CS 4640 Assignment 1

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Part I: Project Proposal

Project Concept

Currently, many UVA students plan their schedule for their three-four years of college on their own based on what SIS says their requirements are without a universal system (e.g. using excel, word, etc.). Our project is a scheduling system for college classes by semester that allows users to plan their classes for their college career in a visual interface. This system will also contain their major/minor requirements as well as their school's general requirements to ensure that the student is able to plan around them in a timely manner. The user should be able to make an account, specify their major(s)/minor(s) and school, and start adding courses by semester. Our system's users are meant to be undergraduate students, and we are specifically prototyping this website for UVA students.

Note: The term *school* will be used throughout the following section to refer to what college the user belongs to (College of Arts and Science, School of Engineering, etc.).

Functionalities/services

Note: We will implement the first three functionalities and the last three functionalities are things that we will consider to add if we have the time and capacity for it.

1. Schedule
    - ❑ *Purpose and what it does:*
      Visual interface to display classes taking/taken altogether, GPA will also be part of this visual interface for each semester (displaying major and overall GPA) for more effective planning (if function 4 is implemented).
    - ❑ *How users will use it:*
      Users will be able to modify and add classes for each semester. See Part II for example.
    - ❑ *What users can expect from using it:*
      Users can expect to create and personalize their semester by semester schedule in a more user-friendly environment for minimal work. Whenever user makes changes, saves should be automatic.

2. Account Management
    - ❑ *Purpose and what it does:*
      This feature will allow users to save and modify their schedules for later times. It will also save the users' major(s), minor(s), and school requirements.
    - ❑ *How users will use it:*
      Users will be able to create an account and specify their major and school upon creation. Users will then be able to log in, modify their information, and have access to their specific schedule.
    - ❑ *What users can expect from using it:*

Users will be able to save and modify their schedule and information without having to re-enter their information.

3. Class Recommendations (Requirements)
    - ❏ *Purpose and what it does:*
      Based on what major(s), minor(s), and school is specified, users will be given an option to add major class, general requirement class, etc underneath each semester. Based on the choice of input, user will be given a pop up window that displays filtered classes for that specific label.
    - ❏ *How users will use it:*
      Users will use this class recommendation feature to quickly find classes that they are able to use to fulfill their requirements.
    - ❏ *What users can expect from using it:*
      Users can expect a pop up window with filtered results for what they want to take. Regardless which option, courses previously taken will be filtered out. We will disregard the problem of certain courses not being offered each semester as that extends past the scope that we currently have planned for this project by just displaying all possible courses as if they are being offered.

4. Drag and Drop
    - ❏ *Purpose and what it does:*
      Allow drag and drop of classes on schedule visual interface so that courses can be moved across the semesters.
    - ❏ *How users will use it:*
      Users will click and drag a class and place it into another semester's box.
    - ❏ *What users can expect from using it:*
      Users can easily modify their timeline for their semesters if they don't have the capacity for a course one semester but still need to take it eventually.

5. Grade Management
    - ❏ *Purpose and what it does:*
      This will allow students to specify their grades for classes they previously taking so that they can visually see their grades along with their classes. This might be a toggle option for display or not to display, but feature 1 of this list will still have semester GPAs submitted to allow for major and cumulative GPA to be displayed (see Part II screen for feature 1 for clarification).
    - ❏ *How users will use it:*
      Users will be able to add their grade for the class as they are added to their schedule.
    - ❏ *What users can expect from using it:*
      Users can use this feature for GPA calculation for past semesters and for future GPA calculations.

6. Allow term management/personalization
    - ❑ *Purpose and what it does:*
      We are going to implement only Fall and Spring classes for our basics, but this function will expand to Winter and Summer sessions. This could also expand to include graduate level courses if so choose to include such.
    - ❑ *How users will use it:*
      Users will be able to add Winter and Spring semesters in between their Fall and Spring semesters.
    - ❑ *What users can expect from using it:*
      Users can be able to personalize their schedule instead of using a static, pre-made schedule.

Project requirements satisfaction
We satisfy all project requirements:

- Dynamic behavior
  We have front end responding to user input and update the visual interface required. When user adds information for classes, we update the visual interface to reflect this in their schedule. When user changes or selects a class, it will be updated accordingly

- At least 3 different functionalities
  This is listed/planned in the previous section.

- Include logic that will execute both client side and back-end component
  Client-side: We will sort class results off of specified user input (see functionality 3 for more specifics). Furthermore, we will allow autocomplete for when they search for classes by giving suggestions as they are searching.
  Back-end: We will add, update, and retrieve from the database in order to display user's schedule based off their account. We will also calculate GPA if function 5 is implemented.

- Support multiple users
  This is done through account authentication and account management. We will allow multiple users to use this system. They only pull from the server when they assess the database. By hosting this on an online public server management system, multiple users will be able to access this website at once.s

- Must support multiple sessions
  This is done through account management. Users will be able to return to where they left off previously.

Part II: User interface Design
Following screen designs are attached to the submitted .zip file. The following correspond to their respective number functionality/service from Part I.

1. Sample Schedule Visual Interface
    - This page has multiple sections for each semester, allowing for easy organization and accessibility. Since this page is meant to be a basic page in which you can edit the minimal necessary information, we allow users to access a dropdown which will open up an embedded search page to easily find courses. The top of the page contains all the basic information about the user to allow user to easily verify if this information is correct. This page will act as a summary of the user's progress in their college career. The current semester will be highlighted in order to allow for better time management and to allow for the user to be aware of what they need to plan for the next semester. The add semester button is large and visible and will allow users to easily add more semester. The minus sign is smaller and in the right corner of each semester so that the user can remove the semester if needed. The header and footer bar at the top and the bottom of the screen allow for easy access to other pages on the website. There is a scroll bar at the bottom of the page to allow for more semesters to be shown if necessary. This column design allows for a neat summary of all basic information the user needs to know what classes they have taken and need to take for the coming semesters. The design is meant to be sleek and intuitive, especially since this is targeted towards college students who generally have ample experience with computers.
2. Account Management Page
    - This page has three sections (account login, account creation, and social media login). We structured it like so so that users will be able to easily find their respective login method easily. We want to allow social media login because many users will find it annoying to have to create a new username and password when they can just use a social media account. The top left and bottom left corners of the page allow for easy flipping between different screens that serve different purposes.
3. Requirements Page
    - This page displays the filtered results for the requirement that the user specifies that they wish to complete. The top left drop down is for requirements (major, general education requirements, etc. We have the classes displayed in a scrolling bar (because there may be more classes than the screen can display in a readable manner). We chose to have our table contain the course mnemonic, clas name, whether the course had been taken, the semester to take/taken, and grade. The Taken? and Grade sections will be used for GPA calculation of the schedule visual interface (and for implementation of function 5 of Grade Management). We also include an option for integration and elective so that users can search for courses if they do not feel like scrolling through and finding it. We did this so that the users get all the information about the classes they have taken for their major and since this webpage includes all the information on the main schedule page, it will allow for syncing between the two pages.