Team Number: 11

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Project Name: Schedule Builder

Commented [DJT1]: Notes:
- UML Diagrams: Use-Case diagram, Class diagram, activity diagram
https://www.geeksforgeeks.org/system-design/unified-modeling-language-uml-introduction/

I. Project Synopsis

Schedule Builder will allow users to build a semester schedule at the University of Kansas for an upcoming semester, the current semester, or past semesters.

II. Architecture Description

a. Goals

The schedule builder should allow users to choose from future, current, or past semesters. Relevant information including credit hours, course descriptions, and meeting times should be included. The main goal is to allow users to visualize a possible schedule. Additional functionality includes saving schedules, editing saved schedules, and deleting schedules.

b. Constraints

A lack of direct access to the database holding all the university's courses will be one constraint. However, a web data scraper can be used as well as copying the course catalog's HTML. Time is another constraint as this project must be submitted by November 30th. Resources will be another constraint: A lack of access to more

professional hosting solutions will lead to the project to be designed for local hosting and static architecture where possible.

c. Scope

This project will provide users with an intuitive user interface. Users will be able to choose from upcoming, current, or past semesters and build schedules based on the chosen semester's course offerings. It will be limited to courses available at the University of Kansas, Lawrence Campus. It should prevent users from adding courses with conflicting meeting times. When searching for a course, it should present the user with course information including credit hours, descriptions, and prerequisites. Additional features include displaying the total credit hours for the courses currently selected and allowing the user to save, edit, and delete schedules. The user should also be able to login to their account or create an account if they do not already have one. Initially, we plan to deploy the project locally, but time allowing, we will use phpMyAdmin to host it server side and deploy the databases to Supabase or another cloud-based service.

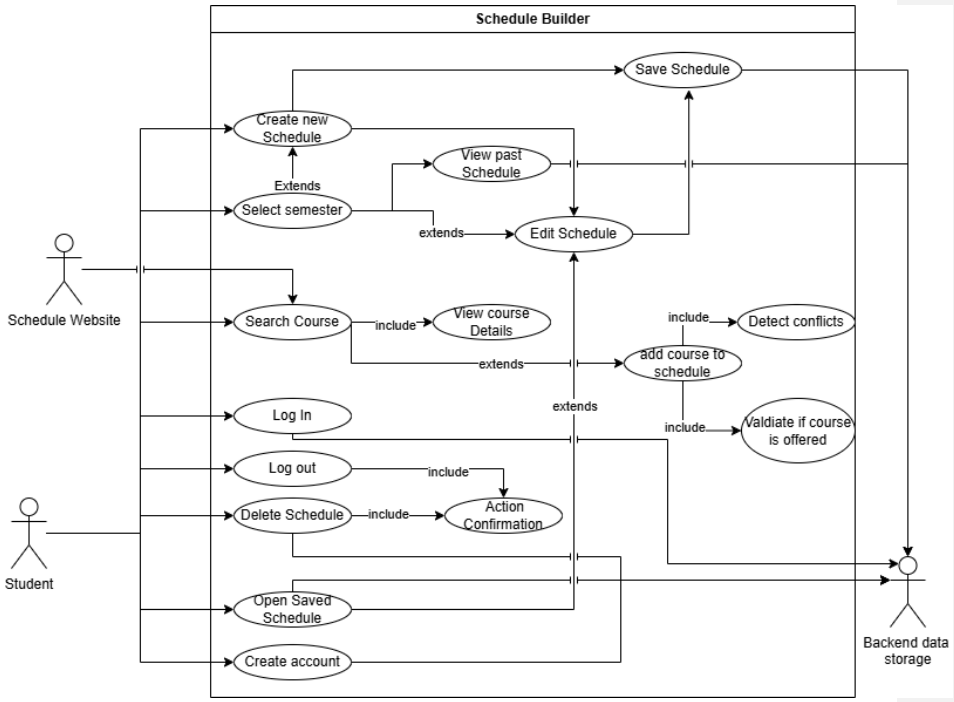
d. Technologies

The project will be made for the web using HTML, TypeScript, and ReactJS. The Architecture of React is such that multiple components can be designed that are then included by each other. This allows for HTML to be reused. The React project was bootstrapped and will be tested and built using the NextJS toolkit. Tailwind, a CSS module with many boilerplate styles, will be used to stylize the page. MariaDB will be employed to provide storage capabilities to the program. Altrenatively, if a server cannot be secured, the JavaScript Storage API may be utilized to provide client-side schedule storage for a static version of the project.

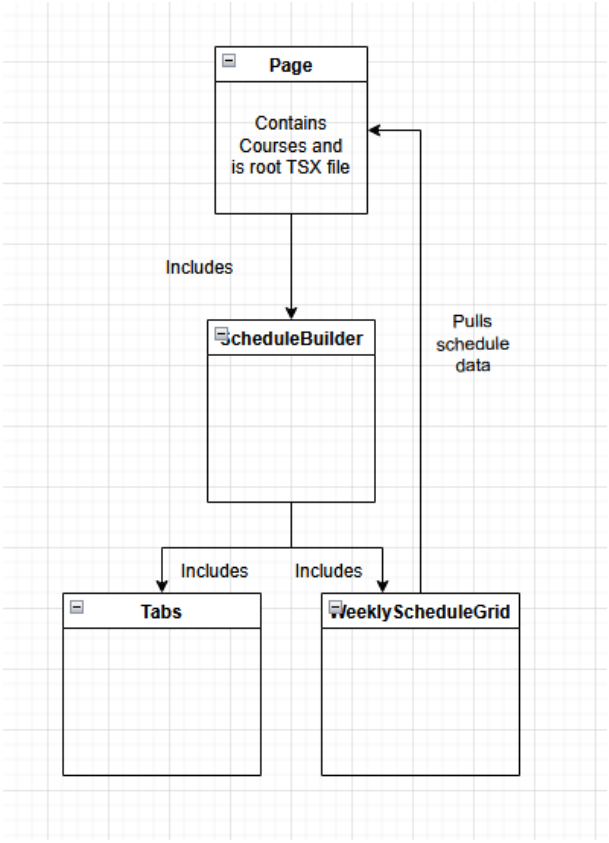
e. Structure of Source Code

The source code is contained in src/app within the project repository. Within this directory, there are a few sub directories that contain classes of source files. The root of src/app contains very important files including the global stylesheet and root React component. The src/app/components subdirectory contains .tsx files with React component exports from which the site is built. The components include the course search feature, the tabs feature, the weekly calendar display, the main file, and any other React components used to develop the site. The course information is held in src/app/schedule, which currently contains page.tsx and the hardcoded information. In the future, this directory will handle the database.

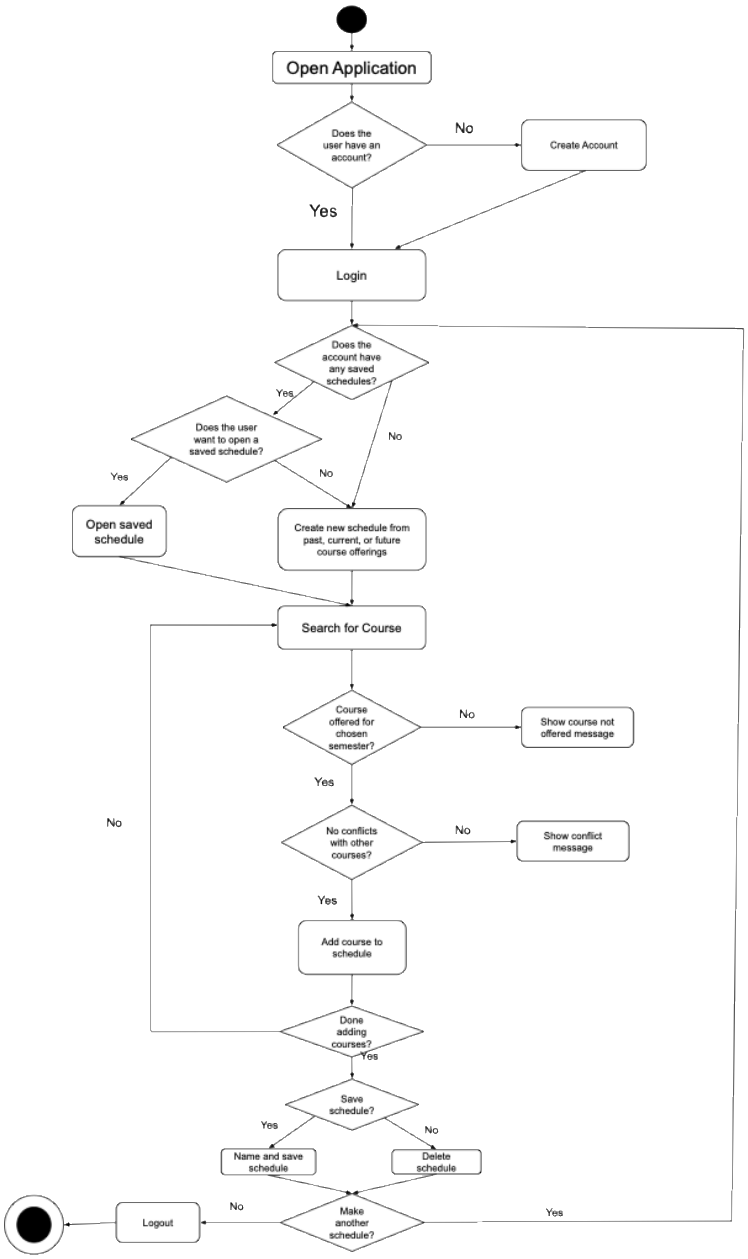
f. UML Diagram 1 – Use-Case Diagram



g. UML Diagram 2 – Class and React Component Diagram



h. UML Diagram 3 – Activity Diagram


Open Application
Does the user have an account?
No
Create Account
Yes
Login
Does the account have any saved schedules?
Yes
No
Does the user want to open a saved schedule?
Yes
No
Open saved schedule
Create new schedule from past, current, or future course offerings
Search for Course
Course offered for chosen semester?
No
Show course not offered message
Yes
No conflicts with other courses?
No
Show conflict message
No
Yes
Add course to schedule
Done adding courses?
Yes
No
Save schedule?
Yes
No
Name and save schedule
Delete schedule
Make another schedule?
No
Yes
Logout