



ONLINE COVID VACCINATION SCHEDULING SYSTEM

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*Abstract:*This is a PHP Project entitled Online Covid-19 Vaccination Scheduler System. This system provides the individual an online platform in which they can schedule their vaccination on their desired date and location. The system automatically counts the number of availability of individuals that can schedule on a specific day. This Online Covid-19 Vaccination Scheduler System was developed using PHP, MySQL Database, HTML, CSS, Bootstrap, JavaScript (jQuery and Ajax), and some libraries/plugins. The system stores the list of locations vaccination and a maximum number of people per day that can be entertained/accommodate can be set. The people can simply select the area or location where and when they wish to schedule their vaccination. This public website shows a Calendar and each day that still has an available slot will show a clickable element that triggers to open the scheduling form. The user will fill up the details and when the form submitted successfully, the system will provide a schedule code for the user.

Index Terms–Covid Vaccine, Schedule vaccine, Doctor, nurse details, PHP and MySQL.

I. INTRODUCTION

This work presents CVSS (Vaccination Scheduling System), a Web based application implemented using the PHP script language, the Postgress SQL DBMS and the Apache web server under a GNU/Linux platform. VSS is a management information system tool for the vaccination process control, which was modelled and designed towards the necessities of the Brazilian public health system. The current version of CVSS includes the management of vaccines, patients, mass immunization campaigns, access control to the recorded information, record of immunizations and history of immunizations per individual, and many statistical reports. An important social benefit provided by CVSS is the improvement in the strategic planning for the public vaccination system, which results in a better assistance to the population in general and resources savings by governments with the reduction of vaccine lost.

II. TYPE OF COVID-19 VACCINES

A coronavirus disease 2019 (COVID-19) vaccine can prevent you from getting COVID-19 or from becoming seriously ill or dying due to COVID-19. But how do the different types of COVID-19 vaccines work?Each COVID-19 vaccine causes the immune system to create antibodies to fight COVID-19. COVID-19 vaccines use a harmless version of a spikelike structure on the surface of the COVID-19 virus called an S protein.The main types of COVID-19 vaccines currently available in the U.S. or being studied include:

Messenger RNA (mRNA) vaccine. This type of vaccine uses genetically engineered mRNA to give your cells instructions for how to make the S protein found on the surface of the COVID-19 virus. After vaccination, your immune cells begin making the S protein pieces and displaying them on cell surfaces. This causes your body to create antibodies. If you later become infected with the COVID-19 virus, these antibodies will fight the virus.

Vector vaccine. In this type of vaccine, genetic material from the COVID-19 virus is placed in a modified version of a different virus (viral vector). When the viral vector gets into your cells, it delivers genetic material from the COVID-19 virus that gives your cells instructions to make copies of the S protein. Once your cells display the S proteins on their surfaces, your immune system responds by creating antibodies and defensive white blood cells. If you later become infected with the COVID-19 virus, the antibodies will fight the virus.

Protein subunit vaccine. Subunit vaccines include only the parts of a virus that best stimulate your immune system. This type of COVID-19 vaccine contains harmless S proteins. Once your immune system recognizes the S proteins, it creates antibodies and defensive white blood cells. If you later become infected with the COVID-19 virus, the antibodies will fight the virus.

III. System Study

3.1 Existing Solution:

In the existing system, Vaccines are provided for infants and children under teenage by various aspects such as by attending school manually and there is a chance that some of the children's and infants may miss the opportunity of getting vaccinated due to some mandatory reasons. Which leads to loss of life or gets affected by various diseases such as polio...etc? This is a time delay process to wait for each and every one all over the places.

3.2 Proposed Solution:

We can change this manual system into e-vaccination system by collecting the info of infants, registered under website so that those who didn't took vaccination can avail one more opportunity to save the life of their children. By this system a lot of man-hours can be saved and it is efficient too.

IV. MAIN MODULE DESCRIPTION

4.1 PUBLIC WEBSITE:

1. Users/Individual can Submit their vaccination Schedule
2. Generates Schedule Ticket Code

4.2 ADMIN PANEL:

1. Manage Vaccination Location
2. Manage Individual List
3. Multiple Individual Action (Update to No Show/Done and Delete form list and Schedule)
4. Can add doctor or nurse names
5. Can add vaccination

V. SYSTEM SPECIFICATION

The most common set of requirements defined by any operating system or software application is the physical computer resources, also known as hardware. A hardware requirements list is often accompanied by a hardware compatibility list (HCL), especially in case of operating systems. An HCL lists tested, compatibility and sometimes incompatible hardware devices for a particular operating system or application. The following sub-sections discuss the various aspects of hardware requirements.

Software Requirements deal with defining software resource requirements and pre-requisites that need to be installed on a computer to provide optimal functioning of an application. These requirements or pre-requisites are generally not included in the software installation package and need to be installed separately before the software is installed.

5.1 Hardware Requirements:

Device name	:	DESKTOP-S4EEKTF
Processor	:	Intel(R) Core(TM) i3-1005G1 CPU @ 1.20GHz 1.19 GHz
Installed RAM	:	4.00 GB (3.77 GB usable)
Device ID	:	1B690C03-77F2-4123-A8B3-BDF87835514D
Product ID	:	00327-36299-87450-AAOEM
System type	:	64-bit operating system, x64-based processor

5.2 Software Requirements:

Front End	:	HTML5, CSS3, Bootstrap
Back End:	:	PHP, MYSQL

5.3 HTML5:

HTML5 is the next major revision of the HTML standard superseding HTML 4.01, XHTML 1.0, and XHTML 1.1. HTML5 is a standard for structuring and presenting content on the World Wide Web. HTML5 is a cooperation between the World Wide Web Consortium (W3C) and the Web Hypertext Application Technology Working Group (WHATWG). The new standard incorporates features like video playback and drag-and-drop that have been previously dependent on third-party browser plug-ins such as Adobe Flash, Microsoft Silverlight, and Google Gears.

5.3.1 Browser Support

The latest versions of Apple Safari, Google Chrome, Mozilla Firefox, and Opera all support many HTML5 features and Internet Explorer 9.0 will also have support for some HTML5 functionality. The mobile web browsers that come pre-installed on iPhones, iPads, and Android phones all have excellent support for HTML5.

5.3.3 Backward Compatibility

HTML5 is designed, as much as possible, to be backward compatible with existing web browsers. Its new features have been built on existing features and allow you to provide fallback content for older browsers. It is suggested to detect support for individual HTML5 features using a few lines of JavaScript. If you are not familiar with any previous version of HTML, I would recommend that you go through our **HTML Tutorial** before exploring the features of HTML5.

5.3.4 CSS3

Cascading Style Sheets, fondly referred to as CSS, is a simple design language intended to simplify the process of making web pages presentable. CSS handles the look and feel part of a web page. Using CSS, you can control the colour of the text, the style of fonts, the spacing between paragraphs, how columns are sized and laid out, what background images or colours are used, layout designs, variations in display for different devices and screen sizes as well as a variety of other effects.

CSS is easy to learn and understand but it provides powerful control over the presentation of an HTML document. Most commonly, CSS is combined with the markup languages HTML or XHTML.

5.3.5 Advantages of CSS

- CSS saves time – You can write CSS once and then reuse same sheet in multiple HTML pages. You can define a style for each HTML element and apply it to as many Web pages as you want.
- Pages load faster – If you are using CSS, you do not need to write HTML tag attributes every time. Just write one CSS rule of a tag and apply it to all the occurrences of that tag. So less code means faster download times.
- Easy maintenance – To make a global change, simply change the style, and all elements in all the web pages will be updated automatically.
- Superior styles to HTML – CSS has a much wider array of attributes than HTML, so you can give a far better look to your HTML page in comparison to HTML attributes.
- Multiple Device Compatibility – Style sheets allow content to be optimized for more than one type of device. By using the same HTML document, different versions of a website can be presented for handheld devices such as PDAs and cell phones or for printing.
- Global web standards – Now HTML attributes are being deprecated and it is being recommended to use CSS. So its a good idea to start using CSS in all the HTML pages to make them compatible to future browsers.

5.3.6 BOOTSTRAP:

1. Bootstrap is a free front-end framework for faster and easier web development
2. Bootstrap includes HTML and CSS based design templates for typography, forms, buttons, tables, navigation, modals, image carousels and many other, as well as optional JavaScript plugins
3. Bootstrap also gives you the ability to easily create responsive designs

5.3.7 PHP

PHP started out as a small open source project that evolved as more and more people found out how useful it was. Rasmus Lerdorf unleashed the first version of PHP way back in 1994.

- PHP is a recursive acronym for "PHP: Hypertext Preprocessor".
- PHP is a server side scripting language that is embedded in HTML. It is used to manage dynamic content, databases, session tracking, even build entire e-commerce sites.
- It is integrated with a number of popular databases, including MySQL, PostgreSQL, Oracle, Sybase, Informix, and Microsoft SQL Server.
- PHP is pleasingly zippy in its execution, especially when compiled as an Apache module on the Unix side. The MySQL server, once started, executes even very complex queries with huge result sets in record-setting time.
- PHP supports a large number of major protocols such as POP3, IMAP, and LDAP. PHP4 added support for Java and distributed object architectures (COM and CORBA), making n-tier development a possibility for the first time.
- PHP is forgiving: PHP language tries to be as forgiving as possible.
- PHP Syntax is C-Like.

5.3.8 Common uses of PHP

- PHP performs system functions, i.e. from files on a system it can create, open, read, write, and close them.
- PHP can handle forms, i.e. gather data from files, save data to a file, through email you can send data, return data to the user.
- You add, delete, modify elements within your database through PHP.
- Access cookies variables and set cookies.
- Using PHP, you can restrict users to access some pages of your website.
- It can encrypt data.

5.3.9 Characteristics of PHP

Five important characteristics make PHP's practical nature possible –

- Simplicity
- Efficiency
- Security
- Flexibility
- Familiarity

5.3.10 MYSQL

A **Relational Database Management System (RDBMS)** is a software that –

- Enables you to implement a database with tables, columns and indexes.
- Guarantees the Referential Integrity between rows of various tables.
- Updates the indexes automatically.
- Interprets an SQL query and combines information from various tables.

5.3.11 MySQL Database

MySQL is a fast, easy-to-use RDBMS being used for many small and big businesses. MySQL is developed, marketed and supported by MySQL AB, which is a Swedish company. MySQL is becoming so popular because of many good reasons –

- MySQL is released under an open-source license. So you have nothing to pay to use it.
- MySQL is a very powerful program in its own right. It handles a large subset of the functionality of the most expensive and powerful database packages.
- MySQL uses a standard form of the well-known SQL data language.
- MySQL works on many operating systems and with many languages including PHP, PERL, C, C++, JAVA, etc.
- MySQL works very quickly and works well even with large data sets.
- MySQL is very friendly to PHP, the most appreciated language for web development.
- MySQL supports large databases, up to 50 million rows or more in a table. The default file size limit for a table is 4GB, but you can increase this (if your operating system can handle it) to a theoretical limit of 8 million terabytes (TB).
- MySQL is customizable. The open-source GPL license allows programmers to modify the MySQL software to fit their own specific environments.

VI. SYSTEM DESIGN

System design is the process of planning a new system to complement or altogether replace the old system. The purpose of the design phase is to plan a solution for the problem. The phrase is the first step in moving from the problem domain to solution domain. The design process also helps the programmer to compose to decompose our project into various parts to complete to the work and separates the conceptual representation from the data structure.

6.1 DATA FLOW DIAGRAM

A two-dimensional diagram explains how data is processed and transferred in a system. The Graphical description identifies each source of data and how it interacts with other sources to reach a common output. Individuals seeking to draft a data flow must identify external inputs and outputs, determine how inputs and outputs relate to each other, and explain with graphics how these connections relate and what they result in.


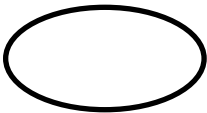
SYMBOL	DESCRIPTION
	A process or task that is performed by the system.
	An Entity. A source of data or destination for Data.

Table 6.1 DATA FLOW SYMBOLS

6.2 LEVEL 0

DFD level 0 is also called a Context Diagram. It's a basic overview of the whole system or process being analysed or modelled. It's designed to be an at a glance view, showing the system as a single high-level process, with its relationship to external entities. Its should be easily understood by a wide audience, including stakeholders, business analysts, and data analysts.



Fig 6.1 level 0 DFD diagram

6.3 LEVEL 1

DFD Level 1 Provides A More Detailed Breakout Of Pieces Of The Context level diagram. You will highlight the main functions carried out by the system, as you break down the high-level process of the context diagram into its sub-processes.

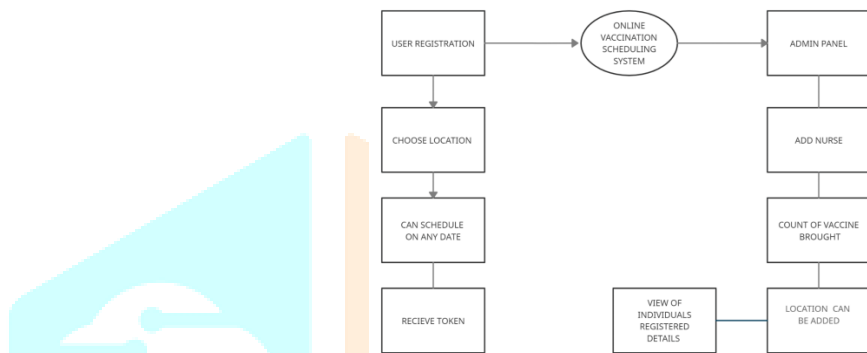


Fig 6.2 level 1 DFD Diagram

6.4 Table Design

A table is made up of rows and columns. A row is also called a record (or tuple). Database design is a collection of interactive data store. An effective method of defining, store and retrieving the information in the database, multiple application and user can use the data contained in the database.

Table 1 Database

FIELD	TYPE	NULL	DEFAULT
ID	INT(50)	NO	NONE
FIRSTNAME	VARCHAR(250)	NO	NONE
LASTNAME	VARCHAR(250)	NO	NONE
USERNAME	TEXT	NO	NONE
PASSWORD	TEXT	NO	NONE
AVATAR	TEXT	YES	NULL
LAST_LOGIN	DATETIME	YES	NULL
TYPE	TINYINT(1)	NO	0
DATE_ADDED	DATETIME	NO	CURRENT_TIMESTAMP
DATE_UPDATED	DATETIME	NO	NULL

6.5 SCREENSHOTS

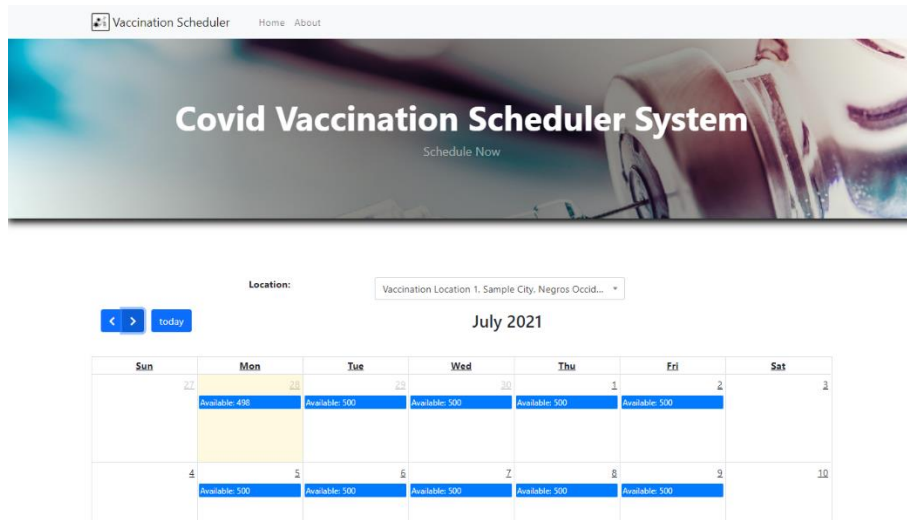


FIG 1: VACCINATION SCHEDULER CALENDER

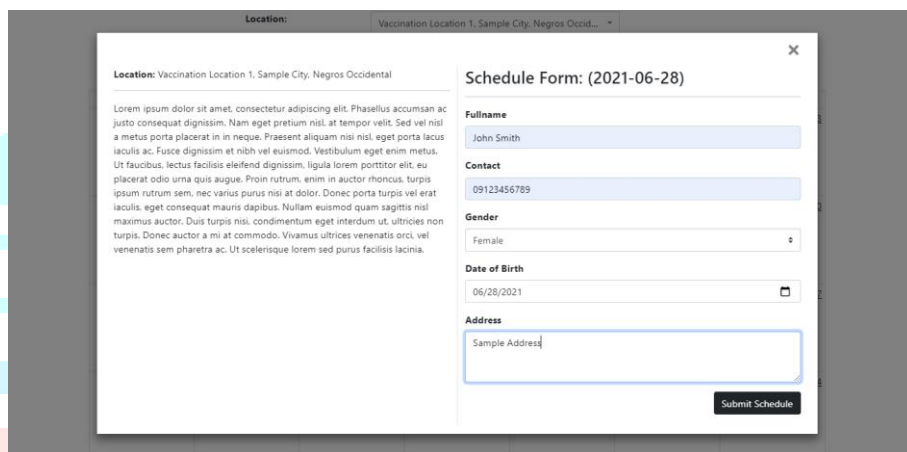


FIG 2:VACCINE REGISTRATION FORM

John Smith
968928163885

Copy or take a snapshot of the code below your name. The code will serve as your ticket number for vaccination schedule. Please bring atleast 1 ID to verify your schedule information.

FIG 3: TOKEN PROVIDED AFTER REGISTRATION

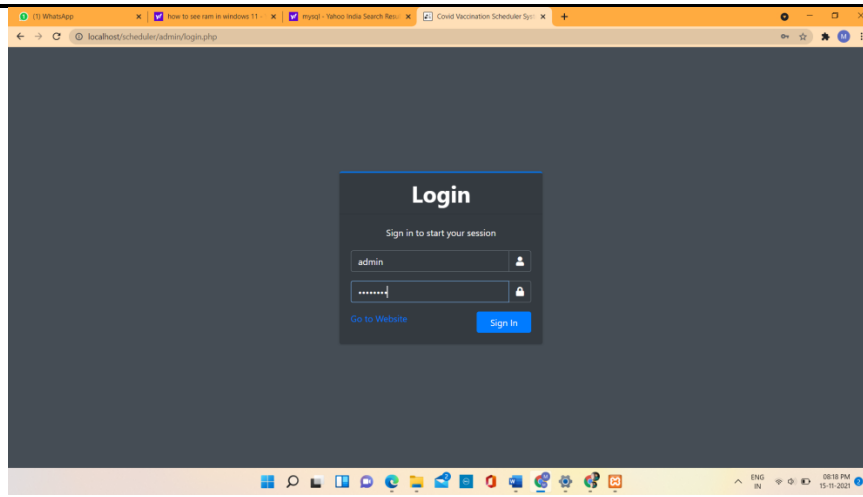


FIG 4: ADMIN LOGIN PAGE

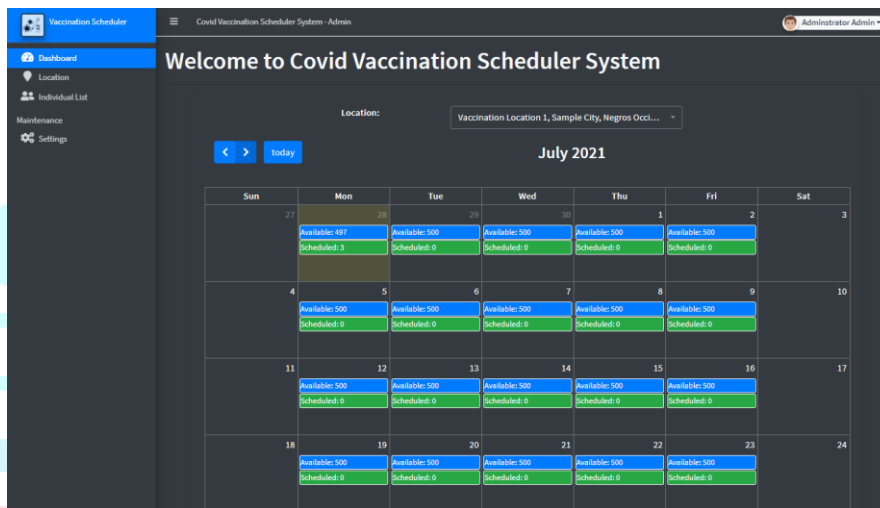


FIG 5: ADMIN SLOT ALLOTMENT

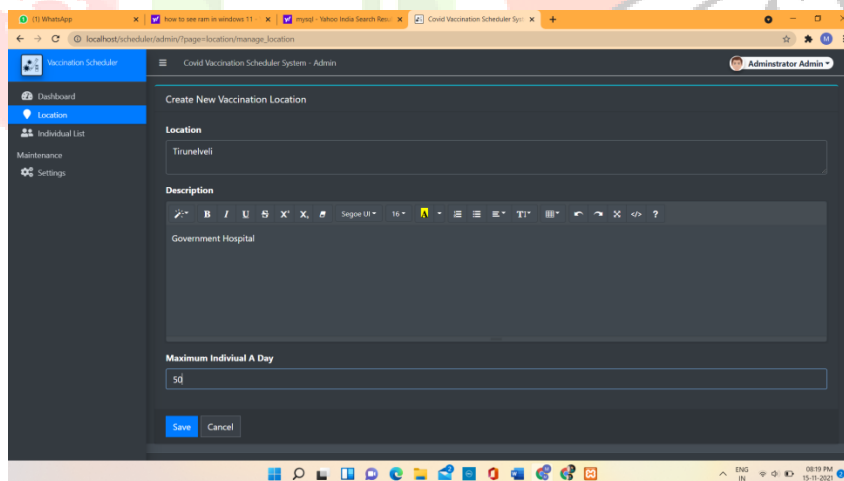


FIG 6: ADDING LOCATION FOR VACCINE

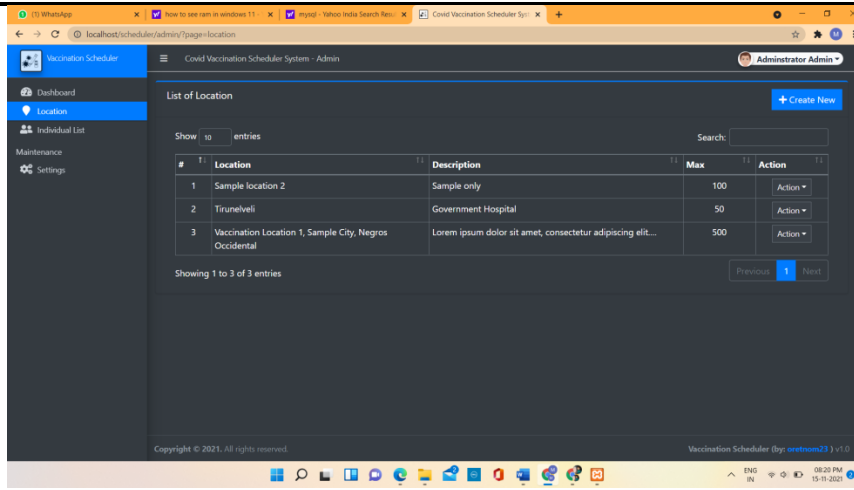


FIG 7:VIEW AND EDIT LOCATION

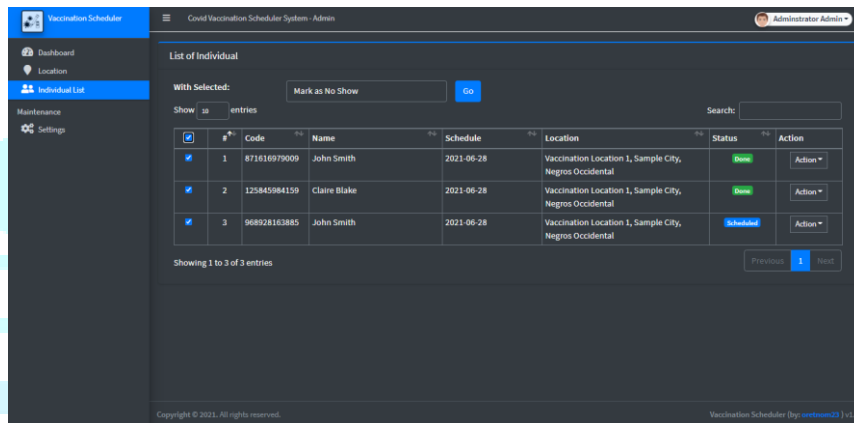


FIG 8: REGISTERED INDIVIDUALS LIST

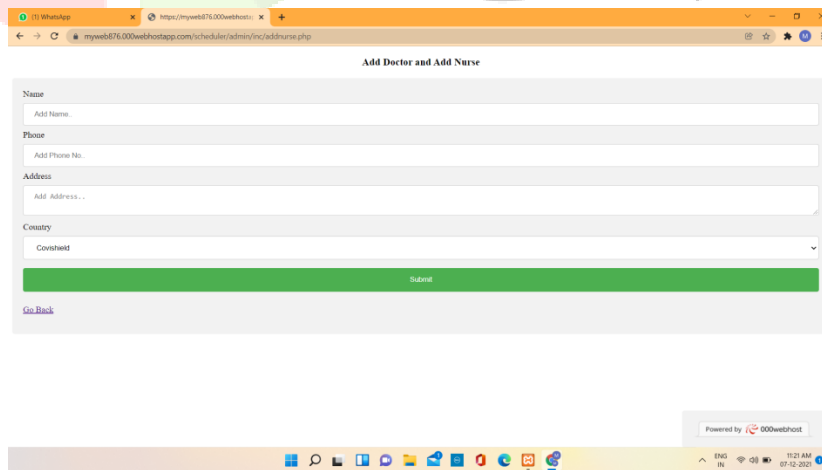


FIG 9: ADD DOCTOR AND NURSE NAME LIST

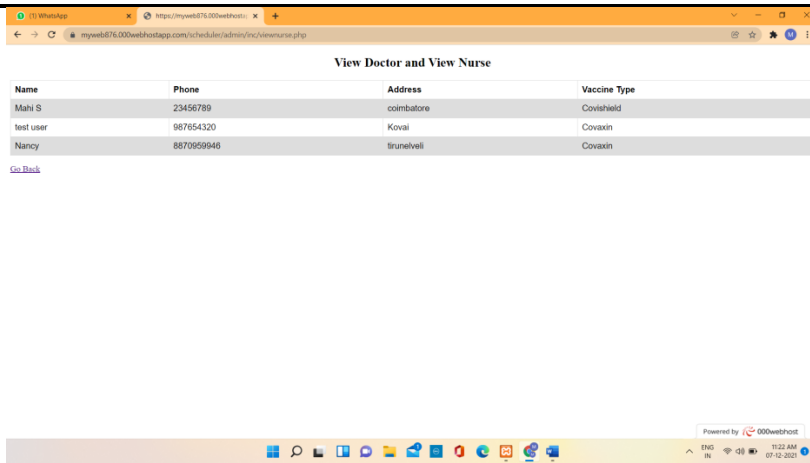


FIG 10: VIEW DOCTOR AND NURSE NAME LIST

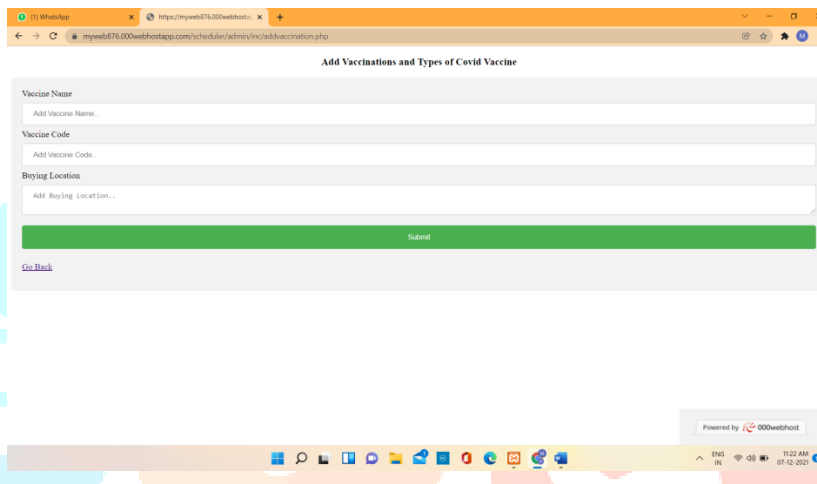


FIG 11: ADD VACCINATION TYPE AND DOSE DETAILS

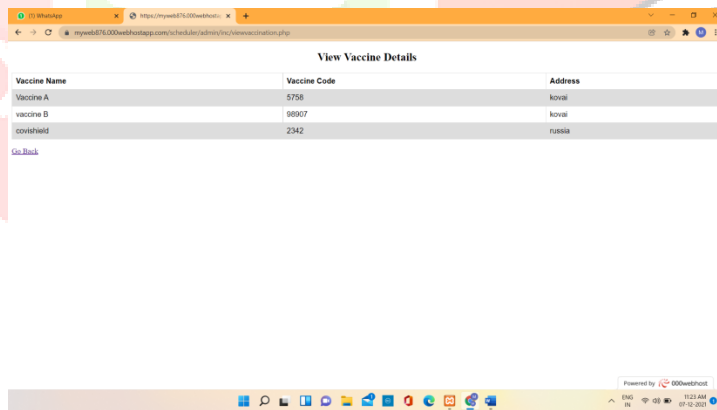


FIG 12: VIEW VACCINATION TYPES AND DOSE DETAILS

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