Situation

LHS Productions Inc., d/b/a VideoBank is the company I’m currently working in New Jersey. Its main line of business is to provide digital software systems for huge amount of mission-ready, opensource intelligent data to multiple different clients and governmental organizations. Those digital software systems are mainly for collecting, saving, accessing, sharing, and analyzing of the large amount of data with various data formats with our known formats (like video, image, word, and others) and the custom format (with extension sid, kml, kmz, dmz). There are two main departments in the company, naming

software department and management department for finance and human resources. As far as I know about the first software department, there are two product engineers who mainly interact with customers, one project manager or company’s technological consultant who is working only for part time and five software developers. The majorities of the assigned tasks are individual tasks and I’m having to communicate with one product engineer, one project manager and one senior software developer. My supervisor is that senior software developer who is an alumni of maharishi international university. She is in the appraisal for Tech Lead position. So, she is giving technological support to the other developers, including me. The title of my position is a Software Developer. I have been working there for about 7 months as I joined the company on June 1st, 2022.

Task

One of the major projects is written in AngularJS. I’ve no previous experience with AngularJS but I had experience with React from my WAA course. Because both are Javascript Frameworks, I felt confident to learn quickly and to work with that. I was assigned to that project to build a dynamic big component on the middle of my fourth month from the join date. They used only one big component with static fields before. Instead of that concept, they wanted to build a dynamic with different components which will be included dynamic fields. For example, if the user chooses three fields in administrator settings, only those three fields would be shown in its related component. If it’s 100 fields, the component will ask to enter 100 fields. Beyond the dynamic user interface, they want to add new business flows based on their old logic. Because the old structure took long to be fully loaded, I was also assigned to improve the performance at first time loading.

Actions

Once I fully understood what I must accomplish, I started learning the old code structure and old logic that was currently working. I also read about AngularJS in my free time. I noted down the business logic and discussed with the supervisor and with product manager whenever I had questions. After I clearly understood the old structure, I started to start my task implementation. Because everything I had to do must be dynamic, I also had to add some tables to existing database. Based on the administrator settings user want, the dynamic field data were saved in database, and they would be used for dynamic display. I created the database design and proposed to my supervisor.

After their database design confirmation, I started to work with AngularJS. I learned about software architecture principles from Advanced Software Development and Software Architecture courses, and I used them in that task. According “Keep It Simple” and “Keep It Flexible” principles, I balanced them for the future maintenance and understanding by the other developers. By using “High cohesion, Low Coupling” pattern, I tried to avoid tight coupling between the different components. So, the codes I implemented were clean, compact, and easy to understand.

Based on the complex business logic, I also had to play the UI controls. For example, if the type was chosen with “RFS”, “RFS ID” field should be shown. If not, it will be removed from UI displays. Starting from that small requirement to big requirement to plug and play different components, I tried my best to work what they wanted. As I tried to call the backend services only when it’s necessary and used different dynamic components, performance is significantly improved at loading. As I reused the old backend API functions, my supervisor suggested me that I can combined them as I want, or I think better. So, she had confidence in me, and she allowed me to do that, so I made them easier. If the fronded had to call five times for five backend different functions, I checked if they can be related to each other to combine. For exmple, “CheckForQueuePermission” and “CheckForRFIModificationPermission” are the same concept to check the permission of the current login user. So, they are related, then I combined them, and frontend had to call only one time and got different user permissions. That code refactoring made the performance faster and faster.

Results

As a result, I could finish my task in a month. Then I showed what I accomplished to my supervisor and part-time project manager by explaining how I structure the database design for that dynamic functionality and how I worked with dynamic UI/UX. They checked the codes and structure I did, and they were happy with them. They told me that is easier to understand, more flexible for the future changes and faster in performance than the old one. After that, I also made demo to the product manager and company owner, they told me that it’s like a magic because all displays are based on the settings they set. Because of the performance improvement, they appreciated me and said, “well done”. I was happy for that, and I felt confidence more and more. More than that one, I got experience with AngularJS which can be useful for my future career advancement. After that task, I felt that I got more freedom to explore new things. I worked well in the team and did well in my individual task with less supervision. So, whatever I proposed, they had confidence in me, and they allowed me to use new things I purposed. That is also a great benefit I got from that accomplishment.