

**CSE 5911**

**Individual Report**

**Name: David Siegal**

**Group: App-assessments**

## Introduction / Background

Our group worked on an Android application to facilitate the administration of bedside tests in the medical profession. The application, App-assessments, was sponsored by Dr. Stephen Page and we worked with him extensively throughout the semester. Through our efforts, we were able to deliver a fully functioning android application that our sponsor, and the group, considers a success. The goal of this report is to highlight each team member's individual role in this success. A particular emphasis will be placed on my contributions - as this is my individual report - but each group member really contributed equally.

Specifically, this report will start by outlining my individual contributions and the lessons I learned throughout the semester. After enumerating these items, I will discuss the other group members' contributions and will evaluate their performance. Next, I will discuss a challenge that the group faced and how this challenge was resolved. Finally, I will wrap up by summarizing my takeaways from the capstone course.

## My Contributions

The group selected me as project manager after the first day of class. While I had never actually carried out this role prior to this point, I had observed it being performed during both of my last two internships. Despite my preference to be on the technical side of software development, the opportunity to hone my interpersonal skills offered a new and unique challenge that I ended up enjoying.

As project manager I had three central responsibilities: Team Coordination, Administrative 'Paperwork' and Communication with the sponsor. I will specify my role in all three of these functions below:

### **Team coordination**

Perhaps the most important function I fulfilled was that of team coordinator. I stayed in constant communication with all three of the other group members and ensured that all tasks were being completed on schedule. This was done primarily with the help of the project schedule which I built and maintained. In the event that a group member was unable to complete their tasks for the week, it was my responsibility to decide what to do with the extra work. In most cases, the other members of the group were able to step up and absorb the extra tasks, but in a couple cases we had to push features back to the following week.

In addition to making sure all of the technical work was being completed, I was also responsible for coordinating everyone's schedules. I set up weekly meetings on Tuesday nights and had to arrange for different meeting times and locations when team members were unavailable. Beyond facilitating the scheduling of these meetings, this juggling of schedules actually helped me better divide work amongst the group. By knowing everyone's schedule in advanced, I was able to see and plan ahead for weeks where the group was abnormally busy. In one particular case, I was able to see that multiple members of the group had midterms in a

couple weeks. To account for this this, I scheduled some of the work that should have been done during the week of midterms, the week before. Planning like this allowed us to stay on schedule almost every week of the semester.

### **Administrative ‘Paperwork’**

Another function I performed was doing all of the administrative ‘paperwork’ (or deliverables) throughout the semester. I was responsible for all standups, presentations and reports during the course. When it came to these items, I was not delegating work - as I did for the technical portions - but completed it almost entirely myself. In fact, the architecture sections were the only parts I did not do myself in any of the presentations or reports.

Putting together all of the presentations and the final report myself, facilitated two things. First, me doing the administrative work allowed the group to plow away working on the actual application. By not having to worry about the administrative items, they were able to lock into the technical aspects of the project and deliver new features to the sponsor each week without fail. Second, completing all of the presentations and reports ensured that I was on the same page with the technical leads. Since I was not working on the code often, it was important that I was continuously being updated on the application’s status from the team’s developers. Doing the administrative ‘paperwork’ made sure I did this.

### **Sponsor Communication**

My last main role was that of group liaison. The group felt that it was extremely important to present a unified front to the sponsor. Essentially, the sponsor should feel that the entire group was on the same page and thus all group disputes should be handled off-line. The easiest way to accomplish this is to have a single point of communication between the group and the sponsor. I was that person.

In addition to being the single point of communication between the group and the sponsor, I also was in charge of running the weekly meetings with the sponsor. This involved sending out an itinerary for the meeting the day before, leading the meeting the day of, and posting a summary of what was decided in the meeting the day after. These initiatives helped solidify that everyone, including the sponsor, always understood the state of the project. In addition, having documentation of every meeting made settling disputes about previously made requirements easy.

While I was the central point of communication, the group also felt that it was important for everyone to get experience communicating with the sponsor. We thought that having every team member attend the weekly meetings with the sponsor would be a great way of accomplishing this. Consequently, every team member attended and participated in the team meetings with the sponsor every week. An added benefit to this practice was having the developers hear their tasks directly from the sponsor. This helped cut down on miscommunication and contributed to our almost perfect acceptance rate.

## Skills Learned

As mentioned earlier, I had not previously performed the role of project manager. Due to my inexperience, I feel that I was able to grow substantially through carrying out my responsibilities on this Capstone team. Since I am in a highly technical major, it was especially fun that my growth was able to occur in non-technical areas. In this section I will explore a few key skills I feel I have learned throughout this semester.

## **Team Management**

Until the start of this semester, I had never been part of a project that was truly too big to accomplish myself. Because of this, projects were generally easy to complete individually or with at most one other person. App-assessments was not like these other projects; in order to complete the application, full participation was required from every group member. While every member was willing and able to contribute, the team still required that one person coordinate everyone's efforts. As project manager, this responsibility became my own.

I already discussed how I managed the team in the previous section, but I have not yet stated what I learned about management. When the project first started, I aggressively monitored every members' activities to make sure the group was staying on track. While this certainly yielded results, it also required a tremendous amount of time and energy without actually adding value to the project. As the semester continued, I realized that my efforts to micromanage the process were not actually helping the group. When I backed off of the team members, they were happier and still produced the outstanding quality of work they had from the start. I learned that stepping back and letting people do their jobs is actually much more effective than being overly involved - especially with such competent team members. As an additional benefit, it leads to a better team dynamic with happier group members.

## **Presentation / Documentation**

In addition to learning about management, I also further developed my technical writing and presentation skills. My technical writing skills were improved simply by going through the process of drafting the final report. By writing this report, I had to learn and write about many of the phases in the software development lifecycle. Through exploring the example papers posted on the class website and taking notes during class presentations, I learned effective techniques to write about these topics.

Even more than my technical writing improvement was my growth in technical presenting. The class's format, of frequent presentations and immediate feedback, made learning and improvement easy. After receiving feedback on our group's presentation, I was able to apply the necessary changes to the next presentation - which normally occurred within in the next couple weeks. Through the many iterations of this process, I feel that I now present data in a much easier to digest manor. A specific example of this can be seen when comparing the groups midterm and final presentations. During the midterm, the architecture was presented

mainly through the use of class diagrams. In the final, simpler diagrams were used that were easier for the audience to understand.

## **Non-technical Communication**

Non-technical communication was another area I was able to grow throughout the semester. As the chief point of contact between the sponsor and the group, I quickly learned how to communicate most effectively with our non-technical sponsor. When the project started, I often felt there was a gap between what the group was saying and what the sponsor was understanding. As the semester progressed, I removed almost all technical jargon from the meetings with the sponsor and instead focused on the features. By taking this feature centric approach, the sponsor was able to easily understand the status of the application. This ability to discuss technical content with non-technical people was one of my main takeaways from the semester.

## **Requirement Gathering**

The last area of growth that I will discuss is that of Requirement gathering. I have learned about gathering requirements in several classes and attempted to put into practice everything that I have learned. Looking back on it, I believe I did a fairly good job and the entire group, including the sponsor, was on the same page with all the requirements throughout the project. Fortunately, the learning I was able to do about requirement gathering came from issues that other capstone groups had throughout the semester. By seeing how devastating gathering bad requirements and acceptance criteria can be, I realized how important it was that I had gathered good ones.

## **Other Team Member Roles**

### **Daniel Marchese**

Dan was one of the technical leads on the project. He played a huge role in the initial architecture of the application and worked extensively with Swapna, the architectural and testing lead, to make sure the application was being developed in the best possible way. In addition to working on the initial architecture, he also completed the App-sessment 'holder application' and the MoCA assessment. To find out more about what these specific contributions mean, please refer to the final report.

### **Swapna Shankar**

Swapna was the architectural and testing lead. She worked with Dan to solidify the architecture of the application. Once this had been decided, she created several figures of the architecture for both documentation and presentation purposes. Beyond the architecture, she also contributed greatly to testing the application. She automated all of the functional testing for App-sessments and also made sure that unit tests were developed for all new code. Her efforts in testing the application allowed the group to continually move forward with confidence that all previously implemented code was working as expected.

## **Mukundan Sundararajan**

Mukundan was another technical lead on the project. He individually implemented the ARAT assessment for the application (This assessment is described in detail in the final report). In addition to the ARAT, Mukundan was also the go-to guy for most of the android bugs we encountered. He had android experience going into this project and was able to troubleshoot issues very effectively. His efficiency in resolving bugs was a central reason that the group was able to stay on schedule throughout the project.

## **Dr. Stephen Page**

Dr. Page was a phenomenal sponsor. He met with us every week and remained fully engaged in the application's development from start to finish. Because of his continued commitment, we were able to produce an application that we are all excited about.

## **Peer Evaluation**

### **Dan Marchese (Evaluation: 100/100)**

Tasks Completed:

- Architecture Consult
- 'Holder app' Implementation
- MoCA Assessment Implementation

### **Swapna Shankar (Evaluation: 100/100)**

Tasks Completed:

- Architecture Design
- Architecture Diagrams
- Functional Tests

### **David Siegal (Evaluation: 100/100)**

Tasks Completed:

- Stand Up Presentations
- Midterm Presentation
- Final Report
- Team management

### **Mukundan Sundararajan (Evaluation: 100/100)**

Tasks Completed:

- ARAT Assessment Implementation
- Major Bug Fixes
- Several MoCA Features

### **Dr. Stephen Page (Evaluation: 100/100)**

Tasks Completed:

- Provided Requirements

- Met Weekly
- Continued Involvement / Interest

## Challenges encountered

In general the entire project ran smoothly, but a few issues did arise throughout the project due to android bugs. Surprisingly, the majority of these bugs had to do with the applications use of nested fragments within our application. While the technical details of this approach are not relevant to this document, the import part is that the team architected the application in a way that Google recommends. In doing so, we ran into significant issues with Android itself. It is obvious that nobody hopes to encounter bugs while writing software, but I believe the way the team resolved these bugs speaks to how well the group was managed.

Upon realizing that a bug in our application was being caused by the operating system malfunctioning, we immediately began implementing the risk plan for this scenario. The extra work generated by this bug was absorbed by Mukundan - a technical lead who was slightly ahead on his scheduled work - and Dan continued to implement new features. Because everyone understood exactly what to do in the event of an unforeseen bug, the group was able to quickly resolve the bug and still completed all of the promised deliverables on schedule.

## Conclusion

In conclusion, the capstone project (App-sessments) was a success. My group and I were able to produce an application that the sponsor approved and is excited about. In addition to delivering a successful project, I was able to take away a variety of new skills ranging from team management to non-technical communication. These are skills that I am sure will be tremendously important as I progress through my professional career.