**Weekly Journal**

**CS 598 SD I & II**

**Adam Carrell**

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**Sept 6 – 12**

Had a team meeting and agreed on the project to develop, a Flight Delay Prediction System. The idea is to pull public flight data and incorporate machine learning into when a particular flight is more likely to be delayed. Delays hurt travelers as well as airlines, and being able to discover how and why these delays happen would be beneficial for all parties involved in air travel. Our goal is to develop a prediction system that can curtail this issue, or significantly improve it at least.

A team member has flight experience already so he has some insight and thoughts on solutions.

Upcoming weeks goals are to begin collecting data and to begin sorting and compiling it to easier pull any useful information that will help develop our system.

**Sept 13 – 19**

Held team meeting on skills assessment and how comfortable we are with certain software aspects. Discussed what to focus on learning in Python that will be applicable for project. One member began to pull data to help visualize what fields we can incorporate into our database.

Goals next week include beginning to become more familiar with Python and pull more flight data.

**Sept 20 – 26**

Team meeting consisted of discussing progress of learning Python and also completing our Project Planning paper. Each member has contributed 2-3 sections required and our communication has been good. By completing the paper, we can more easily visualize the timeline we will be sticking to this semester, and know how we stand schedule-wise.

Goals for next week include taking the feedback from our classmates (if we present this week) or observing issues other groups might be facing and if their issues might correlate with issues we could run into during our project.

**Sept 27 – Oct 3**

Team discussed the feedback from our presentation. The main thing was that the distribution of knowledge was skewed to one person, which we knew as a team; one team member is more knowledgeable of the topic of our project at this point, but things will even out as myself and the other member learn more during research and development of the project.

Goals for next week are continuing research and skill development since we will not have class.

**Oct 4 – 10**

We discussed the upcoming skills assessment, then touched on the service-learning opportunity.

Goals for the upcoming week include turning in the service-learning paperwork and preparing for the skills assessment.

**Oct 11 – 17**

We went over our thoughts on the skills assessment and talked about resources for improving our code developing skills.

Goal for next week is to complete and turn in the Technical Product Specifications paper. We have a solid grasp on what we want and what we need, so the paper should come together well and reflect our current comfort about the project.

**Oct 18 – 24**

The team worked on and competed the Technical Product Specifications paper. We also kept researching and developing the first parts of our project. I am focusing on the database portion right now, so I have begun familiarizing myself with SQL and PostgreSQL, since that is what we will use for our database. So far it has been straightforward and easy to comprehend, allowing me to begin on the database design.

Goal for the upcoming week is to continue learning the SQL language, and also to complete the Block Diagram assignment.

**Oct 25 – 31**

This week we talked about our skills assessment, (we all passed, woooo), and how we each were doing with the block diagram assignment. Since I am working on the database portion, the corresponding parts of the block diagrams were straightforward for me.

Our upcoming goals are to have a somewhat working prototype, but we know it will not be producing correct results yet, as we have a lot of work to do concerning the machine learning algorithm and implementing it across the data.

Another goal for the upcoming week, where we will interview three individuals in regards to our project. We hope to gain some insight or point of view we haven’t thought of yet.

**Nov 1 – 7**

We completed the Product Reflection paper and gained some different views from those we interviewed. I myself received good feedback from my interviewees and had a lot of fun getting my answers. It gave me some thoughts about the project, namely about building a phone app the second semester, as it is essential if our project is to be used by both sides of air travelers, the airports and the customers.

Upcoming goals are to continue our development and also discuss second semester to do list. We need to set up a good timeline in which to complete things, as we don’t want to fall behind when we are approaching our proverbial college finish line.

**Nov 8 – 14**

Building off of our product reflection paper, we have to decide if we have the capability to provide a useful product to the airline industry or just to the consumer. It seems we are leaning to primarily consumers at this point, so we need to nail that down.

Upcoming goals are to continue our development and also discuss second semester to do list. Also, we have the showcase coming up, so we need to produce a video and prepare a presentation with a semi-polished product, even though we know it will be unfinished at the time.

**Nov 15-28**

We produced a product video and prepared a presentation for the showcase next week. The video discusses our application and what we envision it looking like. We are still tinkering with ideas on what applications to use inside our project as we discuss the architecture.

**Nov 29-Dec 5**

This week had us presenting at the showcase where we were “interviewed” by Fujian. He asked some good questions and gave some helpful tips to Karam on the machine learning aspect of the project. Even though the winter break is here, we all agreed to keep doing some research on components that relate to our respective project portions.

**Feb 7-20**

This week I looked into several APIs for the database. I believe I decided on using AeroAPI. It is full of dynamic data that fits our purposes and is free to use as a basic version, with minimum pulls of data. If we end up needing it for a large number of users, we can upgrade it accordingly.

My task for this upcoming week, aside from moving forward with integrating AeroAPI, is to look into Firebase, which is a developer tool to help build mobile and web apps. If we can reach our goals and stay on schedule, we might be able to showcase a rudimentary app.

We also recently decided to drop having a weather variable for the application. We wanted to keep it, but the difficulty of integrating it in time and having it perform accurately is likely outside of our ability and time constraints right now.

**Feb 21- Mar 6**

The past two weeks had us move away from AeroAPI, along with the backup API, as they were no longer feasible to implement and had unknown restrictions. Similar issues arose on the front end, and even with our machine learning. Due to these developments, and general time constraints we all face, we need to consider other options.

We face the hard question of sticking with our original prediction idea or of turning towards implementing a statistical analysis of our data. While we all want to continue on with the project as intended, we need to realistically consider our time constraints and being able to finish a viable product that works to our satisfaction.

On the positive side, I have finished several PostgreSQL tutorials and modules and have a decent aptitude for it now.

**Mar 7-27**

After the events from the previous two weeks, we decided to stick with our full realization of a working application instead of a data analysis tool. We feel it is attainable within the last several weeks of class since the front and back ends are coming together.

With the database mostly finished, the next step is to get it communicating with the front end and machine learning, which is not a simple process for us. The kinks in the machine learning are still being worked out, with some technical roadblocks getting in the way. I am not wholly familiar with machine learning, so I am trying to become more familiar and learn how the process works and the different machine learning algorithms involved.

**Mar 28- Apr-10**

This week began our peer reviews, with tomorrow being our final two to complete. The team that reviewed us asked good questions and made us think of possible avenues to take with finishing our project. The front end is almost complete, with the database complete and just being tweaked as needed by the machine learning requirements.

We are still working on the machine learning, as it is proving quite a formidable endeavor. With only one group member having a decent understanding of it, I am wondering if we will need to adjust our expectations accordingly with the end result. As we near the end of the semester and homework and exams pile up, our time is running short.

**Apr 11- Apr-24**

Last week saw the end of our peer reviews which went well. It was helpful to see other teams’ projects and see their thought process as they walked through their respective steps and portions they worked on.

As we are coming down to the end, we are still working on the machine learning integration with our other components. The front end is being touched up to have more eye appeal, so with all of us able to pitch in on the machine learning we should be able to resolve our issues. This experience has really shown me how complicated integrating different portions of the application can be, especially the machine learning, which is a new thing for two of us. When we do get it working it will be a great feeling of accomplishment.

**Apr 25- May 6**

The last weeks of the semester saw a flurry of activity as we tried to nail everything down and have it presentable. The machine learning is being tended to by Karam because it proved too much for Andrew and I to help, and since the database is completed and working as intended, I helped Andrew work on the front-end user interface. We primarily worked on the visual aspect as it is workable and just waiting for a machine learning connection.

Open house is approaching and as such we are readying our final presentations, videos, documents, and also working on our IEEE paper. We have quite a few hours involved in it because it is so important for the class and we want to have it as industry standard as possible.