

SE 491 WEEKLY REPORT 1

sdmay20-25: Consumer Aware Warehouse Management

9/10/19 – 9/23/19

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
Omar 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 have initial meetings with our client and advisor to define our project requirements, envision a general solution, and to define the project timeline.

Tasks Completed

The group scheduled a joint meeting with our client and advisor and used the time to understand the project requirements and discuss expectations, general solution, project timeline, processes, and initial research to complete. The group also scheduled recurring meetings for the upcoming weeks with the client and advisor to serve as weekly touch-points throughout the project.

With our advisor we discussed high-level implementation details about the project to jumpstart some questions that we might research. Specifically, our advisor discussed SQL databases on a large scale and gave some great recommendations about how we might want to design our solution given that the solution will primarily be based off of the large set of data that we will receive from our client Crafty LLC and will be required to continuously update and use for the solution. Our advisor also defined some questions that we should ask our client in order to start a meaningful requirements analysis process.

In addition to the client/advisor meetings, the team set team decided on individual roles which will decide how work is partitioned, scheduled time for weekly meetings, and analyzed the Design Thinking process to emphasize and ideate about the problem and potential solutions for the client Crafty LLC. This led to a short list of requirements for the project, with the understanding that we need to iteratively work with the client to refine these and use them to design and test the solution that we implement.

Going forward, the team will have several types of meetings; once weekly with our client, once weekly with our advisor, and three weekly team meetings. In each meeting, we will discuss agenda items, upcoming deliverables, as well as, set an agenda for the next meeting.

Summary of Weekly Advisor Meeting

In the weekly advisor meeting, the team discussed the data sources and some initial software architecture decisions. The advisor gave us some suggestions as to the direction we should go with the project as well as some background and suggestion on relational databases.

- Ask your client questions, be proactive about designing a solution
- Understand the client's business well and understand what type of solution the client is looking for
 - A predecessor team worked with our client to build sensors that could automatically update data in the database -- what does this look like?
 - How often does the client order new product and how is this represented in the data?
 - What is the real problem we are trying to solve?
 - What does the client see in an ideal solution to the problem? Does the client have preferences? If so, why does the client have those preferences, and to what degree should we take them into consideration when designing a solution?

- Think about what data we have access to and how the data is being represented currently and how we should represent it for the project
 - What are the data sources?
 - How do we query the data? Think about the number of joins and how that affects the data representation.
 - What are the database views?
 - Every table must have a schema
 - When there are nested queries, you may want a relation table to be there. You will need to create a view as a saved answer to a query for some things. What things are views? Otherwise you may be computing too much on demand
 - We can't go crazy updating the view. What is done in practice? Do not update the view with all updates of the data. Accumulate updates and do it as a bulk update that is scheduled or may be pulled upon request.
 - If you have too many views this could be a headache
 - Catalogs?
 - Materialize the view by storing it in an entry in the catalog.
 - Tables should be compact (in the normal form)
 - Should we consider JDBC?

Past Week Accomplishments

Group Accomplishments

Collectively, the group met with our client and advisor to understand the problem and a proposed solution. The group learned that the client has a large set of data that we will be used to forecast upcoming data trends which will be used for reordering of the products that the client maintains for their business services.

Because data is the focal point of the solution, the group came up with a list of questions for our client to get answers to during the week's meetings and discussed the answers to these questions with the client.

- What type of data can we get from our client?
- What type of queries is our client interested in?
- How does data enter the system? Are there any triggers for fetching data? Sensors, time, etc.
- What are some tasks of interest that the solution will implement?
- How is the data stored? Schema, language, etc.
- What does the warehouse look like at Crafty?
- How does Crafty recommend we design our data representation?
- What type of database does the data come from?
- How can we gain access to the data?

Our next tasks that were defined were to research inventory forecasting and continuing to iterate on requirements to specify what the solution will look like and how it will be tested. Additionally, we will want to define a basic tech stack and then do research on whether those selected technologies will be the best for our solution.

Individual Accomplishments

Lindsey Sleeth

I was assigned the roles of Developer, Project Manager, and Meeting Scribe. During the meetings I kept good notes and helped to understand the requirements of the project since I am currently taking software requirements engineering (SE 409). I worked with Jameel to research how to write requirements and how to discover and distinguish between functional and non-functional requirements. Together we defined what we thought would be a set of basic requirements based on the conversations that we had with our project advisor and client. We decided that moving forward we will use the Volere Requirements Process for requirements analysis and the EARS template (Easy Approach to Requirements Syntax) as tools for how to elicit and write the requirements for the solution.

Elijah Buscho

I contributed to all meetings.

Jameel Kelley

The first two weeks of the project consisted of project meetings with the team, advisor, and client. During this process I was assigned the roles of Developer, Report Manager, and Architect. My duties over the first couple weeks have consisted of updating the website with updated roles, pictures, biographies, and links to the meeting notes. Additionally, contributing to the architecture diagrams, documenting the diagrams on draw.io, and reviewing meeting notes and reports..

Andrew Smith

I attended all the meetings where we worked on all the things needed for this course. Worked with team members to fill out roles. I also researched PostgreSQL. We are looking into PostgreSQL because that is what our client is using and used in industry. PostgreSQL is based on MySQL

Omar Ijaz

I was assigned the roles: Meeting Facilitator, Software Developer, and Quality Assurance Engineer. The most active role for this time period was Meeting Facilitator. For this role rooms were scheduled for the meeting and the questions for the meetings were asked by the Meeting Facilitator. In addition all this information was communicated through slack.

During the introductory phase of this project, a lot of research into various solutions was done. This research included database details, various machine learning approaches, server availability, and research into our client; Crafty. Specifically the database management system that I looked into was PostgreSQL. The machine learning approaches include: linear regression and deep learning. Finally we will be going with the free tier AWS service, ec2.

Sam Stifter

Through the introductory phase of the project, I was assigned some roles for the project. I have the roles of Software Architect and Test Engineer. As the software architect I will be responsible for many decisions such as language choices, communication between the different modules, and more of the overall software module communication. As the test engineer, I will be responsible for running tests on the software as well. This will be focused on for the second half of the project.

Name	Individual Contributions	Hours this Week	Hours Cumulative
Lindsey Sleeth	Researched requirements, elicited requirements, defined project requirements, took notes for meetings, created templates for meeting notes and weekly updates	10	10
Jameel Kelley	Updating website & reviewing documents	15.5	15.5
Sam Stifter	Research on the languages and frameworks already in use by Crafty, evaluating usefulness for us.	15	15
Andrew Smith	Attended all meetings and helped with role assignment	14	14
Omair Ijaz	As meeting facilitator for this cycle, rooms were reserved, meeting notes were refined, and team members were informed of future updates. Research on various techs.	16	16
Elijah Buscho	Contributed to all meeting discussions	14	14

Plans for the Upcoming Week

- Requirements elicitation & analysis (Lindsey & Jameel)
 - Continue to use the Volere Requirements process and the EARS template to come up with questions about the project for our client to define the solution
 - Create context diagram and requirements specification documents such as business use case diagram and scenarios

- Finalize team member section of website (Jameel)
 - Each team member will submit a couple of sentences and a photo about themselves
- Develop and review component architecture diagram with advisor (Jameel)
- Researching and discussing the tech stack for the project with our advisor and the client
 - AWS
 - List other technologies here
- Research languages and infrastructures
 - Discover languages and infrastructures currently used at Crafty and propose solutions based on this
- Set up database
 - Choose database
 - Get data from Crafty
 - Learn how to query data and how Crafty's data is organized