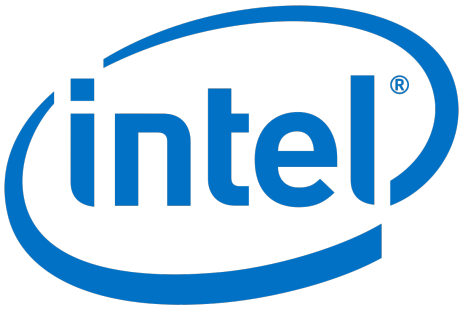

CS Capstone Progress Report

December 3, 2019

Dual-Screen Application

Prepared for

Intel

Mike Premi

Prepared by

Group 66a

Duo Tech

Sachin Sakthivel

Rosalinda Garcia

Derk Kieft

Matthew Ferchland

Abstract

This document's purpose is to serve as the current historical record of the Fall term for the CS Senior Capstone course. It begins by briefly describing the overview of the project. Next, it discusses the problems encountered during the past ten weeks and potential solutions. After discussing the problems, the document gives a synopsis of each week during the Fall term. Finally, the document concludes by providing a retrospective table and current status.

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1 Project Overview

It was proposed by the sponsor, Mike Premi, that the Asus ZenBook Pro Duo needs more applications that accommodate the second screen of the laptop. Since the notebook has limited applications, we thought the best way to solve this problem was to create a shell application that can be utilized with other secondary programs. The purpose of the shell application is to allow users to save and load custom window handler layouts of different applications. In addition, if time permits, the team will create additional apps using the shell to improve the functionality and usability of the laptop.

2 Problems Encountered

Throughout the Fall 2019 term of CS Senior Capstone, our team has encountered several problems. Below are the three most prominent issues that we faced.

2.1 Group Size

The first problem that we encountered as soon as we were assigned our capstone project was the group size. We initially had nine members in our group which made it hard to collaborate due to differing opinions and time conflicts. We solved this issue fairly early by having a group meeting with our sponsor who split our groups based on interest and available time. This made communication and assignments a lot more coordinated and focused.

2.2 Scope

The second and probably the biggest problem we encountered was the project's scope. Since the project was fairly open-ended, it was initially proposed that each team member should create their own program that solves the problem. However, this made group documentation difficult to write and made it feel like there was minimum teamwork involved. To combat this problem, it was proposed by the professors and sponsor to make a collaborative overarching program with the possibility of creating secondary applications. This made it a lot easier to write our group assignments and it also significantly improved our teamwork.

2.3 Documentation

The Fall term for the CS Senior Capstone class focused primarily on documentation. As mentioned previously, due to group size and scoping conflicts, it was difficult to write the early group documents. In addition, a lot of the requirements for the documentation were ambiguous and contradicted with the IEEE format. However, as the term progressed, the documents were easier to write as we became more familiar with the structure of the course and project.

3 Weekly Progress

3.1 Week 1

This week was focused on applying for projects and discussing project assignments. Thus, no work on the project was completed.

3.2 Week 2

During week 2, we began work on the project. We started by drafting our individual problem statements. This involved writing a formal discussion of the purpose of the project and what overarching problem our product was solving. Each of us discussed the problem and how our product would provide a solution as well as how we will evaluate the solution.

3.3 Week 3

During week 3, we began to collaborate as a group. We got in touch with our client, Mike Premi from Intel, via Skype and discussed project goals and structure. Based on this discussion, the larger team of 9 members split into two groups, 66a (4 people) and 66b (5 people). These subgroups decided to find separate solutions to the overarching problem and based on this, decided to create separate documentation for group 66a and 66b. After having split into subgroups, we began working on the requirements document for our project. For this, we split the work evenly between the four group members.

3.4 Week 4

During week 4, we completed the first draft of the requirements document. We also discussed the best methods of handling the subgroups with the class instructors. Based on this, we decided to keep in touch with the other subgroup (group 66b) in order to stay on the same page about the project. We also began to clarify the purpose and future plan of the project as there was some confusion over the organization and implementation.

3.5 Week 5

We received a few different testing monitors from Mike this week. We have a couple of screens that will be useful for testing any dual monitor programs while the other monitors could be more efficient for testing the companion screen. In addition, this week we focused primarily on the tech review. However, at this point, our tech reviews were all different because we were working on separate projects. To remove some overhead and extra work, we decided this week to combine Sachin and Matt's project into one, since the functionalities correlated well. We pitched the idea to Mike and got confirmation from him at our weekly meeting.

3.6 Week 6

This week we focused on research for the tech review and finalized some past documents. With the issues from the previous weeks and this week, we brought up our concerns with Professor Fairbanks, who also agreed that this project was incorrectly formatted for capstone. In addition, he offered some helpful recommendations and a potential solution. Due to the concerns of working on individual projects, we decided that working on a single project would be ideal. We also got Mike's support in our weekly meeting for the change.

3.7 Week 7

This week we confirmed the topic for our project and the assignments felt a lot easier to complete. We were also able to decide that the Win32 API module would be the most useful library for this project.

3.8 Week 8

Week eight was focused on writing the design document. While writing the document, we were able to formalize a lot of future implementation features. We had some initial confusion on the design document, but our meeting with Stephanie helped clear up our issues.

3.9 Week 9

This week didn't have a specific agenda other than editing some documents and writing the progress report. On Saturday, we forwarded our completed documents to Mike for review.

3.10 Week 10

The final week was spent finalizing the progress report and amending any documents based on Mike's feedback.

4 Retrospective

The following table contains a reflection of the Fall term for the CS Senior Capstone course. It describes the positives, changes that need to be implemented and actions required for the next two terms.

Positives	Deltas	Actions
Client provided touch screen monitors for testing	Need more development time	Create a window handler prototype using C#
Client is providing Asus system for testing/development	Need more detail in past documentation	Coordinate pickup time for laptops from client
Completed documentation	Need to obtain Asus ZenBook Pro Duo Laptop	Create a timecard for laptop usage
Weekly feedback and discussion with client	Decide on performance metrics	Further research on how to have a successful user experience

5 Current Status

The current status of the Duo tech project is on target for the class expectancy. As discussed above, we came to an agreement that our efforts would be best spent focusing on a shell program that will allow the window handler configuration of most programs and potentially expand into secondary applications. While this change in strategy set the project behind at first, we were quickly able to pivot into the new direction and complete assignments on time.

Almost the entirety of our accomplishments this term have been documentation and research. That being said, the team is eager to use the documentation to implement the application in C# in the next few months. We will also be receiving the loaner Asus ZenBook Pro Duo systems from Mike for development and testing.