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CS-375: Software Engineering

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Degree Planner Requirements Report

This web application project will be divided into four parts: implementing the landing page that includes user authentication and registration, creating a degree progress page that allows users to see the core requirements they have fulfilled and their overall progress towards their degree, designing a semester planning page that allows users to assign courses to semesters in which they are offered, and displaying the course catalog so that users can see the wide selection of offered courses. Here is more elaboration on the minimum viable product scope requirements needed for each of these pages:

Degree Progress:

- As a student,
 - I need to easily be able to find my progress because I need to be aware of what has been completed/needs to be completed/in progress and see the remaining core requirements.
 - User login needs to be completed
 - Default or visible button points user to progress page
 - I need to quickly see what core requirements I have/missing/in progress because I need to complete those credits to graduate.
 - Progress page/quick check requirements table need to be completed
 - Dependent on course organization to see what classes fill requirements

- Dependent on current and future schedules tables.
- I need to see how many credits I have taken so that I can see how many I need to take in order to graduate.
 - Dependent on completed course table
 - Add transfer credits to existing credits
- I need to see the total number of credits required so I can track how many I have done
 - The database tables will hold information about how many credits Ursinus requires and a user's current credit total.
- I need to see what courses are planned/in progress/completed/not done because I need to see what I need to plan to complete my degree.
 - Table showing what courses have been taken/in progress with their corresponding term, grade, and credits
- I need to see what credits were transferred so I can accurately keep track of total credits here.
 - The user database table will contain a field for transferred credits, and the front end of the application will fetch this information from there
- I need to see my GPA on my progress page because a 2.0 is required so I need to make sure I am above that.
 - The user database table will contain a field for GPA, and the front end of the application will fetch this information from there
- I need to be able to mark courses with multiple letters as in progress/complete at the same time if requirement restrictions allow.

- One course must be able to appear multiple times in the progress page if it covers two different requirements
- System must be able to identify when a course can cover multiple requirements and when it can't
- I need to see what degree I am working towards, because I need to check my progress towards that major.
 - The user database table will contain information about the Major(s) a user is pursuing. From the progress page, users will be able to select a degree program from a dropdown menu based on their majors.
- I need my core requirement letters to be clearly visible when accessing the page because I need to track those in order to graduate.
 - This page will contain a table of core requirements and allow users to drag and drop courses into the cells corresponding to requirements that they fulfill.
- I need to be able to see a description of my major with required classes because I need a quick reference guide when checking progress.
 - There will be an additional table for each respective major that will highlight requirements that a user has fulfilled.
- I need clearly labeled progress bars to accurately gauge how far I am with program completion.
 - There will be a progress bar displaying the proportion of credits that have already been taken relative to the 128 needed to graduate

Semester Planning/Scheduling:

- As a student,
 - I need to be able to filter out courses either by core requirements, my major, or minor to fulfill my degree
 - Buttons on the progress page that allow you to search courses that specifically fulfill requirements for the core or major you need
 - I must have a clear view of my intended courses for each semester and the ability to easily make changes or adjustments to these plans.
 - I need the ability to select courses that do not have a time conflict in my schedule because the register will likely not allow overlaps
 - As you add classes to your semester schedule, conflicting classes should be marked when you search through the course catalog, so you know they do not fit
 - I need to be able to see what semester courses are offered because I can then plan to take them
 - There will be a variety of filters that allow users to choose courses that fit certain parameters.
 - I need to trust that when I plan the same course for two different semesters, it only counts as credits for the one.
 - Dependent on scheduling drag and drop features.
 - Dependent on credit calculation function.
 - Dependent on course load in from course list/user selection.

- I need to see what requirements my major will fulfill through the required classes because I need to see what other requirements I will need to fulfill.

- Each course will list the designated core categories that they fulfill

Login/User Authentication/Registration:

- As a student,
 - I need to create an account on the portal so that I can store and save the state of my degree planner
 - This is the first priority because many other pages of the application depend on a user's ability to login and save the state of their degree planner.
 - I need to select a major so that I am able to properly track requirements that go along with it.
 - On the registration form, users will have the ability to select their major(s)
 - I want to be visibly clear how to access the progress and planning pages upon logging in because I need easy access to both while navigating the website.
 - Upon logging in, the user will be redirected to the progress page.
 - I need to see what my anticipated completion date is because I need to plan courses within my graduation date.
 - The registration form will contain a field to input one's anticipated completion date, and this will be stored in the database tables.

Course Catalog:

- As a student,

- I need the ability to browse courses because I need to see what is offered and courses of interest to me.
 - This is associated with the course database, search bar implementation, and other filters such as core requirements and professors
- I need to be able to see what year the courses are being offered because I need to know if I can take them when intended.
 - This is tied with the course database, which needs to have a field when it is next offered
- I need the ability to select courses on my degree planner that I am eligible for based on my completed prerequisites
 - This is tied to both the course and student database and checking if the student already fulfills the prerequisites

We look forward to accomplishing all of the above tasks by the end of the semester and launching a prototype of our application. Given additional time, below are the aspirant features we may implement:

Administration: Registrar and Advisors:

- As a registrar,
 - I need the ability to edit the course information in case the professor make changes to the course
 - This requires the course able to be selected and then edited by the registrar, most likely a course edit page
 - Can be accessed from the course browsing page, clicking on the course, and a button to edit

- I need to add advisors for students because each advisor needs the schedule of their students
 - Similar to the students, this requires a database/table of professors and they will given the advisor field and the list of student ids they advise
 - There will need to be a browse advisors page, browse for student functionality, and assign the student to the advisor
- I need to move students from different advisors in case the students decides to change advisors
 - A browse student page is important, and there will probably be a dropdown option to change an advisor and dave.
- As an advisor,
 - I need the ability to view the tentative plans that my advisees create.
 - There will need to be a page or navigation link to the list of students they advise and from there, they can select a student and view the schedule
 - I need to view a list of my advisees and a summary of information about them.
 - There will need to be a page or navigation link to the list of students they advise and from there, they can select their advisee and view the general information about them, like email, year, major

Because our software will be a web application, there are not many non-functional requirements because it does not require a lot of processing power to view and use a React fullstack application. Furthermore, we aim to optimize our microservices to ensure that users have smooth and non-problematic experiences.

Non-Functional Requirements:

- Our software will be a React fullstack web application, so it will be organized into a client and server structure. Therefore, we require that users have a stable internet connection to optimize server requests.

We have constructed a Gantt chart displaying our tentative work schedule outlining dependencies, goals, and dates for each of our sprints:

Our project website is located at: [GatewayRevamp \(wagillette.github.io\)](https://wagillette.github.io/GatewayRevamp)