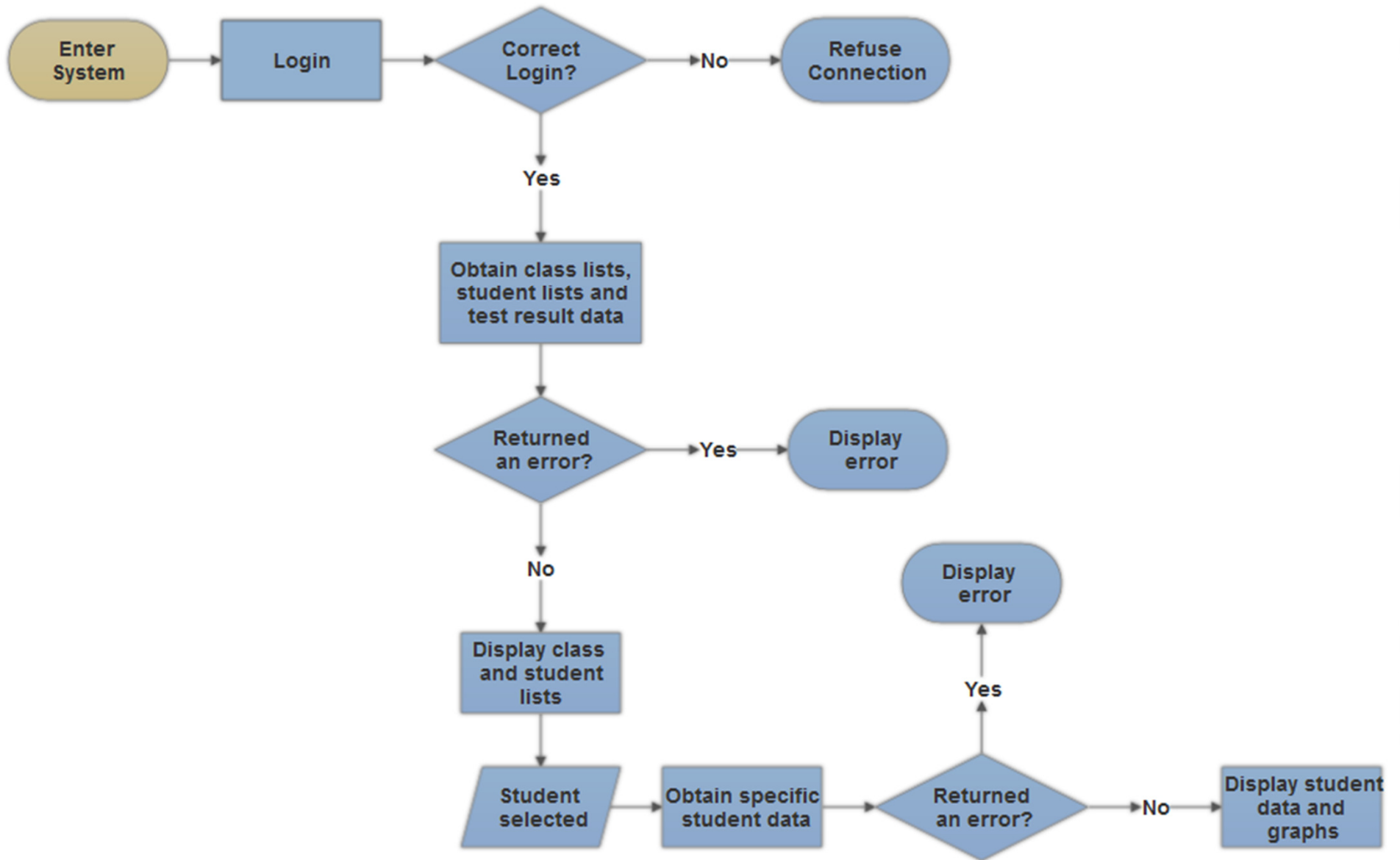
System Features

- Compatible with current data
- Entirely web-based program
- Selectable data
 - Via pre-made filters
- Line Graph Display
 - Scores converted to percentage
- Radar Chart Display
 - Creative view of student strengths & weaknesses
- Complete Data Listing
 - Relative test performance with trend data

User Flow Chart



Procedural Flow Chart



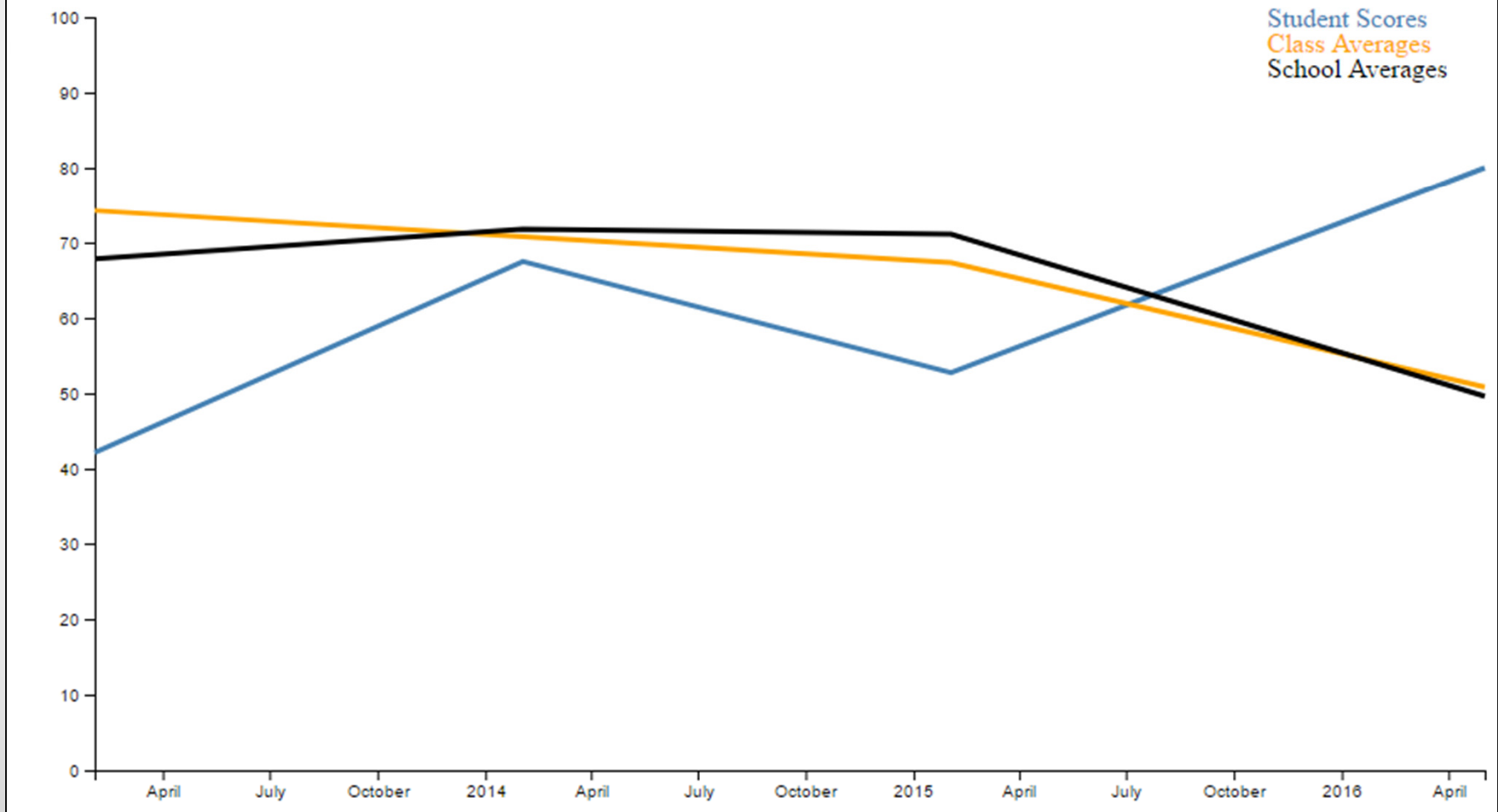
Guiding Display Design Principles

- Clean
- Simple
- Few colors, vibrant contrast
- Locate data on a screen quickly
- Only a handful of options per screen

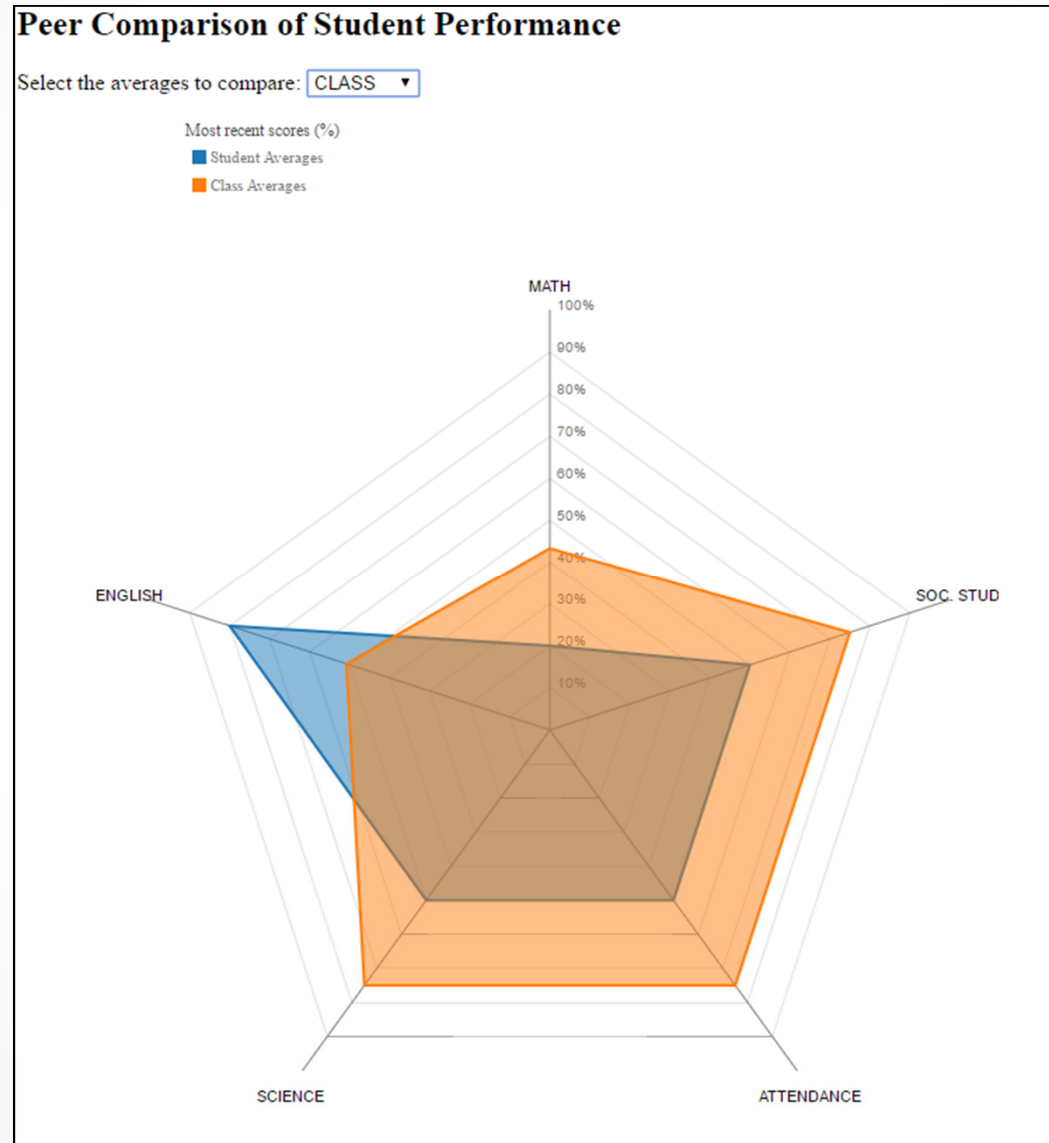
Screenshot: Line Graph

Test Performance Over Time

Select the test category to view: ENGLISH ▾



Screenshot: Radar Chart



Screenshot: Text Display

Valentin Chung

ID: 100100

Current Grade: 4

Standardized Test Results

- Smarter Balanced Assessment ENGLISH 2/2/2013

Below Basic : L1
No previous test data

- Smarter Balanced Assessment ENGLISH 2/2/2014

Basic : L2
Improving

- Smarter Balanced Assessment ENGLISH 2/2/2015

Below Basic : L1
Declining

- Measurements of Student Progress ENGLISH 5/2/2016

Advanced : L4
Improving

- Smarter Balanced Assessment MATH 2/1/2013

Proficient : L3
No previous test data

- Smarter Balanced Assessment MATH 2/1/2014

Advanced : L4
Improving

- Smarter Balanced Assessment MATH 2/1/2015

Below Basic : L1
Declining

- Measurements of Student Progress MATH 5/1/2016

Below Basic : L1
Steady

Going Forward

- Integration with the Skyward system
 - Integration with authentication system
 - Integration with live data
 - Hosting in CPPS network
- New ways of grouping data
- New ways of visualizing data

Achievements

- Met multiple times with client
- Developed an Angular application
- Utilized D3 to make a line graph and radar chart connected with data
- Implemented basic trending of progress

Acknowledgements

Supervising Professor:

- Dr. Susan Alexander

Superintendent of College Place Public Schools:

- Tim Payne

Davis Elementary Assistant Principal:

- Kristina Duncan

Educational Technology:

- Dennis DeBroeck

GitHub Link and Demo

<https://github.com/Sydney-Randall/Intuitive-Visualization-Rebuild>

Feedback and Questions

