*Jack Parcell, Elizabeth Dixon and Alea Alvi*

*SE361 | Spring 2024*

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Final Report

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# Section 1: Team Members & Roles

## Jack Parcell

Jack Parcell served as the Scrum Master and lead back-end developer, while also contributing a great deal to the overall database design, front-end development, and front-end design. He is a senior Computer Science and Economics double major.

## Elizabeth Dixon

Elizabeth served as the lead front-end developer, focusing on improving the user experience and user interface portions of the project. She also contributed to some facets of back-end development, mainly unhandled exceptions. She is a junior Software Engineering and Music Industry Studies double major.

## Alea Alvi

Alea served as a database designer and was pivotal in developing the first ERD that later evolved into the final ERD. Contributed to general back-end development within the first three sprints, but contributions became limited in Sprints 4 and 5 due to medical complications. She is a junior Computer Science and Biology double major.

# Section 2: Project Description

The Insurance Claim Management System is designed to be a web-based application utilizing windows forms. It is meant to facilitate the transfer of relevant information across a hypothetical insurance company to allow for “effective decision making for clients, insurance administration, claim and financial accounting in a seamless flow.

Users should be able to:

* File a claim
* Register other users
* Generate reports
* Transfer files and other information regarding a claim
* Send Messages
* Other typical things such as edit profile

The four user types are:

* Client
* Administrator
* Claim Manager
* Finance Manager

# Section 3: Sprints

## Sprint 0:

The main goal of Sprint 0 was to choose the project that we would like to work on, assign roles to each group member, and begin thinking about the best ways to go about completing our project. A Trello board and a GitHub repository were created for version control and progress tracking purposes. User story descriptions for our selected project were also created. Sprint 0 review was held on February 5, 2024.

## Sprint 1:

The main goal of Sprint 1 was to get a good start to the project so that we would have momentum for the rest of the semester. Much of the work focused on the front-end design of the project. The Homepage, Claim Form, Claim Viewer, Profile View, and Message Form were all created. However, we had yet to implement associated functionality to go with these forms. An Azure SQL server was also created to allow us to save Claims, Users, Messages, etc. to a database for future manipulation. After the SQL server was created, Alea got to work on creating the initial ERD. The User Entity was a supertype, with Client, Claim Manager, Finance Manager, and Administrator created. Because of this, the ERD was very complicated, but it was a good place to start. The team dealt with some teething issues related to GitHub and getting used to version control in a group setting, but they were quickly ironed out. Sprint 1 review was held on February 19, 2024.

## Sprint 2:

Sprint 2 brought forth a large amount of progress on the project. Our plan was to focus on the client side of things, starting by allowing the user to log in and create a claim. To do this, the ERD was simplified, with the understanding that it would be later revised, to make project workflow more seamless. Different homepages for different types of users were also created. A large amount of work went to implementing backend development. Jack’s work now allowed for a client to log in, and be able to file a claim, while Administrators were also given the ability to create a user. Elizabeth worked on cleaning up the login. Because of her work, the user’s role in the feature would be clearer and they could now be notified if their username or password were invalid, via red asterisks next to the incorrect entries and message boxes to inform the user of the issue(s). The Sprint 2 review was held on March 3, 2024.

## Sprint 3:

Sprint 3 came with some unfortunate team news. Our original Scrum Master, Davis Botta, withdrew from the class, leaving us one team member short. Despite this unfortunate news, the remaining team members diligently continued work. Jack set out with the goal to polish some of the work that he did in the previous sprint, while also continuing to add further functionality. To do this, he created an updated ERD because he noticed that the existing simplified ERD was no longer cutting it as he was adding functionality. The Submit Claim and Create User functionalities were improved, with the Claim/User Number now being automatically generated. In addition, a user’s user type was retrieved when they logged in. With this addition, different homepages were displayed while buttons were hidden or shown as needed. Functionality was added to allow users to view claims in the database, with clients limited to viewing just their claims while managers were able to view all claims. The result of this query was inserted into a textbox, which resulted in poor formatting, which would be fixed in a subsequent sprint. Finally, a “forgot password” function was generated, which now allowed the user to click “Forgot My Password” on the login screen and be sent an automatically generated email with their new password. The Sprint 3 review was held on April 1, 2024.

## Sprint 4:

Sprint 4’s progress greatly improved functionality across the board. We mainly focused on implementing the functionality necessary to allow the managers to be able to “do their jobs.” We added functionality so that Finance and Claim managers were now able to view claims, and perform actions on them such as Approve, Deny and Pay as they search for unique claim information. The Messaging functionality was also implemented, giving users the ability to send messages to each other. A further goal of this sprint was to clean up how data is displayed, and that was done using the DataGrid View Class in C#. With this class, a user could also download the table to their computer in a PDF format. The Sprint 4 review was held on April 15, 2024.

## Sprint 5:

The goals of Sprint 5 also concerned allowing managers to do their jobs at a high level. Our application now allows a user to upload a PDF to the database and allow another user to view that specific PDF. We also wanted to polish things across the board in terms of design consistency and overall user story flow. While we knew that we were missing some functionality before in the project, we focused on getting the main, most integral details done because of our lack of team members. (Alea was forced to take medical leave in mid-March, limiting her ability to contribute to the group from Sprint 3 onwards.) Despite our obstacles, although we can always optimize features further, we were able to create a user-friendly and usable application that covered each requirement in the insurance claim management system description.

# Section 4: Team Member Reflections

## Jack Parcell Reflection

I very much enjoyed this project. As Scrum Master and the backend developer, I feel that I learned a lot of applicable skills that will help me later in my career. My favorite part was figuring out the different ways to implement the required functionality. In my free time, I often found myself imagining different ways that I could add the needed functionality. Much of the functionality in the project was my work. To my best recollection, the AddUser, AdminViewClaims, FileClaim, ForgPass, Messages, Profile View, ViewClaims, Welcome forms, along with all associated backend implementation, were all my work. I also created the Final ERD. I recognize that it may seem that I was hogging much of the work, but I believe that I was the only one with the ability to complete it in the given timeframe because of my lower course load and progress towards my degree.

## Elizabeth Dixon Reflection

Overall, this project was a highly informative experience for me. I really liked the process behind the whole thing, but I especially enjoyed getting to know my role as a front-end developer and how it interacts with the database and each aspect of the function of an application. In terms of my contributions to the project, I mainly worked on making sure front-end design and functionality was consistent across the board so that each feature would make sense from the user’s perspective as they were added. My most significant contributions lie in the Login Form, the forgotten password features, alerts/message boxes attached to actions, and try catches on database probing. I think this project has been extremely helpful in familiarizing myself with procedures that will be fundamental in my career after school and I’m excited to keep learning about how software is developed in the future.

## Alea Alvi Reflection

While I was unable to contribute to this project as much as I wish I could have, my involvement in the first half of the semester was still very informative for me and I valued the experience I gained working on this project. As stated above, I mainly handled the ERD / design in the database, and I assisted as much in the construction / implementation of it in Azure as I was able to. While I believe my skills are still stronger in back-end development, this project exposed me to elements of front-end development that I was lacking knowledge in before that I will carry with me into the future. I regret not being able to contribute as much as I planned to – both due to a course load approaching semester credit limit and because of documented health concerns – however, I did still keep up with the project’s development as the semester progressed. Even if my experience was partially limited due to outside factors, I was still fascinated by every facet of our project and really enjoyed seeing our application evolve from a simple conversation to a working end product. I believe the experience I gained will be valuable to me regardless of which path my career takes in the future, as what I have learned is applicable in multiple fields outside of just software development.

# Section 5: Conclusions

Our largest goal was to learn how to properly apply the Scrum methodology to a software development project that simulated a real-world scenario. With our work over the past 3 ½ months, we have learned a great deal about the application of Scrum methodology. We believe that we have met our main goal and will be able to take our knowledge of Scrum out into our careers and succeed.

Overall, we enjoyed working under the Scrum methodology. We were able to easily keep track of the work that we had to do, and we enjoyed getting feedback from our peers after the sprint reviews every two weeks.

Our project went well, given the circumstances. We have a working Insurance Claim Management system that allows a client to file a claim, managers to approve and pay claims, and an administrator to create users and grant permissions. Because of our lack of manpower, we did not have the time to implement each user story with the clearest of flows. With a bit more time, each feature could be streamlined to function at a higher level.

In a perfect world, we would have enjoyed having all four group members able to contribute to the project, but because of outside circumstances, that was not possible. We also did not work the most efficiently in some ways. We were not the best at updating the Trello board, and we had some issues with GitHub commits that slowed down progress. However, we feel that we were successful despite our roadblocks and errors.