



# UNT Sponsored Covid-19 Vaccine Waitlist

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## Project Overview

Our vaccine waitlist system is motivated by the current situation that the world is facing, COVID-19. Our project allows users to fill out a questionnaire in order to determine their place on a waitlist. Based on the eligibility criteria and the number of available vaccine doses, the system will automatically choose patients from the waitlist and allow the staff to schedule them for an appointment.

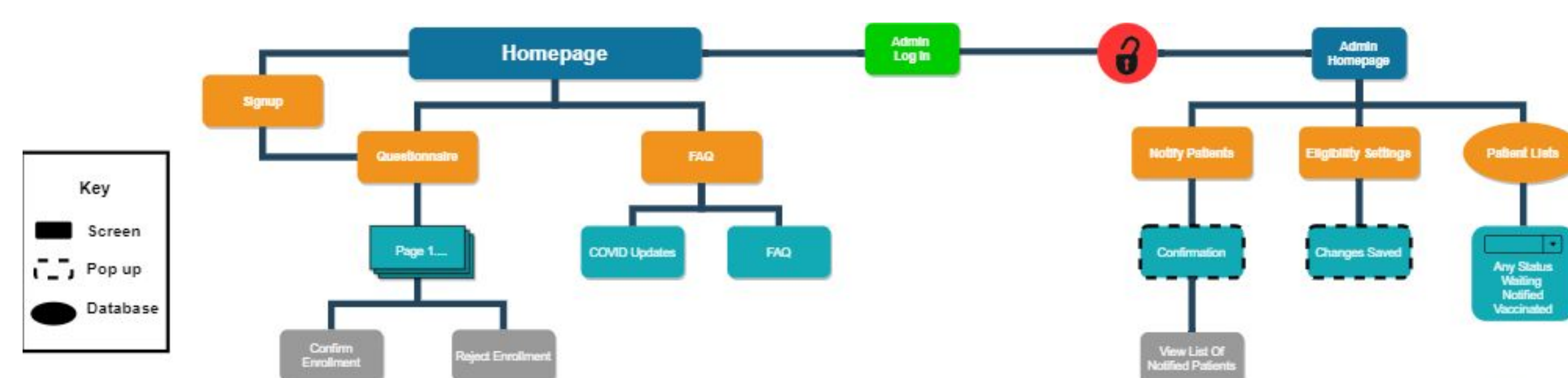
The unique aspect of this system is the algorithm. Through the admin portal, the health center is able to select what eligibility categories are prioritized at that time. These criteria are grouped based on all 50 states vaccination phases and CDC vaccine rollout recommendations. The backend then orders the waitlist based on these settings. This ensures the vaccine hub is able to follow all state and federal guidelines closely without doing tedious manual sorting of patients. This also aids in prioritizing sub-priority group when the number of people who are eligible for Covid-19 vaccine becomes larger.

The system can be used widely for any state and vaccination site, not just limited to Texas and UNT vaccination program.

## Design

We use the Express framework to create an interactive Web application. Our NodeJS Web Server can handle a large number of visitors while completing concurrent requests from clients with the fastest speed. We also apply a simple, user-friendly design for the web pages to make it easy for different users, including admin and patients, to navigate. All data are stored across four relational tables with PostGreSQL database.

The diagram below represents the pages visible to users. The left nodes represent the public pages while the pages to the right of the lock symbol are pages only accessible by the admin.



The design of our system allows for any necessary changes to be made when vaccine administration guideline is updated without having to discard the existing waitlist. All information needed to account for changes in eligibility is stored to allow the waitlist to be reordered at any point.

## Features

### Admin Portal

- User Authentication
- View the Number of Vaccinated, Waitlisting and Notified Patients
- Schedule Patients for Appointments
- View List of Patients (filter the list on four types of status: waitlisting, notified and vaccinated or any status, search list by patient name, change patients' status and export data to CSV file)
- Set Eligibility Criteria

### Patients

- Register for the Waitlist
- Questionnaire
- FAQ

## Delivered Product Page Examples

Schedule Patients Based on Eligibility

Notify Patients

View List of Patients

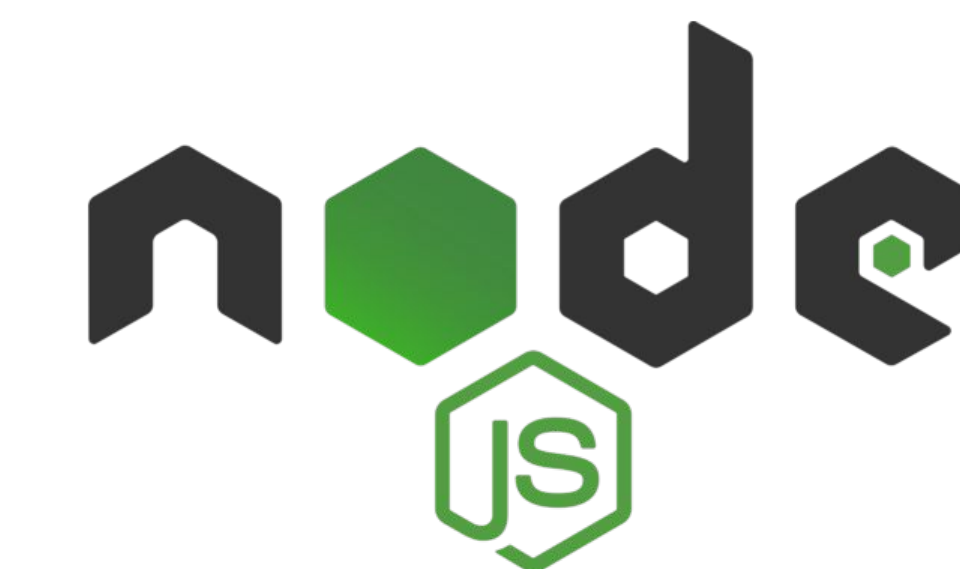
Select	Name	Email	Confirmation #	Date Added	Status	Date Scheduled
<input type="checkbox"/>	Terr TEST	xxx@abc.com	bb9f1abb4030ebf91d	Thu Apr 08 2021	Fully Vaccinated	
<input type="checkbox"/>	Terry Dancel	tt_virgth@yahoo.com	bb62033683e9a25c1ae	Thu Apr 08 2021	Waitlisting	
<input type="checkbox"/>	Terry Dancel	ashawigh07@gmail.com	629143958a2d7462274	Thu Apr 08 2021	Waitlisting	
<input type="checkbox"/>	John Smith	xx@abc.com	7bf25d257c73a33405	Tue Apr 06 2021	Vaccinated 1st Dose	
<input type="checkbox"/>	Jack The Ripper	xxxxxx@abc.com	9d2d43e95a6314ee47f	Thu Apr 08 2021	Vaccinated 1st Dose	
<input type="checkbox"/>	Slender Man	xxxx@abc.com	3bb9ad16cccf885c5da2	Thu Apr 08 2021	Vaccinated 1st Dose	
<input type="checkbox"/>	Vi Nguyen	vi@abc.com	6acdf94142105387577	Tue Apr 06 2021	Fully Vaccinated	
<input type="checkbox"/>	Johnson Johnson	xxxxx@abc.com	99a004e173c4684649	Wed Apr 07 2021	Fully Vaccinated	

Patient Questionnaire

## Technologies



express



PostgreSQL



## Testing

### Manual

Tested the usability for a non-technical person. After every sprint, we tested the learnability and efficiency of our user interface.

### Automation

Used testing framework Jest to perform integration testing to test our Express web API

## Future Work

By the end of the semester, the website will integrate with Mapbox API to convert addresses into geographic coordinates for easy mapping to UNT RE-PLAN system

A few future ideas include:

- An admin page showing various statistics about those signing up to receive a vaccine including a map of all addresses, statistics on race, insured population, as well as stats that may highlight where vulnerable persons are.
- A more robust scheduling feature. Currently the system sets up clinics which provide the patient with a time range to arrive. A system where the patient selects a time or the admin is able to provide patients with spread out appointment times in one click would be a good improvement.