# Healthware Web Portal

CSc 4350 Software Engineering, Spring 2019

Group #5

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due February 1, 2019

# Our Team

Haqq Tertuliano is a senior with primarily front-end web experience using pure JS and React. He has team experience from volunteer efforts around atlanta such as the Cheese and Wine Festival and the Food Truck Festival. He is comfortable with Java and C++ as well.

Danh Tran is a junior who is pursuing a bachelor's degree in computer science. He is most with Java and C++ but has no out of class experience with his computer science skills. This is also his very first time working in a group dealing with computer science.

Luke Smalley is a junior, majoring in Computer Science. He works in Java and the Node.js platform primarily, with limited experience in front-end web development. He attends hackathons as often as possible. For two years he worked in a retail pharmacy as a technician (which is a cashier except the job title sounds more interesting).

Mimi Do is a junior and has experience with Java, Assembly, and Python, and is currently learning C. Prior to being a computer science major, she was studying biology and has work experience with veterinary medicine and STEM education but no professional experience with computer science.

Yixian Chen is a graduate transfer student with almost no skills in computer science. He is currently gaining experience in Java. In previous experiences in group projects, he has always been delegated the roles of research and designing.

# Team Formation and Project Proposal Schedule

| Assignee | CampusID | Tasks | Time | Dependencies | Due | Note |
|---|---|---|---|---|---|---|
| Haqq Tertuliano | htertuliano1 | Resume, Competitive research, Proposal revision | 4 hrs | Slack, Elicitation, Architecture | 1/31 | 100% |
| Danh Tran | dtran54 | Resume, Elicitation, Proposal revision | 4 hrs | Slack, Architecture | 1/29 | 100% |
| Luke Smalley (Coordinator) | lsmalley1 | Create slack, GitHub, Resume, Elicitation, Architecture, Proposal revision | 5 hrs | Slack, Elicitation | 1/30 | 100% |
| Mimi Do | mdo8 | Resume, Teamwork summary, Elicitation, Proposal scaffolding, Proposal revision | 5 hrs | Slack, GitHub, Resumes, Architecture | 1/29 | 100% |
| Yixian Chen | ychen110 | Resume, Competitive research, Proposal revision | 4 hrs | Slack, Elicitation, Architecture | 1/31 | 100% |

## Teamwork Basics Summary

**Work norms:** The group will decide how each important task will be distributed, set deadlines, and set expectations for quality of work that is acceptable for each task, as well as how the group will proceed if task go uncompleted.

**Coordinator norms:** The group will decide if having the coordinator lead meetings is necessary. If the group deems it so, they then will decide whether that role will rotate as well as specify which roles the coordinator will be taking on. Basic coordinator roles are, but not limited to,: keeping the team on schedule, ensure each member participates, conflict resolution, go-to aid and assistance in project/task help, and summarizing decisions agreed upon. At the moment, our group does not intend to rotate the coordinator.

**Communication norms:** The group should determine what communication mediums will be the most beneficial and efficient for them. Because the Slack app allows us to organize discussions by topic and integrates well with external services (including source control services like GitHub), our group has adopted it as our primary medium of communication outside of class. The project task tracking provided by GitHub for each repository will be used to track our work items.

**Meeting norms:** The group members will conduct schedule surveys and determine figure the best times to hold meetings. The group will also determine who will be in charge of scheduling meetings and what should be done if a member cannot attend or continues to miss multiple meetings.

**Consideration norms:** The group will decide what behaviors are appropriate when working with each other and how the group should change norms of any particular standard makes another member uncomfortable.

There are a couple of behaviors that may be counterproductive when working as a group. The first is being too overly talkative. To counter this, the facilitator can direct the conversation to another group member but if the overly talkative person is unwilling to change, a single group member should speak to them privately and remind them that it is only fair to give others a chance to speak as well. If someone is being too quiet, it is important to encourage them to tell the group their opinion and to remind them that their participation is important. If there is a group member that is argumentative and overly critical, the group should listen to their criticisms and use it to test whether the group work is good. If they are critical of another member, the group should explicitly explain to this person how their behavior is possibly negatively affecting

the group. The last difficult behavior is complaining too much. The group should listen to their complaints, compromise, and solve the problem.

There will be times where the group as a whole may face problems such as floundering and getting off topic. It is important for the group to list out what is needed to be done, focus, and divert any distracting chatting back to what is needed to be accomplished. If there is a time where someone is making a decision too quickly, it is good for someone to check to see where every group member is with the decision. If the opposite happens and no crucial decisions are being made, the group should listen to everyone's idea and figure out a way to narrow down the best ones, such as voting for the top ideas. If there is member have external or internal conflicts with other people, it can affect the productivity of the group so the person having conflicts should talk about their problems, listen, and try to compromise. There may be times where inclusivity may be an issue in a group. The group should actively try to work with everyone, even those who they are not comfortable with. If someone is being uncooperative, the group should directly talk to them about how their behavior is negatively affecting the group.

## Problem Statement

Due to aging baby boomers and other factors, healthcare is a growing industry. Likewise, the demand for affordable health insurance will continue to grow, and companies will race to innovate to lower their rates and gain a competitive advantage. Our goal is to provide the technology to increase sales, increase interaction between customers, healthcare providers and insurance companies, and decrease overhead while doing so.

The Healthware Web Portal is the information systems backbone for health insurance who do not manage their own healthcare providers and locations (non-HMOs). The application serves a public site to showcase plan offerings and to guide customers through the online sign-up process. Customers with policies can log in to the secure customer portal to view and manage their plan, records, and covered care providers. Care providers can register and submit claims through another secure webpage made available by the system. Information is stored and shared with providers according to privacy mandates including HIPAA. Company representatives also have a portal by which claims and information can be managed. Since we are focusing on providing appropriate interfaces for these three categories of users, real-currency payment processing is not within the scope of our project as an educational endeavor.

Our system is similar to that of Aetna, Kaiser Permanente, and Blue Cross Blue Shield such that we allow for the sales of insurance plans, though we are not an insurance company ourselves. Customers will be able to look at their previous health records. Though Blue Cross Blue Shield is a federation of companies that have come together, it mirrors the variability our product will have (Rappleye, 2015). It also allows for customizability and even options to choose governmental plans within their system. There are less restrictions on what can be covered and what can be negotiated, putting more power in the hands of the customer. This is not done so at the expense of the provider. Unlike being a part of a group such as a HMO network, they are contractors of sorts, and good, healthy patients will benefit their business as well.

What we provide is a product that allows for information to be logged, claims and appointments to be made, and data used by patients, healthcare providers, and companies to be stored. Patients will be able to view their results from tests: x-rays, dental tests, scans, as well as recent billings and notes from the doctor. Rather than implementing a messenger style architecture, a simple message-board like UI will be used as direct intermittent communication between the patient and health care provider. This is different from larger companies such as eClinicalWorks and Kareo who provide full demographic information and instant messenger access to primary physicians (eClinicalWorks, 2019; Kereo, n.d.). Instant messenger access seems fast and reliable but may lead to more serious diagnoses being made online or through chat and may also exceed the scope of our application.

eClinicalWorks gives an excellent backlog of data about the patient and uses metrics to prompt physicians about patients who may need reminders. This takes the doctor’s personal

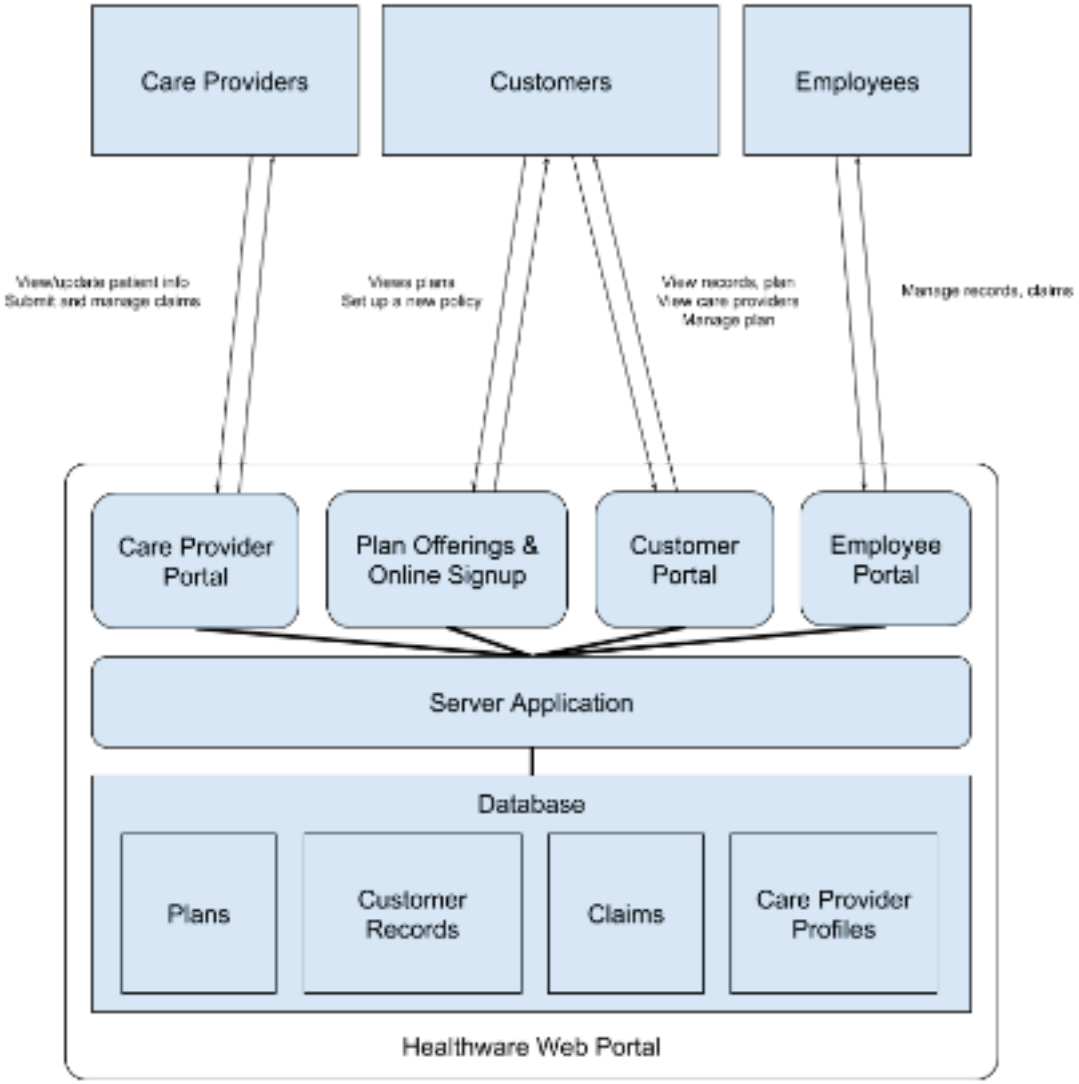
experience and relationship with the patient out of context. Our system allows for doctor discretion on what can and needs to be said to the patient online versus in person. Our approach is more personal, similar to that of Kareo, which incorporates the doctor's notes much like our system will (eClinicalWorks, 2019; Kereo, n.d.). What both of these systems lack is interactivity from the patient. They are systems only for the provider, and that will not incentivize large purchases because providers are patients themselves. Our system includes access by the patient and allows a feeling of control over their health while keeping the privacy of important updates or results that should only be revealed in person. All these options from other companies and softwares amalgamate to our idea, but the difference is that our system is only hypothetical. Aetna and Kaiser does exactly what we do besides that they sell their own health insurance Aetna Medicare or the likes. But, we provide a space for health insurers that are non-HMO to sell their coverage plan. Our product can also be good for startup health insurance companies. The claims process will also be under one system, so between the health insurer and care providers, handling claims will be faster and efficient.

Building this system requires a team that understands the fundamentals of web application development, securing sensitive information from consumers and health care providers, and creating a clear and easy-to-navigate interface for users. Our team is familiar with both browser and server-side technologies as well as practices for storing user data, making this a project that fits within the scope of this class. The accessibility aspect of the webpage will include tabindex and focus manipulation. This will be in order to aid those who may use a screen reader, or hearing aid when using our site. Audits will also be performed on the site's performance and speed, for every second more a page takes to load, seven percent of users leave the site. And these are technically interesting aspects of the Healthware Web Portal.

## System Requirements

To build the Web Portal, our team will develop two primary parts of the application: the back-end (server application) and the front-end (webpages to be presented in users' browsers). The back-end application will rely on a database provided by existing relational database software, which we will configure and integrate with our system.

Shown below is a high-level diagram of the architecture of our product, showing also intended interactions with our three main user categories: insurance company customers, care providers, and insurance company employees.



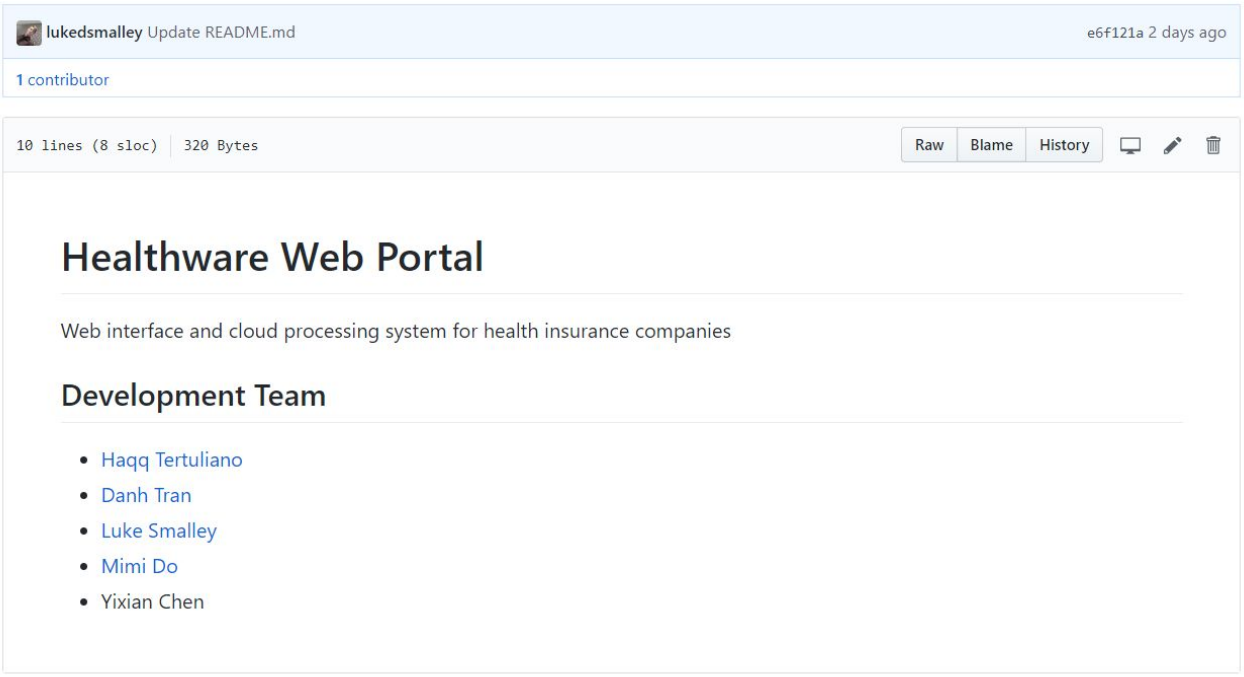
# Appendix

**Important links:**

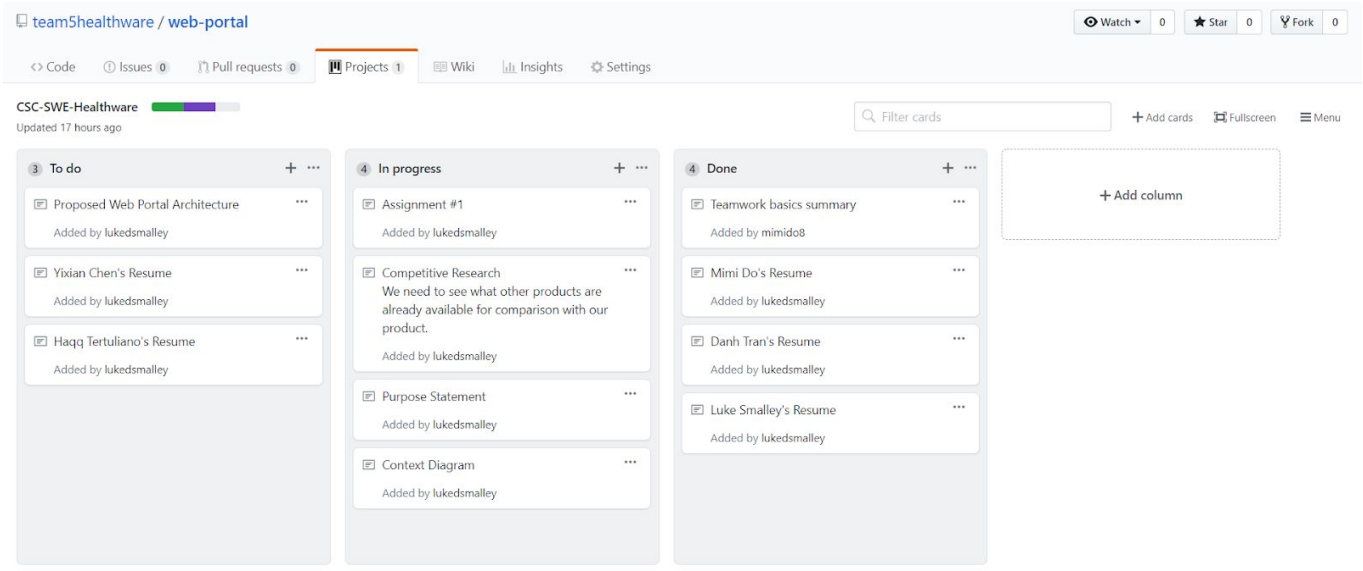
1. **Github:** https://github.com/team5healthware

**Screenshots:**

## GitHub README




## GitHub Project



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