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Assignment #1: Lessons Learned

Throughout Senior Design and up to this point I have learned a good amount of skills in planning are goals and steps for the project. The Project Charter, System Requirements Specification, and Architectural Design Specification helped me understand the process of planning a major project in the Software Development field. For the first time, I also had taught myself how to write documents in LaTeX. I also learned how to use Texmaker and MikTex Console to make use of it. Each of these group assignments helped me understand how I have to plan the project with my group members.

The **first lesson** I learned is about the importance of writing reports in the correct format other than IEEE, Chicago, or MLA is utilizing the format for my documents using LaTeX. I had written a lab report in LaTeX before for a previous lab course, but I seldom write reports in TeX and I seldom produce any report in TeX in general. I used Overleaf at the time to complete the majority of my reports in LaTeX and it only really required me to fill in the answers in the blank in response to questions. That doesn’t help very much in learning about why we write documents in TeX. Throughout Senior Design I, I learned to write reports in LaTeX entirely for the first time. I learned how to set-up my environment on each of my Windows with Texmaker and MikTex Console, so that I can create or edit documents in TeX. It was very challenging at first and I thought it was unnecessary requirement to produce a document in TeX when it can be done in DOCX with Microsoft Word, ODT with OpenOffice Writer or LibreOffice Writer, or RTF with either of the two or WordPad. The majority of the popular programs that are used to produce documents in TeX like Texmaker used with MikTeX Console are open source software like OpenOffice and LibreOffice where as Microsoft Word is not an open source software.

The **second lesson** I learned is understanding the importance of the mission, plan, and goal. I learned how a group have to have a plan on how to split the roles and responsibilities among the team members. Each member in a term need to stick to a task that they can be most efficient with. A Computer Scientist should be leading the team since they know more about both the Computer Engineering and the Software Engineering aspects of Computer Science. Even if the Computer Scientist isn’t the team leader, they should at least assist the team leader decide which tasks are best for each member of the group. The Computer Engineer should be the one that often design the logic portion of the project for most projects. The Software Engineer should be the one that often works with the Software Development for both the microcontroller and the application on a PC or mobile device depending on the project. Planning a project requires having a System Overview. It also requires a Sprint breakdown. We can’t just do everything at the same time over sixteen weeks, we have to break our development down to individual sprint and complete each one before we move on to the next for the most part.

The **third lesson** I learned is understanding the importance of making assumptions, observing the possible risks, constraints, and calculating the cost proposal. When building something for a project, we have to calculate the cost of obtaining the equipment and accessories. We also have to calculate the cost of using a licensed software or using an online service well if that is required in order to build the project or make the project work or both. I also learned how it is important to make careful assumptions. We have to make assumptions in order to plan to expect the outcome of what we’re about told build. Generally, the outcome of the project won’t match our expectations on our first experiment, therefore we can make plans to make the correct changes in our project in order to make-it work the way we expected it to. Assumptions helps us be able to accomplish what we know is possible. Another important factor I learned are risks. We have to look into matters of something that can fail or go wrong and what we did not expect. Such situations can cause injury or harm to the members of the group who are performing the experiment. Others can cause damage to the equipment and such, so that we can have a safety measure and precautions with proper gears. In relation to assumptions, I also learned it’s important to observe the constraints and the limitations we have with the system overview we developed.