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EE461L Phase 1

Project Plan

In this project, we will implement a Proof-of-Concept (PoC) for a web application for a functioning Hardware-As-A-Service system (HAAS). This PoC app is inspired by the University of Utah POWDER program. This project will include both features based on stakeholder needs and additional features that exceed the stakeholders needs. We will create a Minimum Viable Product (MVP) for the PoC.

This PoC web application will satisfy the following stakeholder needs and system requirements:

Stakeholder Needs

1. SN0: Generally accepted quality and reliability metrics
2. SN1: Create and maintain secure user accounts and projects on the system
3. SN2: View the status of all hardware resources in the system
4. SN3: Request available hardware resources and datasets from published sources
5. SN4: Once approved, checkout and manage these resources
6. SN5: Check-in the resources and get billing information
7. SN6: Deliver PoC within budget and schedule constraints, with features for efficient progression to the deployed app

System Requirements

- SR1: PoC shall be delivered within budget and schedule constraint, with periodic updates to stakeholders
- SR2: PoC App shall have a front-end web application that allows users to enter inputs and views outputs
- SR3: PoC App shall have a mechanism for encrypting user-id and password
- SR4: PoC App shall have a mechanism for creating new project or accessing existing projects
- SR5: PoC App shall have a database for maintaining user login credentials, project codes, project details, resource details
- SR6: PoC App shall be hosted on cloud for easy accessibility
- SR7: PoC App shall work reliably at all times
- SR8: PoC shall provide capabilities for efficient progression to a deployed app
- SR9: PoC App shall have a mechanism for requesting data from published data sources
- SR10 PoC App shall a mechanism for retrieving information from the database

Github will be used to manage the execution of the user stories as each team member gets assigned to and works on each one individually. Our project board will track the progress on the user stories where we will be pushing and committing any updates. Team members can view tasks that are new, in progress, and done. As we progress through the project, we will utilize the issues section of Github to note any issues any team member runs into while developing the web application. Other members can view the current issues a team member may be facing and can help find a way to debug/solve the problem.

The scrum team will consist of the Scrum Master, Product Owner, and Developers.

The Product Owner role will be assigned to Rithvik. He will be accountable for managing the scrum backlog, the Sprint results, and assuring the goals of the stakeholders are met.

The Scrum Master role will be assigned to Bharath. He will ensure that the rest of the development team engage in the scrum process by organizing clear goals. Essentially, he manages the team, fosters productivity and remedies any impediments.

The development team members will create usable features of every Sprint as well as define the goals for every Sprint.

We will be meeting on Mondays and Thursdays for our weekly meetings at 7pm to discuss our goals and progress. Instead of a Daily Scrum meeting, we will keep in communication every day in our GroupMe chat.

We will split up our team into two pairs. Cathy and Chloe will work on the user stories associated with the User Management and User Interface features. Rithvik and Bharath will work on the user stories associated with the Resource Management and Data Access features.

Initial User Stories

<u>User Management</u>

1. As a new user, I want there to be a pop-up display that allows me to create an account with a new user id and password.
2. As an existing user, I want there to be a sign-in area where I can log in and can access my account.
3. As an existing user, I want there to be a display area to create a project with a project name, description, and ID.
4. As an existing user, I want my credentials to be encrypted so my account is protected.
5. As an existing user, I want my user information to be stored in a database so that I can log into my existing account.
6. As an existing user, I want to be able to view the projects I have made in my account so I can easily view each of them.

7. As a user, I want to be able to have my billing information saved so my payment method is remembered when I checkout HW sets.

Resource Management

8. As a user, I want there to be a display area where I can see the capacity of HW sets.
9. As a user, I want there to be a display area where I can see the availability of HW sets.
10. As a user, I want to be able to check out a HW set so I can use it.
11. As a user, I want to be able to see how much it would cost to check out a HW set.
12. As a user, I want there to be a display area where I can track and see how many units of HW sets I want to checkout and later check in.
13. As a user, I want to be able to access any of my checked out HW sets when working on individually created projects.
14. As a user, I want to be able to store and retrieve HW information from a database.
15. As a user, I want to filter HW set inventory by capacity and availability so I can plan out what HW sets I want to check out.

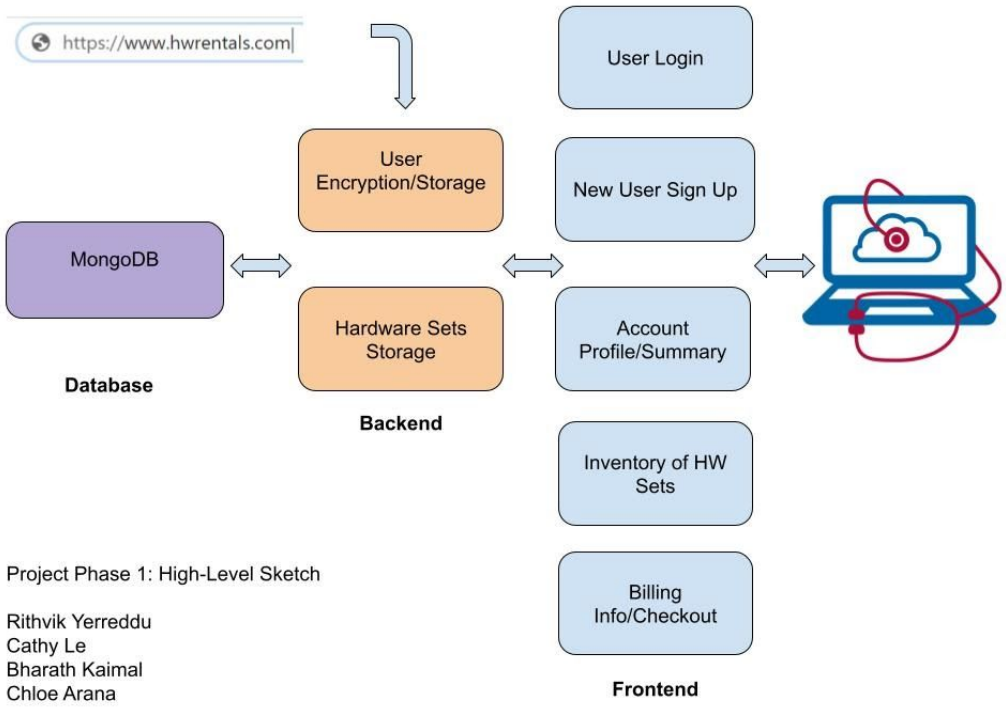
Data Access

16. As a user, I want there to be a display area in text to show a bulleted list of datasets available on the public dataset.
17. As an existing user, I want to be able to download one of the datasets as a zip file so that I can view it.

Misc

18. As a user, I want there to be a menu so I can navigate the website easily.

High Level Sketch



Choice of Tools and Approach

We will be using MongoDB for our database. This will be used in the user management area when storing user information and project information. This will also be used in the resource management area when storing HW set information. We will need a database to maintain user login credentials such as user IDS and passwords, project IDs, project details, and resource details. MongoDB will also be used so that we have a mechanism to retrieve information from the database.

We will be using React.js when developing the front-end of our web application and designing the user interface. This will allow users to enter inputs and view outputs such as log in areas, project creation areas, hw set checkout area, as well as other display areas.

We will be using PhysioNet.org to get datasets from.

We will be using Google Cloud as a host for our proof-of-concept application.

Resources:

- https://www.mountaingoatsoftware.com/agile/user-stories
- https://www.getclockwise.com/blog/examples-of-technical-debt