**Section 6.1**

Unlike the standard MVC architecture, the model, the view and the controller are not taken care by the same framework. In our architecture, the view is handled using React and data manipulation as well as database queries, are handled by Laravel. This means that the application is divided between client side and the server side. The client side handles everything to do with the view (everything the user sees and interacts with) while the server side handles everything else.

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**Server Side**

For the server side, the components are the users (students, admin), the schedule, the database and the courses. The database contains the information on the students, the administrators and the courses. When the users modify their preferences and their information, it is updated in the database by a query. The students interact with the schedule component when they generate their schedule based on their preferences. The schedule component then fetches their preferences and generate the appropriate schedule. The administrator component can manage the courses and their properties. After the required information is gathered through the user page, the appropriate courses are then modified with a database query. Finally, the schedule provides the client side with the data that is to be displayed on the pages such as the student schedule or the full course sequence. This setup allows us to control the information of the students and the administrators. Ensuring that when they are needed, they can be accessed through the database. This will also facilitate the process of generating the algorithm since the components are independent and will be easier to manipulate.

**Client Side**

The main components for the client side are the UIManager and the components for each page. These will all be React components. The UIManager will be the necessary main React component and it will handle switching between all of the pages and hold the data that is common to all of them: the active user and if that user is an admin. This structure is the best way to handle the UI because switching between pages will be as simple as changing which component is being rendered. It also allows simple communication between pages through the UIManager.

The page components are the log-in, preference, account info, schedule, and admin pages. The log-in page needs to keep track of any input the user enters, which is username, password, and e-mail (if the user is registering for the first time). The account info page needs the same info, but this needs to be the information obtained from the server. The preferences page is where the user sets the courses they’ve taken, the courses they still need to take, and the preferences they have for their schedule. The preferences page component will keep track of all this info and will obtain any of it from the server if the user already input preferences in the past. From the preferences page, the user can click a button to build the schedule. This will generate the schedule on the server side and return the schedule information on the schedule page. The first semester classes here is a separate variable because these classes need the additional information of time, classroom, section, and teacher. The remaining semesters will simply be a list of classes for their recommended course sequence. Finally, the admin page will obtain a list of all courses and a list of all users registered in the database, so the admin can edit them.