* **How is the Angular project structure different from that of the Express HTML customer-facing page?**

Angular is based on components where each component will have its own directory. Each component has a specific purpose and by separating an application into components makes it easier to manage code and make changes.

Express is based more on functionality, where a server type is thrown into its own directory. It is good to note here that Angular is client-side whereas Express is server-side. Because they serve two different roles it is kind of hard to compare them to one another.

* **What are some advantages and disadvantages of the SPA functionality? What additional functionality is provided by a SPA compared to a simple web application interaction?**

I will break down the advantages and disadvantages into different sections.

**Advantages**:

* + - Speed and responsiveness – They don’t have to update the entire page.
    - Better caching – SPAs store data locally more efficiently and when it sends a request, it stores the data.
    - Debugging – With the use of developer tools in modern web browsers, debugging is fairly simple.
    - Fast development – Since most front-end frameworks are module or component based reusing components or modules throughout an application cut down on development time.
    - Cross-platform compatibility – Developers can code once and build applications that are supported on multiple platforms.

**Disadvantages:**

* + - Search engine optimization (SEO) – Given the nature of SPAs, SEO is very difficult to obtain
    - Navigation – SPAs have to imitate forwards and backwards buttons because whenever you navigate on a SPA you are not going to a different page.
    - Scrolling Position – When navigating back and forth between pages the scroll position may not be retained.
    - Security Issues – SPAs are the subject of cross-site attacks. By downloading most of the application on load it means they are more easily reversed engineered.
* **What is the process of testing to make sure the SPA is working with the API to GET and PUT data in the database? What are some errors you ran into or what are some errors you could expect to run into?**

Use applications such as Postman to send API calls to your server and then monitor the response received. You could also use the applications being developed along with developer tools in the browser. There are also Chrome extensions that allow for making REST API calls, one that I have found useful is Talend API Tester. At the end of the day it is hard to beat having a desktop application.

500 – INTERNAL ERROR

404 – NOT FOUND ERROR

400 – BAD REQUEST

403 – FORBIDDEN (coming in module 7)

401 – UNAUTHORIZED (coming in module 7)

* **What questions do you still have that will help you with SPA in future builds?**

I don’t really have any questions, since I have been developing with React for over 5 years I feel quite comfortable. There is one question that I can see that might be helpful, what is a good website for tutorials or instructions on how to accomplish certain tasks (creating a specific type of module)