Milestone 6 Progress Evaluation

Academic Behavior Reccomendation System

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2 Sponsor feedback on each task for current milestone **6**

3 Sponsor Evaluation **7**

1 Progress of current Milestone

Task	Completed	Shreyas	Yaqeen	Shiru	Mohammed	Remarks
Finalize Feature Set	100%	100%	-	-	-	N/A
Finalize Model	100%	100%	-	-	-	N/A
Finish Recommender System	100%	75%	-	25%	-	-
Complete GUI	60%	50%	-	-	50%	N/A
Showcase Poster	100%	-	-	-	100%	N/A

1.1 Discussion of each task

1.1.1 Finalize Feature Set

16 Behaviors were finalized. The behaviors are:

1. Total number of logins
2. Number of days with 0 activity
3. Average number of activities per day
4. Number of online meetings attended
5. Average number of days between test submission and the due date
6. Average time spent doing test
7. Number of activities reviewing material
8. Number of activities studying supplemental materials
9. Number of activities: study guide
10. Average number of activities accessed 2 weeks before each test
11. Number of activities: Procedures Quiz
12. Number of Surveys
13. Number of activities: CyberRat Assignments
14. Number of activities: Unit Discussions
15. Number of activities: Fluency Drills

16. Number of activities: Crossword participation

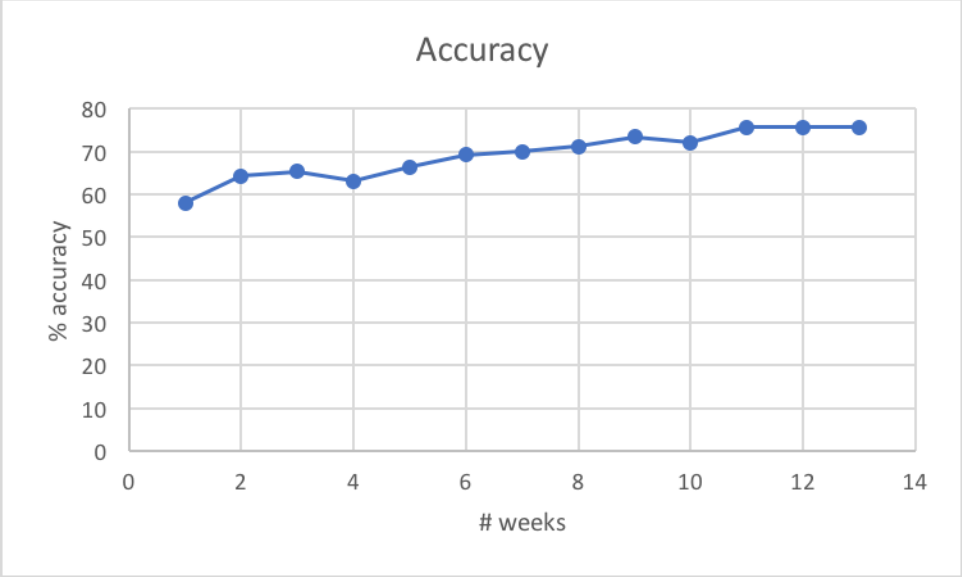
There were three main conditions to do a preliminary filter for the behaviors. To further refine this the power set of the 20 behaviors was run on the model to find the best set of features

1. Each individual feature is obtainable from data with accuracy. For instance Podcasts data show cannot be obtained since some of these were also available through itunes also a behavior extraction on this feature yields results that are not consistent with the grade files.

2. Exhibits strong correlation with grade.

3. Can be used to frame a recommendation. ASR submission time, since these are randomly given out while the students watch the video, a recommendation to do it early is not practical.

The model used for the recommender system is the random forest classifier. The implementation used for the same is from the python sklearn package. Here is a graph showing the accuracy for the model



1.1.2 Finish Recommender System

The algorithm is run multiple times and the model with the highest accuracy is selected and saved using the pickle package.
This model is then executed on the test dataset to predict the grades of each of the students. These predictions are saved in a file predictions.csv.
Relative Importance can be computed based on occurrence of a feature in a forest and the depth of the node in each tree. even Though the absolute value of the relative importance is not important can be used to determine what behavior to recommend. this is stored in a csv file.

A java program that acts as the recommendation engine, then computes the average value for each behavior as exhibited by above median students. Then a delta value is calculated which is the absolute difference between the z-scores of each feature.
A list of behaviors sorted by priority with a delta value each are generated in a file.
The GUI program will read this file

1.2 Discussion of team member contribution

1.2.1 Shreyas

1. Implemented correlation model
2. Implemented Recommender System
3. Worked on GUI
4. Made the Presentation and progress evaluation
5. Assisted with showcase Preparation

1.2.2 Mohammed

1. updated the look and design of the GUI.
2. made the poster of showcase.
3. Contributed in the presentation and showcase tasks. Add Comment

2 Sponsor feedback on each task for current milestone

3 Sponsor Evaluation

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Score (0-10) for each member: circle a score (or circle two adjacent scores for .25 or write down a real number between 0 and 10)

Shreyas Ugemuge	0	1	2	3	4	5	6	6.5	7	7.5	8	8.5	9	9.5	10
Yaqeen AlKathiri	0	1	2	3	4	5	6	6.5	7	7.5	8	8.5	9	9.5	10
Mohammed AlHabsi	0	1	2	3	4	5	6	6.5	7	7.5	8	8.5	9	9.5	10
Shiru Hou	0	1	2	3	4	5	6	6.5	7	7.5	8	8.5	9	9.5	10

Faculty Sponsor

_____

Signature

_____

Date