Sprint 1 Report

Prepared by Lucas Myers, Adam Winebarger, Kyle Smigelski

Intended Progress

At the close of Sprint 1, Team InnoValuation had anticipated having a wireframe/prototype of a mobile app that allows users to login, capture images, automatically store them in a database, fill out a medical history questionnaire, and check appointment notes. Enabling database functionality, creating a “baseline” mobile application, and standing up our development environments were the team’s goals for this Sprint. We had anticipated and planned that the work needed to create the prototype mobile application would continue into Sprint 2.

Our team decided not to assign work or areas of the project to team members before the sprint began. Instead, we assigned work to ourselves as we saw fit. Therefore, no team members had any expectations placed on them. This allowed us to select work we each found interesting.

For Lucas, he was most interested in the infrastructure of the application. He planned to get the database and login functionality set up. He also planned to install all the necessary packages and dependencies to the project.

Adam’s main focus for this sprint was the programmatic implementation of the UI components to the mobile application. While Kyle’s prototyping via figma was far better than anything Adam could have realistically come up with on his own, there are some limitations on what figma can do when building graphical components - particularly when it comes to automatic scaling and functionality. In addition, Adam has been combing through older flutter projects and firebase database setups looking for anything that might be necessary for this project.

Kyle was most interested in the UI of the home screen and login page and the camera functionality. He planned to implement the basic photo taking process, as well as create prototype designs for the app's main pages.

Progress to-date

As of Sunday, February 11, 2024, the team has set up the database in Google Cloud Firestore, added camera functionality into the app, and is currently working on creating the app home screen, menu, questionnaire, and refining overall app navigation. We are currently on track according to our feasibility study schedule.

Lucas feels that the project is going smoothly with no major blockers. Each team member has been completing the tasks they set out to do. Everybody has been playing to their strengths,

which has led to an efficient workflow. Lucas is still learning Flutter, but has taken an interest in the infrastructure of the application after setting up the database.

While Adam had hoped that to be further along with the end-user side of things by the end of this sprint, he still feels that we have made good progress, all things considered. There were a few minor setbacks, such as some changes to the specs for our user logon/authentication scheme and a communication error leading to a missed meeting with our sponsor, that caused us to come up a bit short during this sprint. However, we also realized that our goals going into this sprint may have been a bit too ambitious and, as such, we set up Sprint #2 to be a bit of a buffer sprint where we finish work on the end-user side while simultaneously looking more into potential implementations for the ML aspect of our project. Overall though, he is happy with what each group member has a accomplished so far at this stage in the project.

Kyle feels that the team is making good progress aligned with our expectations. While he is still learning to flutter, the front end of the application is progressing very close to the prototype designs he made in Figma. Overall, he feels each team member has contributed to the application and completed their individual tasks.

Problems Encountered

We have encountered a few issues with our implementation of the sponsor's requirements that required pivoting away from our original ideas.

Our sponsor does not want users to login to the application with any personal information at this time. However, we must have some way of tracking users so we know whose images are inside our database. To solve this problem, we will be assigning users a unique code at their TST test appointment that they may use to login to the app. Unfortunately, this method is not the most secure login implementation, but it is the most secure method we can implement given our sponsor's requirements.

We also had planned to discuss our application color scheme and if there were any brand colors or images we should use with our sponsor. Unfortunately, they were unable to make it to our scheduled meeting, which delayed our development progress.

Finally, the team had to find data to train our machine learning model on since none was provided to us. Data collection with patients inside of a clinic was determined to be unreasonable, as this would require a several month long IRB review before we could begin. We decided to use synthetic image generation to create images of injection sites, then train the model on these images. This will allow us to verify that our model can detect large bumps under the skin, with a stretch goal of determining the growth size of these bumps.

Lucas feels that the team is organized very well and has a good workflow established. He is not worried about setbacks or failing to deliver a product that meets the sponsor's requirements on time. He is concerned about the lack of training data and the accuracy of synthetic image

generation. Lucas may also consider pointing any Jira cards that require writing Flutter code higher since he will need to study and learn as he writes the code.

Adam is pretty happy with the team responsibilities so far. While the other team members may not be quite as up to speed as him when it comes to writing and implementation of Flutter code, he feels that one member shines when it comes to administrative tasks while the other has leveraged his artistic talents to make some very appealing, yet still functional graphical prototypes; and it just so happens that those were both tasks that Adam was dreading at the prospect of having to do. As far as problem areas go, Adam is concerned about demonstrating the efficacy of the machine learning component of this project with no training data to make use of, as well as the implementation of the fully-trustless user authentication scheme that the client is requesting. While he gets that this is supposed to be more of a proof-of-concpet than an actual, usable product, he feels that this will also create some ambiguity in determining when this project is meeting the desired requirements.

Kyle has not encountered any issues with the organization of the team's responsibilities so far, nor their ability to satisfy the requirements set out by the sponsor of the project. While the team is still uncertain about the implementation of the machine learning model, Kyle is confident that the team will be able to address any challenges effectively. Kyle plans to schedule some brainstorming sessions and consult the knowledge of Grant Alphenaar as the team enters sprint 2.

Projected Progress

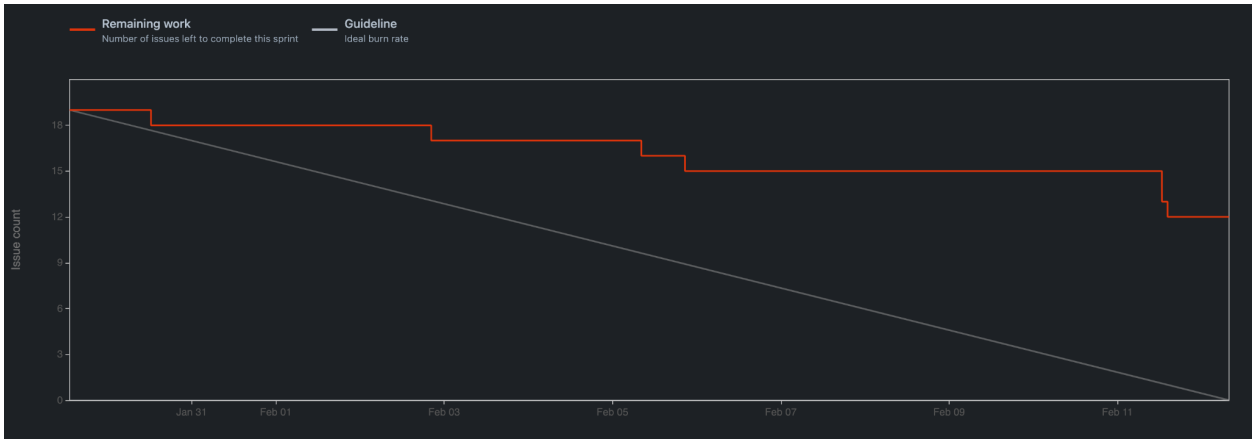
By the close of Sprint 2 on Monday, February 25th, 2024, the team anticipates that the mobile application the user interacts with will be nearly complete. This work will include user login with a unique code, sending images to our database, and building a questionnaire page. We plan to have all of our main screens completed, with application navigation fully mapped. We also plan to begin implementing our machine learning model into the application.

Lucas’s velocity will not be changing in Sprint 2. He believes that if the team keeps its current velocity, then all the remaining work from Sprint 1 will be completed in Sprint 2. If this velocity continues and there are no major blockers for the rest of the semester, then Lucas believes that the project will be delivered ahead of schedule.

Adam may try to pick up the pace a bit for sprint two in order to have the end-user side of this project 95% complete by the end of sprint 2. In addition, he feels that more communication with resident Machine Learning expert Grant Alphenaar will be necessary going forward in order to start laying the foundation for what he believes will be the most difficult element of this project.

Kyle wants to put in more work into coding for sprint 2. Although it's early, he believes the team is on track to complete the majority of the project ahead of schedule - though that possibility will be more clear as the team begins development on the machine learning model.

Burndown Chart



Teamwork Reflections

Lucas thinks that the team is currently working very well together. He does feel that he should work hard to improve his Flutter skills so that he can contribute more to the codebase, rather than focusing on administrative and infrastructure work. He is concerned that each team member could end up siloed and separated from each other because everybody has a different skill set and area of interest. Overall, he has high confidence in the team.

Adam could not be happier with his group as two areas that he thought would cause issues for the group - administrative taskings/structure and graphical design - have actually gone more smoothly than he would ever have realistically expected thanks to the varying skillsets of the members in his group. However, given the fact that he is the only one in the group with prior flutter experience, he feels that there is a balance to be stricken in how much of the Flutter project he codes himself so as not to deprive his groupmates of the opportunity of learning how to use the SDK/do the actual fun part of this project. In order to make sure everyone gets the most out of this, he does try to make himself available whenever groupmates may have questions about Flutter, Dart, Firebase, etc. Overall though, he is very happy with this group and is fully confident that we will achieve our goals.

Kyle feels quite positive about the team's collaboration, especially the group's ability to utilize their diverse skill sets effectively. He sees the diversity not as a challenge but as an asset that lets each member learn new things and encourage each other to share knowledge. Kyle is committed to maintaining good team dynamics, and is confident that these elements are crucial for overcoming challenges and achieving the project's goals. By continuing on this way, he believes they will not only succeed in this current project but learn and improve in their overall technical skills.

Conclusion

In conclusion, the Sprint 1 Report for Team InnoValuation reflects a strong start to the project, with significant progress made towards the development of a comprehensive mobile application. Despite facing some unexpected challenges, the team has demonstrated good adaptability and a collaborative spirit that shows their commitment to the project's success. The reflections from each team member bring about a team that values diversity in skill sets and an environment where learning and mutual support are at the forefront of their work. The problems encountered have been approached with effective solutions, and the team's ability to organize themselves and their strategy as needed shows a strong approach to project management. As the team moves into Sprint 2, they are confident in having a solid foundation for growth and development. There is a clear focus on completing the application and beginning the implementation of the machine learning model, and the team is positioned to meet their project goals - setting a positive trajectory for the remainder of the project.