GROUP 4 PROJECT 1 PROPOSALS

CIS422 Spring ‘21

Prof Anthony Hornof

5 April 2021

Ian Parish, Xing Qian, Thomas Renn, Jiacheng Wei

INTRODUCTION

Very good introductory paragraph

This document includes two proposals for Project 1. The first proposal is for a “Vaccine Clinic Information & Scheduling System; the second for a “Vaccine Clinic Rating & Recommendation System”. Each proposal includes a brief description of the system and its requirements, a system architecture, a short description of technology support, and a proposal of group work distribution. Pending acceptance of either of these proposed systems, we are excited to make the COVID-19 vaccination process easier and more accessible to everyone.

PROPOSAL 1: VACCINE CLINIC INFORMATION & SCHEDULING SYSTEM (VCISS)

Requirements & Summary

Our group envisions this system to be a complete vaccination appointment scheduler. Using this system, a user will be able to create an account, search for a vaccination clinic based on their filterable preferences, view information on respective clinics, and schedule or cancel a vaccination appointment.

comments by A.Hornof 4-6-2021

Both are good proposals. Please feel free to implement Project 1 but not Project 2 simply because Project 1 does a better job embracing the lifegiving aspects of vaccinations. It is hard to imagine vaccination centers worrying about how well they are doing on something like Yelp.

More direction will follow.

The diagrams need keys to describe what is represented by the arrows, and different kinds of boxes.

System Architecture

Try to be more consistent in your diagrams, such as to make equivalent-looking things equivalent in what they represent. These are not all equivalent objects. A landing page is quite different from a whole system, for example.

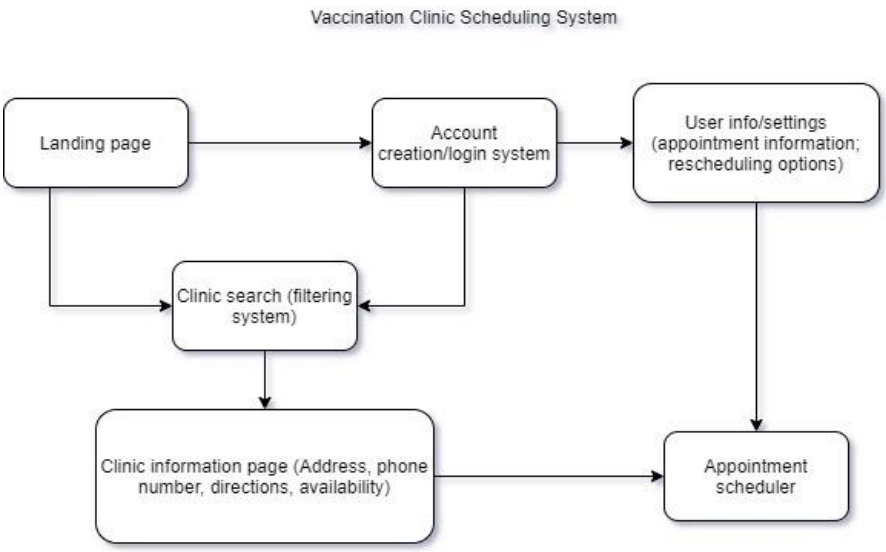

Figure 1

The VCISS system will consist of the following modules (as shown in Figure 1):

- Landing page
  - The function of this component is the user interface (UI) aspect of the system to create or login to an account, or to search for clinics.
- Account creation and login system
  - This component will allow the user to create a personal account for vaccination scheduling purposes, or allow them to log in to an existing account.
- User information and settings
  - This component will house the user's private information, such as: name, address, date of birth, and any additional notes about the user's health that may affect their ability to receive the vaccine. It will also allow the user to view information about an upcoming appointment once one has been scheduled. It will list the clinic location and appointment time and date. It will also allow the user to cancel an appointment if necessary.
- Clinic search
  - The function of this component is to identify clinics relevant to the user based on their preferences. The user will be able to search for vaccination clinics based on their location and vaccine type and availability.
- Clinic information page
  - This component will display specific clinic information, such as address, directions, and vaccine type/availability.
- Appointment scheduler
  - This component will allow a logged in user to schedule an appointment at a specific vaccination clinic.

Technology

These are good to include. By technologies, I was asking for more generic descriptions, such as what programming languages you would use, not implemented systems or solutions that you would derive ideas from.

- We will need a web server in order to serve landing pages, fetch search results, etc.
- We anticipate the need of a vaccine center location finder (for example, https://vaccinefinder.org/search/ provided by the CDC website)

- The VCISS will require an account and login system, much like the one described at https://artisansweb.net/create-php-login-system-your-website/
- We will also require an appointment scheduling tool. Many open-source scheduler API's are available, such as those listed at https://www.goodfirms.co/blog/top-7-free-and-open-source-appointment-scheduling-software

Distribution of Work

Good description. Please be sure that everyone should have some technical responsibilities, ideally even some programming.

Project Manager: Ian Parish

- The PM will be responsible for setting deadlines and ensuring requirements are met in a timely manner, as well as maintaining relevant documentation and coordinating work.
- Assistant Project Manager: Jiacheng Wei

Lead Engineer: Xing Qian

- The lead engineer will be responsible for coordinating and delegating the development of all required components of the VCISS. A co-lead should not be necessary, as all members of the team will be involved in development of the system. At outset, the development distribution will be as follows (subject to change as required):
    - Account/Login Module: Jiacheng Wei
    - Clinic Finder and Information Module: Xing Qian
    - Search/Results Module: Thomas Renn
    - Appointment Scheduling Module: Ian Parish

Lead Test Analyst: Thomas Renn

- The lead test analyst will be responsible for testing module functions and developing test cases.
- Assistant Test Analyst Lead: Ian Parish

Integration Specialist: Jiacheng Wei

- The integration specialist will be responsible for integrating each module into the greater VCISS, and coordinating with the Lead Test Analyst and Lead Engineer to ensure proper functionality.

PROPOSAL 2: VACCINE CLINIC RECOMMENDATION AND RATING SYSTEM (VCRRS)

Requirements & Summary

Our group envisions this system to be a system capable of making recommendations for ideal vaccination clinics based on user area and population size. The VCRSS should help to eliminate long waiting times for those receiving the vaccine, and ease the work-load for clinics in high-population areas. It will take the user's location into consideration, and generate a "score" for each clinic based on the population density in area surrounding the clinic. Results will be filtered from highest to lowest score and presented to the user.

System Architecture

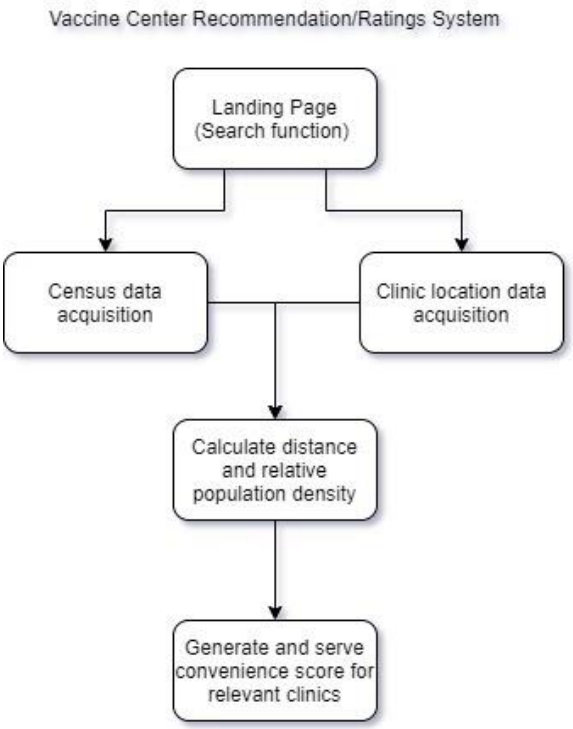

Figure 2

The VCRRS system will consist of the following modules (as shown in Figure 2):

- Landing page
  - The function of this component is the UI aspect of the system to interact and score clinics or regions in their ability to distribute vaccines to the local population.
- Census data acquisition
  - The function of this component is to gather census data in order to determine population density in certain regions such as by state or county.
- Clinic location data acquisition
  - This component accesses data locations and stores them in a database to be used in calculating the distance between other nearby vaccination centers.
- Clinic search
  - The function of this component is to identify clinics relevant to the user based on their preferences. The user will be able to search for vaccination clinics based on their location and vaccine type and availability.
- Calculate distance and relative population density
  - Use the data already gathered to calculate the distance between vaccination centers.
- Generate and serve convenience score for relevant clinics
  - Use the calculations found in the previous component to score the convenience of clinics in a certain region, which could be used to recommend the placement of another vaccination center.

Technology

- Census data estimate for population size by county and State. (Data (census.gov))

- Vaccine center finder shows locations, vaccines in stock, and distances. (VaccineFinder - Search for COVID-19 vaccine locations)
- Find the distance between centers. “The Distance Matrix API is a service that provides travel distance and time for a matrix of origins and destinations”. This is a paid service and the group may continue to search for an open-source API. (Overview | Distance Matrix API | Google Developers)

Distribution of Work

Project Manager: Ian Parish

- The PM will be responsible for setting deadlines and ensuring requirements are met in a timely manner, as well as maintaining relevant documentation and coordinating work.
- Assistant Project Manager: Jiacheng Wei

Lead Engineer: Xing Qian

- The lead engineer will be responsible for coordinating and delegating the development of all required components of the VCRRS. A co-lead should not be necessary, as all members of the team will be involved in development of the system. At outset, the development distribution will be as follows (subject to change as required):
    - Calculate distance and relative population density: Jiacheng Wei
    - Importing clinic location data: Xing Qian
    - Search/Results: Thomas Renn
    - Generate clinic convenience score: Ian Parish

Lead Test Analyst: Thomas Renn

- The lead test analyst will be responsible for testing module functions and developing test cases.
- Assistant Test Analyst Lead: Ian Parish

Integration Specialist: Jiacheng Wei

- The integration specialist will be responsible for integrating each module into the greater VCRRS, and coordinating with the Lead Test Analyst and Lead Engineer to ensure proper functionality.