SE 491 WEEKLY REPORT 2

sdmay20-25: Consumer Aware Warehouse Management

9/24/19 – 10/6/19

Team Member	Roles
Jimmy Paul jpaul@craftydelivers.com	Client
Goce Trajcevski gocet25@iastate.edu	Advisor
Lindsey Sleeth lssleeth@iastate.edu	Meeting Scribe Project Manager Software Developer
Sam Stifter stifter@iastate.edu	Test Engineer Software Architect Software Developer
Omair Ijaz oijaz@iastate.edu	Quality Assurance Engineer Meeting Facilitator Software Developer
Jameel Kelley jamkelley22@gmail.com	Report Manager Software Architect Software Developer
Andrew Smith arsmith3@iastate.edu	Database Administrator Quality Assurance Engineer Software Developer
Elijah Buscho elijah@iastate.edu	Test Engineer Software Developer Proj Manager

Weekly Summary

Objective

The objective of the week was to work on the design document and define standards for our group, as well as, get started with the database and configuring it for our needs and learning how to pull data from it so that we can start to prototype.

The group continued to have meetings with both the client and advisor and obtained resources from the client that help to better define the business operations so that we may understand what the solution should look like.

With our advisor we discussed what would be some core deliverables for senior design and also for our client to check in with us and make sure that we were on the same page in terms of the solution. We discussed methods for forecasting to think about data forecasting and what role that will play in our solution. We discussed how we can do analysis on the data and what some coding techniques might look like.

Going forward, the team will set up a process for iteration on project requirements, as well as, solidify a draft of requirements and the associated tools used to do requirements analysis. Additionally, the team will work on researching technologies and helping to build the requirements specification.

Summary of Weekly Advisor Meeting

In the weekly advisor meeting, the team discussed the technology stack that should be used to implement the solution and what type of research we should do to vet the technology before we begin a working prototype.

- What tech stack should we use?
- Should the data be represented as an adjacency list or adjacency matrix? What are the pros and cons of both? What are the pros and cons given the data we have and how we will likely be using the data?
- What challenges and benefits does Machine Learning bring?
- What are some coding techniques that can be applied for our solution?
- What to do if we find ourselves in a position where we don't have enough data?
- What is forecasting? How will forecasting be used?
    - Learning or deep learning for prediction
    - Survey on deep learning. How good is it? What advantages does it bring?
    - Look at each product separately and generate a demand series using time forecasting
    - Should we do forecasting vs. a demand series? Why?
    - What type of prediction is our client looking for? Can we quickly jump from one to another if we begin prototyping one? Can we merge the solution if we have to do this? Will we lose anything?
    - Python or java?
- Show different avenues we are exploring for our solution in our design document
    - Show from version to version what we have refined based on our tests and findings
- What can our client provide in terms of funds for data storage, software, etc.
    - What type of support would that give us for the data?
    - Will we face issues with data conversions?

Past Week Accomplishments (Individual)

Lindsey Sleeth
This week I worked on defining a timeline for the project in the first version of the design document. I developed the executive summary which included development standards and practices used, engineering standards, requirements summary, applicable courses from Iowa State University, and new skills and knowledge that was not taught that we will have to learn.

Elijah Buscho

This week I worked on the project timeline and feasibility assessment. As a part of that work I developed a Gantt chart for the Fall semester and a Gantt chart for Spring.

Jameel Kelley
This week was dedicated to working on fleshing out the first version of the design document. I worked on sections 1 and 2.4 to begin to get an idea of what the scope will be. We created a block diagram of the architecture and I created a virtual diagram of that in draw.io. Finally I created a process diagram that allows us to better understand how the work will flow for our system.

Andrew Smith
I worked on figuring out what type of development process we are going to be using, which in this instance is agile. I also researched previous work related to the project which is a lot. I found what deep machine learning is in industry with a walmart example and also found a simple regression outline. I worked on the tech stack description and tasks decomposition.Started to research gantt chart software found agantty which is free and ok but not that great.

Omair Ijaz
This week we generated important artifacts that are crucial early on in the development process. As a group we got together and created a mockup of the architecture of the project. Individually I worked on a few sections of the design document. This required me to do some research on my own. I specifically looked into risks our project has and we can avoid them. The most common risk in these kinds of projects are lack of technical knowledge and not researching enough into the technologies we will use. I think we can overcome these risks if we take some time next week and research topics relevant to the project. As a group we decided on our milestones for this semester and the next. This will prove to be vital as it will set our pace for development and deliverables.

Sam Stifter
This week I worked on generating the initial revision of the design document. I worked mostly on the testing section since I have the role of test engineer. I researched testing frameworks that we can use in our project. Using the research, I completed a testing framework for the project. By defining our testing framework early, we can make the tests before writing the code, and use test-driven development to ensure that our code is working properly as we develop it. I also defined different testing acceptance criteria so we know if we are fulfilling the tests or not.

Name	Individual Contributions	Hours this Week	Hours Cumulative
Lindsey Sleeth	Requirements analysis, requirements artifacts, design document, project timeline, feasibility, effort requirements	10	20
Jameel Kelley	Automated testing research, pipeline research, diagram creation, Design document writing	17	32.5
Sam Stifter	Design document, testing framework development, testing utilities research	16	31
Andrew Smith	Design Documents and research into gantt chart software	15	29
Omair Ijaz	Design Document, Risk analysis, Technology Document, Project Milestones, Organized meeting times and location.	15	31
Elijah Buscho	Design document, project timeline, feasibility assessment	15	29

Plans for the Upcoming Week

- Research
    - Automated testing
    - Pipeline CI/CD
    - Designs for user interface to interact with solution
    - How to create better constraints and requirements document for requirements analysis
    - PostgreSQL database
    - AWS hosting
    - Forecasting
    - Project management tools and team workflow
- Working example of database
- Design Document
- Software requirements specification

- Context Diagram
- Business use case scenarios
    - Product use case scenarios
- Functional and non-functional requirements