Criterion A: Planning

Defining the Problem
Client/advisor Mrs. Gorham is a high school guidance counselor at Princess Anne High School; She assists in planning schedules for students by consulting with every student at least once. Most students repeatedly continue to visit her in her office after this first meeting to change their schedule requests due to uncertainty. This process is time-consuming for both students and Mrs. Gorham due to the volume of schedules and preferences she manages.

Mrs. Gorham said that this reliance on extensive guidance can bottleneck the scheduling process and many students even feel dissatisfied with their selected classes. Observing how colleges like the University of Virginia automated the course selection process made me realize that a similar tool for our high school students could help streamline this process while reducing counselor workload and improving student satisfaction.

In November, I shared this idea with Mrs. Gorham who supported the concept and its potential to help students select classes. She stressed the importance of considering factors such as availability of classes, target GPA, workload balance, career goals, and previous classes taken in class recommendations.

I thought that this was a valuable IT solution so I decided to pursue it as my Internal Assessment project.

To refine my solution, I interviewed Mrs. Gorham to understand her requirements in detail.

Rationale for Proposed Solution
I think an effective JavaScript web application will help me solve Mrs. Gorham's problem. A web application is optimal for efficient use on any device without being restricted to any specific hardware. The application will include a form to fill out for target GPA, career goals, previous classes taken, and predicted grades. It will then create a personalized course recommendation that aligns best with their goals.

For the student, it will take all of the input data and the program will analyze it to suggest classes that reach or exceed their target GPA, create a balanced workload, and align with career interests.

JavaScript is well-suited for this solution due to:
-   Experience: I have been coding in JavaScript for any web application in the past few years, initially learning it in the Intro to Computers class in 6th grade.

- JavaScript can easily be used on any static web application to allow easy hosting, a fast response time, and to make it accessible to all students on a Chromebook.
- JavaScript can be easily stored on GitHub and accessed via Visual Studio Code to simplify the process of creating, debugging, and testing Java applications.
- JavaScript can be hosted for free on the free cloud-computing company Netlify
- JavaScript supports file handling (e.g., RandomAccessFiles), which I will use to save and retrieve student preferences and recommendations.
- JavaScript can be used to create classes to assign each course recommendation a name, category, and type (weighted or not weighted).
- Once the basic features are implemented, additional functionality (like connecting to a school database to improve user experience and efficiency) can be added with minimal changes.

Stating Success Criteria

1. The application will allow students to input their academic preferences into a form
2. The program will use a friendly interface for high school students where buttons are all labeled and easily accessible, UI is color coded for more readability, and minimal scrolling is required to access functionality.
3. After filling out the form, the application will generate a personalized list of class suggestions based on student inputs.
4. The application will generate recommended courses based on the student's self-reported academic performance through current GPA on the form.
5. The students will be able to customize the computer-generated course recommendations by switching the classes for different ones and changing the projected grade for each class.
6. The students will be able to export their recommended schedule into a PDF format to be able to show their counselor with ease.
7. Error handling will be included to notify users of invalid inputs or selections such as inputting letters into a field that should only accept numbers and inputting a student ID longer than 6 digits.