Problem Statement for SchoolBud

Rose-Hulman Institute of Technology – CSSE 376

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High Level Problem Summary

Elevator statement

SchoolBud is a standalone Java application that is aimed at being a multi-purpose assistant in the major functions that come along with attending an educational institute. One major feature is a grade handler, which not only helps calculate GPA, but allows the user to generate "target averages." A user enters in their desired *target average* along with an upcoming assignment or test and its corresponding weight / value. Then the system calculates what the user needs to get to achieve this *target average.* This is the ultimate tool for student's whose teachers do not keep them up to date with their grades, or need know how well they must do on the next test to make an A in the class. The application also uses all of this grade related information to predict what grade the student is trending to and will be at by the end of the term, so that they know whether or not they need to pick it up in the class. The other major side of the application is an automated scheduler assistant that generates all the permutations of possible schedules for a student, based off of their desired classes as well as various filters. Some of these filters would be whether or not they prefer "gaps" in between their classes or if they like their classes focused towards the beginning, middle, or end of the day. SchoolBud is a student's best bud!

Primary success criteria

Our goal is to develop a standalone application that allows students to keep track of their grades in their classes, calculates the grades needed by the students, in the remaining assignments and exams of the class, to achieve their target grade, and construct a customized schedule for the students based on their input of classes, and their criteria for constructing the schedule.

Scope

- Inside Scope:
  - Calculate user's GPA for individual classes
  - Determine necessary grades to achieve target grade in class
  - Construct a schedule that fits the user's criteria such as desired time periods and blocking.
  - Store user information in a text file.
- Outside Scope:
  - Develop a database to store the user's information.
  - Reconstruct project to display code as an Android or Web application
  - Enable users to interact with each other
  - Extract your assignments/grades from Learning Management System.

Detailed Problem Statement

Function
- Business Features:
  - Enable Users to enter their grades.
  - Allow users to state the grading rubric for their classes.
  - Calculate the grade point average for the users.
  - Construct a schedule of the desired classes for the users.
  - Adjust the schedule created to prioritize key attributes such as tome slots and blocking of classes.
  - Calculate the grade the user will receive based upon the trend formed by previous grades in the class.
- Enabling Features:
  - Mathematical calculations needed to determine the users' grade point average.
  - Storing and loading the user's information through the File reader.
  - Calculate trending grade based upon earlier submissions.
- Concurrency Features:
  - Extract the user information using the File Reader and using that information to calculate the grade point average.

Form
We will have a Java-based standalone application that user will be able to use to store their grades, calculate the grades needed to reach their target grade, and construct customized schedule.

Economy
The only economic focus to this product would be the man hours required to develop it. The application is planned to be free to use.

Time

Historical Context
Rose-Hulman has a schedule look up page that displays all the permutations of the schedule; however, it does not allow students to customize the schedule based on their needs. Whereas, SchoolBud is going to provide the students with a schedule they can customize to their needs. There are different apps for calculating the GPA and the grade required in the remaining assignments, but they do not allow students to store the grades from previous Semester/Quarters. On the other hand, SchoolBud will allow users to store grade for previous quarters.

Current Context
Because this application is primarily targeted towards students, the current salable context would be that of a normal school year, excluding the summer when school attendance is at its minimum.

Future Context

SchoolBud fits within the scope of the future of grade point averages because it possesses extra features which most GPA do not possess. While only the calculation aspect is necessary, it is the extra features which will attract the users and convince them to continue using SchoolBud.

Key stakeholders

Name	Role
Sriram Mohan	Project Advisor
John McCormack	Project Team
Brian Padilla	Project Team
Dharmin Shah	Project Team
Students	End Users