CS 4523 A – Senior Design Project Fall 2021

Project Information Sheet

|  |  |
| --- | --- |
| **Team Number** | B03 |
| **Project Name** | Vaccination Management System |
| **Semester** | Fall 2021 |
|  |  |
| **Project Description - Overview** | The vaccination of COVID-19 plays an important role in preventing people from getting the disease and preventing the virus from spreading. However, according to USA Today, only 11.5% of people in the US have received at least one vaccination shot, and only 4.5% have received both doses; about 24.5% of the vaccinations distributed haven’t been used. The reason for this should either be that people do not have enough information about when and where to take a vaccination, or that people are too concerned about the side-effects of the vaccination. For the first problem, we shall create an interactive map, showing all the medical providers with doses available for appointment, and a link to make an appointment for approved users easily. Then, vaccination takers should be able to communicate with medical staff after being vaccinated, and the vaccine record as well as the symptoms afterwards shall be saved on the server. The record shall provide a good basis for solving the second problem. With the feedback statistics from vaccine takers manifest to users, users should be able to make better decisions on whether to take the vaccination based on concrete data.  The Vaccine Management System is targeting to increase the vaccination rate against COVID-19 through appointment controls and patient education. Currently the vaccination rate for COVID-19 is relatively low although it plays a crucial role in preventing further transmission of the virus. There are two main reasons that contribute to this issue. First, people are lacking information about when and where to take a vaccination. The availability of the vaccine is increasing but still limited. It is difficult for people to access the appointment information especially if they need to go to another clinic besides their regular ones. The other reason is that people are too concerned about the side-effects of the vaccination. Some people refuse to take the vaccine because they lack enough information to convince them that the vaccination is necessary in protecting them from COVID-19. Our system is designed to cope with these two problems and provide patents and vaccination clinics with easy access to appointment-making service along with evaluation results from past patients. Clinics are provided with sufficient patient records that will help them with better vaccination planning. Vaccination takers can make better decisions with previous patient feedback and statistics.  The Vaccine Management System is designed to help with vaccination distribution and increase vaccination rate for COVID-19. The system will have the following functions for users: interface to keep track of the most recent COVID-19 information and vaccination data; authentication to check the validity of the geographical information; access to past activities; appointment platform which allows user to check their eligibility and make appointments with nearby medical provider; date reminders recording and prompting time for sequential vaccine doses; chatting channels between user and medical provider that allows follow-up diagnosis and assistance. On the clinical side, the system will provide an interface to manage and present the vaccination data; access to past activities; secure dataset collecting vaccination takers personal information, medical feedbacks, and doctor notes; chatting channel between user and medical provider that allows follow-up diagnosis and assistance. On the administration side, the system will proceed to connect the website with local medical providers and budget to keep track of cost and revenue of our website. Although users can access eligibility information from the website, the system will not provide evaluation on eligibility of vaccination. The information will be provided by medical providers and implemented through hospital API. |
|  |  |
| **Research, Design or Technical Issues Involved or Addresses** | First, as we aim to assist people in making an informed decision about the appropriateness and timeliness of their vaccination, hence we shall regularly update the web application to include the latest information regarding vaccination statistics, vaccine safety, and any relevant health precautions to be considered.  The application shall serve people based on their geographic location and healthcare providers in their area, making location services an essential part of the application. In addition, a plan shall be put in place to inform local healthcare providers of the new platform and encourage them to join it for the ease and convenience of them and their clients (aka potential vaccine recipients). Research is required to see what programs are out there, and how can make ours stand out in its ease of use and efficiency.  Our team members currently have very little to zero front-end development skills, which will require us to keep researching the field as we go in order to provide the most amount of functionality in a clear and aesthetic web environment.  Also, due to the sensitive nature of the information, we shall research the best tools to create column-level encryption for the data stored in the application’s databases. |
|  |  |
| **Goals** | The Vaccination Management System shall serve to ease vaccine roll-out in order to increase the vaccination rate and reduce the risk of further transmission of COVID-19. The system shall be developed with an incremental model. The deliverable dates are as follows:  Project Specification: 21 days  Design and Requirements: 28 days  Implementation: 95 days  Validation and testing: 25 days  Evolution and Maintenance: From moment of release |
|  |  |
| **Methods/Technology** | Front End Development: HTML, CSS, JavaScript, jQuery, and Python.  Back End Development: MySQL, Python, and possibly PHP. |
|  |  |
| **Team organization - Sub-Teams** | * Research, Logistics, Updates, and Prompt Communication * Database Design and Development * Back-End Design and Development |
|  |  |
| **Majors and Areas of Interest** | Computer Science and Software Engineering  Accessible and Informed Healthcare  Database Management  Interactive & User-Friendly Application Design |
|  |  |
| **Partners** | None. |
|  |  |
| **Contact Information**  **(Team Members and NET\_ID)** | Guandi Wang (gw1035)  Daniel-Be'eri Longman (dl4207)  Vera Li (yl5592)  Bowen Yu (by778) |
|  |  |
|  |  |