Intelligent Review System

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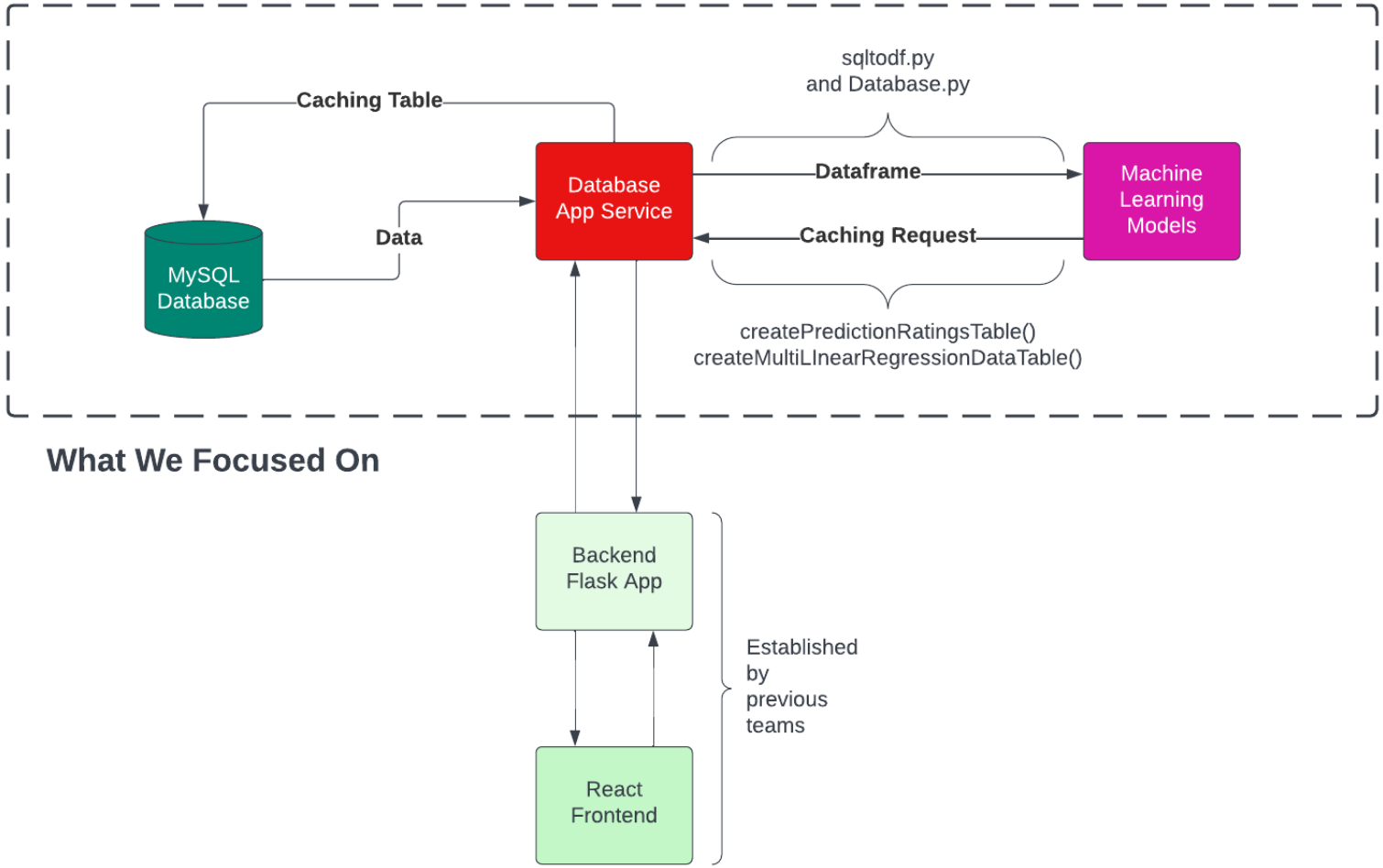
Problem To Address & Project Goals

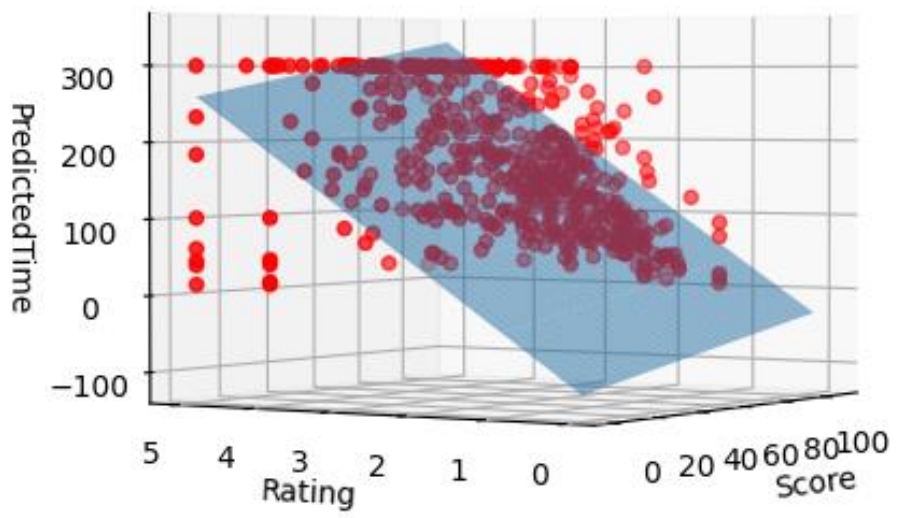
- Currently, students are looking for a more adaptive platform to help them prepare for assessments including the final exam
- The more adaptive and intelligent the system is the better it can customize preparation for each student to help them efficiently maximize study time
- To reach this objective, goal is to develop a system where students can convey to system how long they are planning on studying and the system will organize questions accordingly

Objectives

- Improve the predictive models of the existing Intelligent Review System
- Add new ML models to better predict predicted time of a given question
  - Use Multiple Linear Regression Model using scores and ratings of question to predict time of question
  - Use K-Means Clustering Model to evaluate how long a question will based on the difficulty rating of the question
- Evaluate the existing models for best performance
- Update the UI for the React front-end



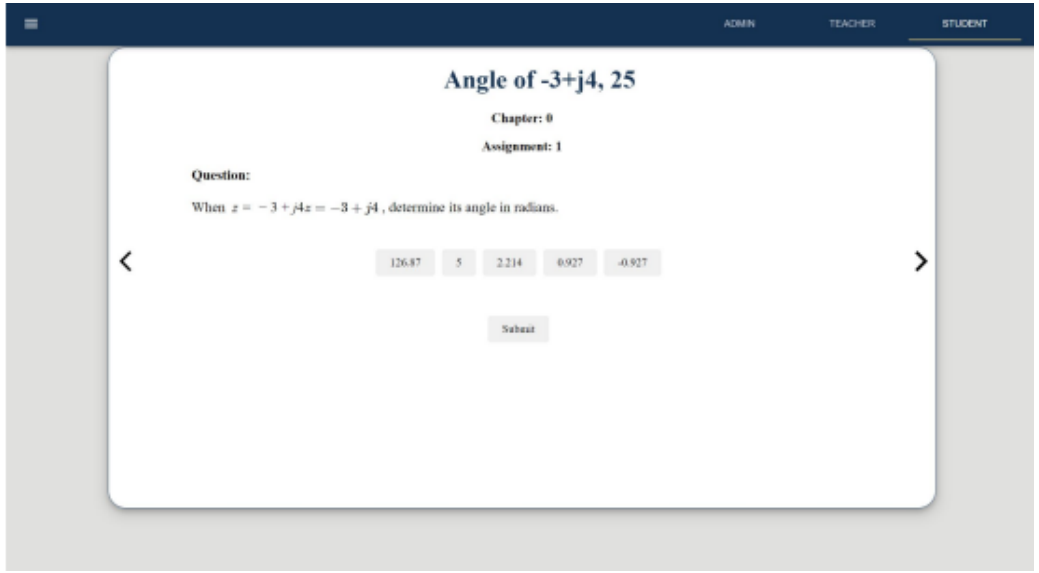
Overall Project Pipeline

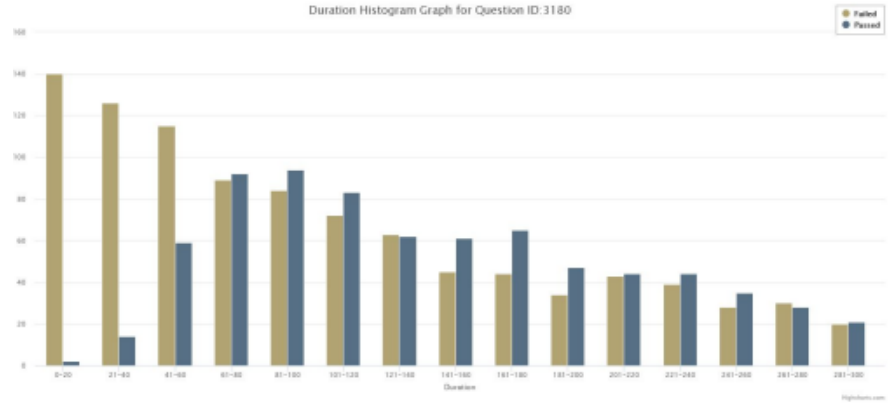


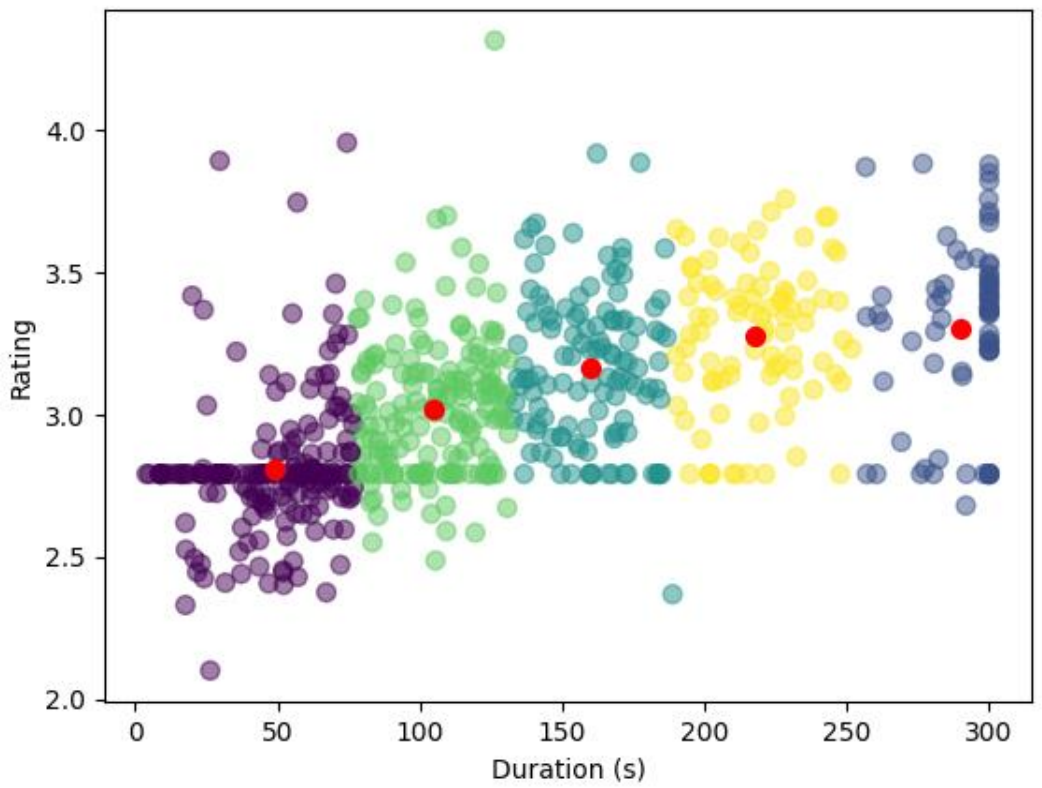
Multi-Linear Regression

- Mean squared error loss (w/o recommender ratings): 6049.307
- Mean squared error loss (w/ recommender ratings): 4461.758

Frontend


ADMIN
TEACHER
STUDENT
Angle of -3+j4, 25
Chapter: 0
Assignment: 1
Question:
When $z = -3 + j4$ $z = -3 + j4$, determine its angle in radians.
126.87
5
2.214
0.927
-0.927
Submit

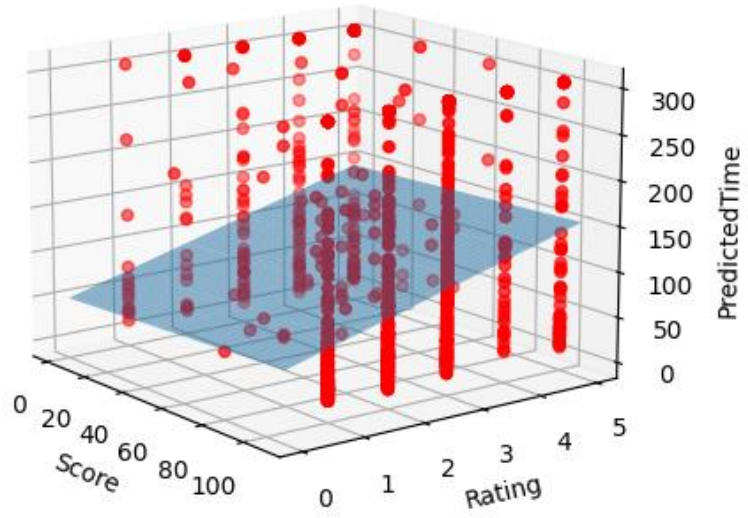

Duration Histogram Graph for Question ID: 3180
Failed
Passed

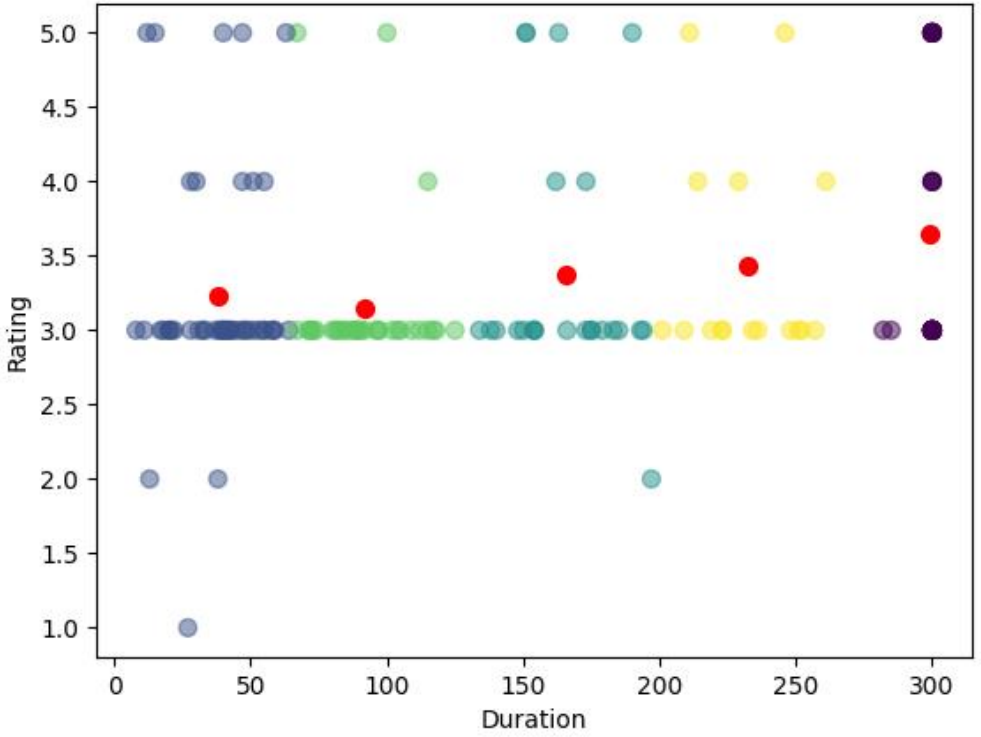


K-Means Clustering

Centroid Values

Rating	Duration
2.81	49
3.02	105
3.17	160
3.27	217
3.30	290





Major Hurdles

Difference Between IRSV3 & IRSV4

- IRS V3 was designed to predict score based on duration
- IRS V4 used different models to predict duration

Future Implementation IRS V5

- Our work focused on how to figure out question order. Future implementation can focus on using the analysis to change the question order
- Develop real-time connectivity with AWS database server
- Connect with the Tutor Bot to make it so that students can receive additional help on areas that they want to read further into
- Currently, compatible with desktop. Future versions can become compatible with iOS devices