VISVESVARAYA TECHNOLOGICAL UNIVERSITY

JNANASANGAMA, BELAGAVI - 590018

DBMS Mini Project Report

on

COVID VACCINATION MANAGEMENT SYSTEM

Submitted in partial fulfilment for the award of degree of

Bachelor of Engineering

in

Artificial Intelligence and Machine Learning

Submitted by

VISHNU KASHYAP

1RN20AI062

RNS INSTITUTE OF TECHNOLOGY

(AICTE Approved, **VTU** Affiliated and **NAAC 'A'** Accredited)

(**UG programs** – CSE, ECE, ISE, EIE and EEE are **Accredited** by **NBA** up to **30.6.2025)**

Channasandra, Dr. Vishnuvardhan Road, Bengaluru - 560 098

Department of AI & ML

2022 – 2023

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CERTIFICATE

Certified that the Project entitled **Covid Vaccination Database System** carried out by Mr. **Vishnu Kashyap** USN **1RN20AI062** a Bonafede student of V Semester BE, **RNS Institute of Technology** in partial fulfilment for the Bachelor of Engineering in AI & ML ENGINEERING of the **Visvesvaraya Technological University**, Belagavi during the year 2022-23. It is certified that all corrections / suggestions indicated for Internal Assessment have been incorporated in the report. The Project report has been approved as it satisfies the academic requirements in respect of Database Management System with Mini Project Laboratory prescribed for the said Degree.

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Signature

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ABSTRACT

The Covid-19 pandemic left a huge mark on the walk of humanity since early 2020, the recent outbreak of this virus has urged the society to promote public health and infection prevention as such there is a growing demand to bring an end to the spread once and for all through active vaccinations.

This process demands to accommodate billions of human beings to get vaccinated and prevent the virus infection as such the rising importance of information handling of each and every individual becomes very much crucial. This project attempts to satisfy this process and provides an acceptable user interface to the vaccinators and vaccination centre managers to maintain vaccination records.

With the growing trend of new vaccines and the urge to establish new vaccination centres, this project accommodates the information of new data through its capabilities of Creating, Reading, Updating and Deleting records. The project runs off of the exceptional data connection across the network with PHP files running on the SQL servers provided through XAMPP.

The project is also customized to be appealing and user friendly to the Covid Warriors – the Administrators and Staff members with a secure login page and data handling features provided through the front-end capabilities of PHP, HTML and stylized by CSS.

The vaccination history list contains the patient information, the vaccination location list contains the name of the several vaccination centres spread in the city, the vaccines list contains all the vaccines that are actively being given to people, the user information holds the vaccinator information, the individual list contains the abstract information about the general public and the system information module is utilized to set the name and representation of the UI.
All in all, the main objective of the project is the intertwining of public health and technological advancements to provide a system which works without errors for the betterment of human kind.

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CHAPTER 1

1. INTRODUCTION

1.1 Overview of Database Management Systems

A database is the grouping or collection of all the given information which is represented as the **data** and the processing and manipulation of said data results in the management of data. Hence the system which integrates the concept of information gathering and data utilization is DBMS.

The database is represented in the form of tables, views, schemas, reports to better help the user in understanding what's going on.

Essential components of a Database:

-Software

-Hardware

-Data

-Procedure

-Access Language

Functions of DBMS:

- Provides data Independence
- Provides Utility services
- Provides Recovery services
- Provides Concurrency Control
- Provides a clear and logical view of the process that manipulates data.

1.2 Problem Statement

With the decline in corona virus pandemic due to the rapid growth of vaccinations, the management of every individual's vaccination report, choice of vaccine and location of vaccination becomes crucial and a necessary task to help keep the society safe from the pandemic. The vaccines status of availability and locations of vaccination centres are also important details which must be only available to be altered or updated by recognized administrators and staff members. The gathered data must also be presented to the patients in the form of PDF.

1.3 Objective

The objective of the project is providing a better User Interface to the vaccinators and Administrators for better data handling.

The project focuses on procuring personal and consensual information of every individual willing to get vaccinated which includes areas such as:

- Date and time of vaccination.
- Location of vaccination centre.
- Choice of vaccine.
- User information handling.
- Updating the general record of all successful vaccinations.

The ability to view and update any Table Fields and update new Staff Users is provided to an Administrator and the option of updating the general vaccination record is given to a Staff User.

CHAPTER 2

2. SYSTEM REQUIREMENTS

2.1 Software Requirements

- Front – end:
    - HTML 5.0 (home page)
    - CSS3 (font and page styles)
    - Any web browser to run the page
- Back – end:
    - PHP 5.0 (linking Database)
    - JavaScript ES6
    - HTML 5.0
    - Bootstrap v5.3
- Database:
    - MySQL 8.0
    - XAMPP 8.2.0 (for dynamic database updating)

2.2 Hardware Requirements

- Processor: x86 or x64
- RAM: 512 MB (minimum), 1 GB (recommended)
- Hard disk: up to 200 MB of available space may be required. However, 50 MB free space is required in boot drive even if you are installing in other drive.

CHAPTER 3

3. SYSTEM DESIGN

3.1 ER Diagram

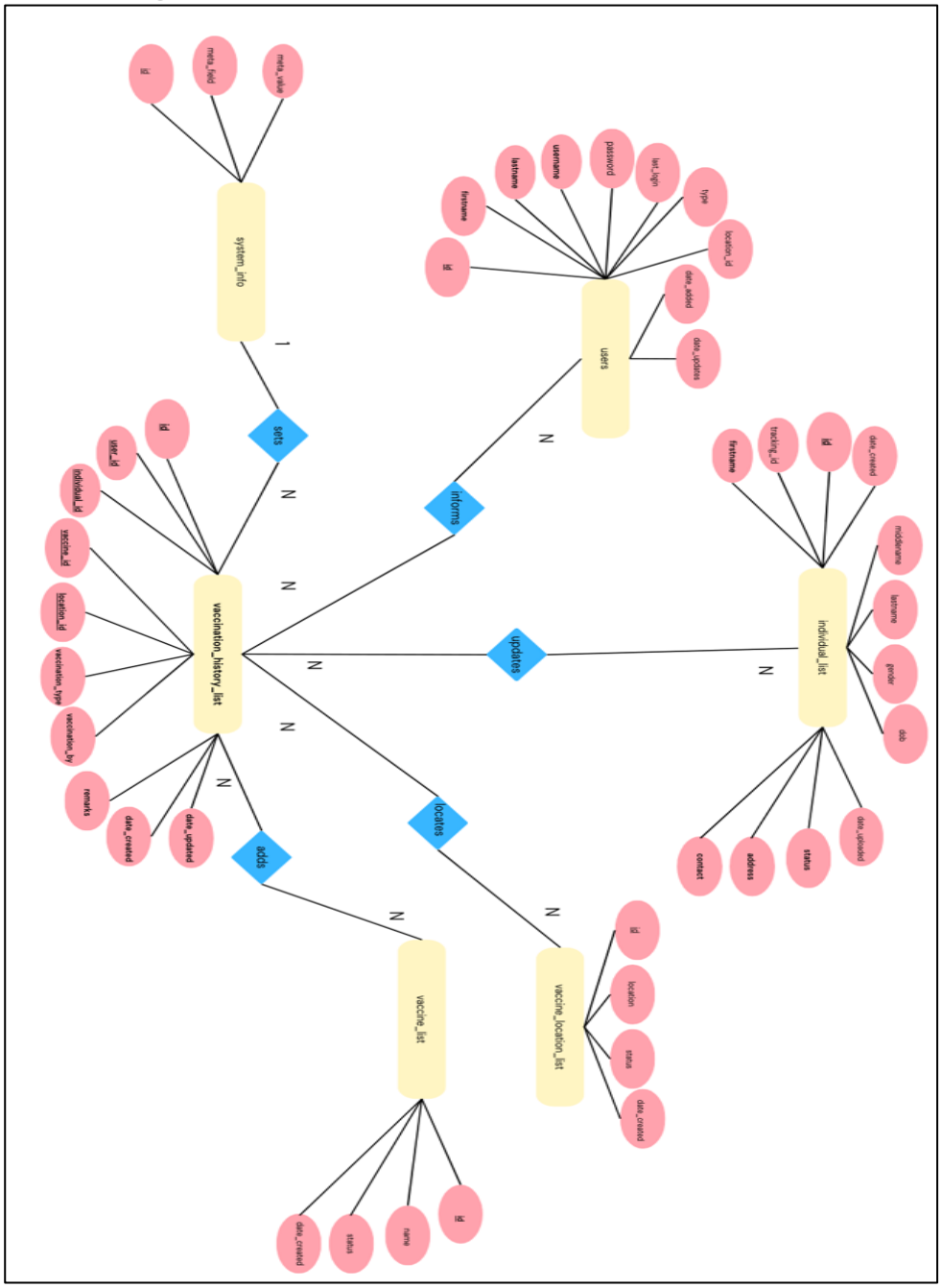


Figure 3.1: E-R Diagram of Covid Vaccination Database System (Landscape)

The E.R. Diagram given in figure 3.1 represents the Entity table relationships between the column records and attributes of the table.

3.2 Schema Diagram

Figure 3.2: Schema of Covid Vaccination Database System

The schema diagram gives the primary and foreign key reference depiction which is used to design an accurate entity-attribute relationship.

3.3 Overview of GUI

A graphical user interface (GUI) is an interface through which users interact with electronic devices through visual and audio indicators or graphical icons. GUIs display information and user control graphically. The representations in Graphical User Interface are manipulated by pointing devices such as a stylus, trackball, mouse, or finger on the touch screen.

A GUI consists of graphical elements such as cursors, icons, and buttons that are enhanced with sound and visual effects. Through these objects, users can use a computer without knowing the commands.

The below diagram provides the position of the graphical user interface with respect to the computer system-

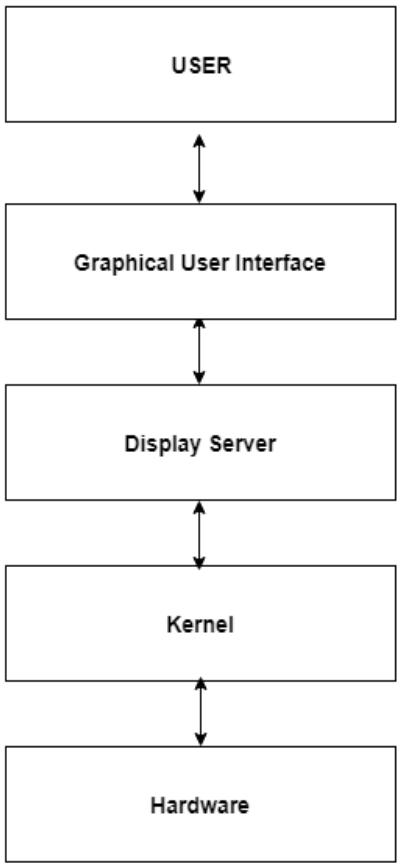


Figure 3.3: GUI block

3.4 Normalization

A large database defined as a single relation may result in data duplication. This repetition of data may result in:

- Making relations very large.
- It isn't easy to maintain and update data as it would involve searching many records in relation.
- Wastage and poor utilization of disk space and resources.
- The likelihood of errors and inconsistencies increases.

So, to handle these problems, we should analyse and decompose the relations with redundant data into smaller, simpler, and well-structured relations that are satisfy desirable properties. Normalization is a process of decomposing the relations into relations with fewer attributes.

The main reason for normalizing the relations is removing these anomalies. Failure to eliminate anomalies leads to data redundancy and can cause data integrity and other problems as the database grows. Normalization consists of a series of guidelines that helps to guide you in creating a good database structure.

Data modification anomalies can be categorized into three types:

- **Insertion Anomaly:** Insertion Anomaly refers to when one cannot insert a new tuple into a relationship due to lack of data.
- **Deletion Anomaly:** The delete anomaly refers to the situation where the deletion of data results in the unintended loss of some other important data.
- **Updating Anomaly:** The update anomaly is when an update of a single data value requires multiple rows of data to be updated.

There are four types of normal forms. They are: 1NF, 2NF, 3NF, BCNF.

CHAPTER 4

4. IMPLEMENTATION

4.1 Table Creation

- **Individual information**

```
CREATE TABLE `individual_list` (
`id` int(30) NOT NULL,
`tracking_code` varchar(50) NOT NULL,
`firstname` text NOT NULL,
`middlename` text NOT NULL,
`lastname` text NOT NULL,
`gender` varchar(50) NOT NULL,
`dob` date NOT NULL,
`contact` varchar(100) NOT NULL,
`address` text NOT NULL,
`status` tinyint(1) NOT NULL,
`date_created` datetime NOT NULL DEFAULT,
`date_updated` datetime DEFAULT NULL ON UPDATE
current_timestamp()
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4;
```

- **System information**

```
CREATE TABLE `system_info` (
`id` int(30) NOT NULL,
`meta_field` text NOT NULL,
`meta_value` text NOT NULL
 ) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4;
```

- **User information**

```
CREATE TABLE `users` (
`id` int(50) NOT NULL,
`firstname` varchar(250) NOT NULL,
`lastname` varchar(250) NOT NULL,
`username` text NOT NULL,
`password` text NOT NULL,
`last_login` datetime DEFAULT NULL,
`type` tinyint(1) NOT NULL DEFAULT 0,
`location_id` int(30) DEFAULT NULL,
`date_added` datetime NOT NULL DEFAULT current_timestamp(),
`date_updated` datetime DEFAULT NULL ON UPDATE
current_timestamp()
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4;
```

- **Vaccination location information**

```
CREATE TABLE `vaccination_location_list` (
`id` int(30) NOT NULL,
`location` text NOT NULL,
`status` tinyint(4) NOT NULL DEFAULT 1,
`date_created` datetime NOT NULL DEFAULT current_timestamp()
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4;
```

- **Vaccination history information**

```
CREATE TABLE `vaccine_history_list` (
`id` int(30) NOT NULL,
`user_id` int(30) DEFAULT NULL,
`individual_id` int(30) NOT NULL,
```

```
`vaccine_id` int(30) NOT NULL,
`location_id` int(30) NOT NULL,
`vaccination_type` varchar(50) NOT NULL,
`vaccinated_by` text NOT NULL,
`remarks` text NOT NULL,
`date_created` datetime NOT NULL DEFAULT current_timestamp(),
`date_updated` datetime DEFAULT NULL ON UPDATE current_timestamp()
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4;
```

- **Vaccines list information**

```
CREATE TABLE `vaccine_list` (
`id` int(30) NOT NULL,
`name` varchar(250) NOT NULL,
`status` tinyint(1) NOT NULL DEFAULT 1,
`date_created` datetime NOT NULL DEFAULT current_timestamp(),
 ON UPDATE current_timestamp() )
 ENGINE=InnoDB DEFAULT CHARSET=utf8mb4;
```

- **Feedback information**

```
CREATE TABLE `feedback` (
`id` int(10) NOT NULL,
`demoname` varchar(20) NOT NULL,
`demoemail` varchar(40) NOT NULL,
`demopriority` char(1) NOT NULL,
`demomessage` varchar(100) NOT NULL
```

)ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_general_ci;

4.2 Description of Tables

- **Individual information**

Table 4.1: individual_list

```
DESC individual_list;
```

[Edit inline] [Edit] [Create PHP code]

Extra options

Field	Type	Null	Key	Default	Extra
id	int(30)	NO	PRI	*NULL*	auto_increment
tracking_code	varchar(50)	NO		*NULL*	
firstname	text	NO		*NULL*	
middlename	text	NO		*NULL*	
lastname	text	NO		*NULL*	
gender	varchar(50)	NO		*NULL*	
dob	date	NO		*NULL*	
contact	varchar(100)	NO		*NULL*	
address	text	NO		*NULL*	
status	tinyint(1)	NO		0	
date_created	datetime	NO		current_timestamp()	
date_updated	datetime	YES		*NULL*	on update current_timestamp()

'id': the identification integer

'tracking_code': the 15 digit code which uniquely identifies every individual

'firstname': a text format, accepts the first name of individual

'middlename': accepts the middle name of individual

'lastname': accepts the last name of individual

'gender': identifies if the gender is a male or a female

'dob': the date input of the date of birth

'contact': accepts individual phone number

'address': a text field accepting location information

'status': [0=pending, 1=Partially Vaccinated, 2= Fully Vaccinated] identifies vaccination status of individuals

'date_created': date field updates whenever entry made

'date_updated': date field updates whenever existing entry is altered

- **System information**

Table 4.2: system_info

```
desc system_info;
```

[Edit inline] [Edit] [Create PHP code]

Extra options

Field	Type	Null	Key	Default	Extra
id	int(30)	NO	PRI	*NULL*	auto_increment
meta_field	text	NO		*NULL*	
meta_value	text	NO		*NULL*	

'id': identification number

'meta_field': other essential information such as name of page, logo or cover picture of page is entered here

'meta_value': the input files to meta_field contained

- **Users' information**

Table 4.3: users

```
desc users;
```

[Edit inline] [Edit] [Create PHP code]

Extra options

Field	Type	Null	Key	Default	Extra
id	int(50)	NO	PRI	*NULL*	auto_increment
firstname	varchar(250)	NO		*NULL*	
lastname	varchar(250)	NO		*NULL*	
username	text	NO		*NULL*	
password	text	NO		*NULL*	
last_login	datetime	YES		*NULL*	
type	tinyint(1)	NO		0	
location_id	int(30)	YES	MUL	*NULL*	
date_added	datetime	NO		current_timestamp()	
date_updated	datetime	YES		*NULL*	on update current_timestamp()

'id': identification number

'firstname': first name of authority (admin or staff)

'lastname': last name of authority

'username': preferred username of authority

'password': password input (which is encrypted)

'last_login': date field contains last log in information

'type': configuration information – Administrator or Staff Member

'location_id': locates the vaccination centre affiliation

'date_added': date field for when information created

'date_updated': date field for when information altered

- **Vaccination location information**

Table 4.4: vaccination_location_list

```
desc vaccination_location_list;
```

[Edit inline] [Edit] [Create PHP code]

Extra options

Field	Type	Null	Key	Default	Extra
id	int(30)	NO	PRI	*NULL*	auto_increment
location	text	NO		*NULL*	
status	tinyint(4)	NO		1	
date_created	datetime	NO		current_timestamp()	

'id': identification number

'location': vaccination centre address

'status': [1: Active and 0: Inactive] shows the working status of vaccination centre

'date_created': date field which updates when centre is established

- **Vaccination history information**

Table 4.5: vaccination_history_list

```
desc vaccine_history_list;
```

[Edit inline] [Edit] [Create PHP code]

Extra options

Field	Type	Null	Key	Default	Extra
id	int(30)	NO	PRI	*NULL*	auto_increment
user_id	int(30)	YES	MUL	*NULL*	
individual_id	int(30)	NO	MUL	*NULL*	
vaccine_id	int(30)	NO	MUL	*NULL*	
location_id	int(30)	NO	MUL	*NULL*	
vaccination_type	varchar(50)	NO		*NULL*	
vaccinated_by	text	NO		*NULL*	
remarks	text	NO		*NULL*	
date_created	datetime	NO		current_timestamp()	
date_updated	datetime	YES		*NULL*	on update current_timestamp()

'id': identification number

'user_id': a foreign key which references **id** of **users** table

'individual_id': a foreign key which references **id** of **individual_list** table

'vaccine_id': a foreign key which references **id** of **vaccine_list** table

'location_id': another foreign key which references **id** of **vaccination_location_list** table

'vaccination_type': a choice of first or second dose given

'vaccinated_by': the name of the doctor undertaking the injection

'remarks': the comments section by the doctor to the patient

'date_created': date field for when information created

'date_updates': date field for when information altered

- **Vaccine list information**

Table 4.6: vaccine_list

```
desc vaccine_list;
```

[Edit inline] [Edit] [Create PHP code]

Extra options

Field	Type	Null	Key	Default	Extra
id	int(30)	NO	PRI	*NULL*	auto_increment
name	varchar(250)	NO		*NULL*	
status	tinyint(1)	NO		1	
date_created	datetime	NO		current_timestamp()	on update current_timestamp()

'id': identification number

'name': name of vaccine

'status': [1: Active and 0: Inactive] showcases the status of vaccine – availability

'date_created': updates the date field when the vaccine is added to inventory

- **Feedback information**

Table 4.7: feedback

```
desc feedback;
```

[Edit inline] [Edit] [Create PHP code]

Extra options

Field	Type	Null	Key	Default	Extra
id	int(10)	NO	PRI	*NULL*	auto_increment
demoname	varchar(20)	NO		*NULL*	
demoemail	varchar(40)	NO		*NULL*	
demopriority	char(1)	NO		*NULL*	
demomessage	varchar(100)	NO		*NULL*	

'id': identification number

'**demoname**': name of reviewer

'**demoemail**': email ID of reviewer (accepts one email, one time)

'**demopriority**': [l: low ; n: normal; h: high] – rating priority feedback

'**demomessage**': feedback review text from the reviewer

4.3 Populated Tables

4.3.1 Insertion of values

- **Individual information**

INSERT INTO `individual_list` (`id`, `tracking_code`, `firstname`, `middlename`, `lastname`, `gender`, `dob`, `contact`, `address`, `status`, `date_created`, `date_updated`) VALUES

(1, '622252548118779', 'Narendra', 'D', 'Lalam', 'Male', '1978-06-13', '+919854125369', '#264, 5th Main, Vidhyarthi Layout, Bangalore-76', 2, '2023-01-05 19:37:29', NULL),

(7, '690824438727451', 'Khan', 'E', 'Gowri', 'Female', '1976-11-22', '+917548263985', '52nd ward, Sector 4, IISC layout, Bangalore', 2, '2023-01-12 11:21:41', NULL),

(8, '895073407179520', 'Vaibhav', 'M', 'Shreeram', 'Male', '1994-03-08', '+918452145789', '#34, 6th cross, Jai Layout, Bangalore', 2, '2023-01-12 11:24:20', NULL),

(9, '219929863514334', 'Neeraje', 'E', 'Hari', 'Male', '1989-01-01', '+918427512306', '55th Street, Kanakpura Road, Bangalore', 2, '2023-01-12 11:28:20', NULL);

- **System information**

INSERT INTO `system_info` (`id`, `meta_field`, `meta_value`) VALUES
(1, 'name', 'Covid Vaccination Database'),
(6, 'short_name', 'CVDB'),
(11, 'logo', 'uploads/cover-1634524906.png'),
(14, 'cover', 'uploads/cover1.jpg');

- **Users' information**

INSERT INTO `users` (`id`, `firstname`, `lastname`, `username`, `password`, `last_login`, `type`, `location_id`, `date_added`, `date_updated`) VALUES

(1, 'Vishnu', 'Kashyap', 'vishnu@admin', '9baea88a52d949f8f2680b0c1c922552', NULL, 1, NULL, '2023-01-05 18:02:37', '2023-01-05 19:55:07'),

(3, 'Rohan', 'Dutt', 'rdutt@covid', 'aeae5b2f900e84d784a0f0111e650835', NULL, 2, 3, '2023-01-05 18:03:58', '2023-01-05 23:01:25'),

(4, 'Shilpa', 'Shankar', 'shilpa@covid', '16edabb86eadec1b0d2435402fd57108', NULL, 2, 1, '2023-01-05 18:04:37', '2023-01-12 11:22:32');

- **Vaccination location information**

INSERT INTO `vaccination_location_list` (`id`, `location`, `status`, `date_created`) VALUES

(1, 'Vaccination Center 1 South Bangalore', 1, '2023-01-05 19:30:00'),

(2, 'Vaccination Center 2 North Bangalore', 1, '2023-01-05 19:30:00'),

(3, 'Vaccination Center 3 East Bangalore', 1, '2023-01-05 19:30:00'),

(4, 'Vaccination Center 4 West Bangalore', 1, '2023-01-05 19:30:00');

- **Vaccination history information**

INSERT INTO `vaccine_history_list` (`id`, `user_id`, `individual_id`, `vaccine_id`, `location_id`, `vaccination_type`, `vaccinated_by`, `remarks`, `date_created`, `date_updated`) VALUES

(1, 1, 1, 1, 4, '1st Dose', 'Dr. Kiran', 'Positively vaccinated', '2023-01-05 19:37:29', NULL),

(10, 1, 7, 6, 4, '1st Dose', 'Dr. Sridhar', 'Vaccination progress success', '2023-01-12 11:21:41', '2023-01-12 11:30:41'),

(11, 4, 8, 2, 1, '1st Dose', 'Dr. Veena', 'Vaccination done.', '2023-01-12 11:24:20', NULL),

(12, 3, 9, 1, 3, '1st Dose', 'Dr. Veena', 'Vaccinated yet adviced to maintain healthy nutrition', '2023-01-12 11:28:20', NULL);

- **Vaccines list information**

INSERT INTO `vaccine_list` (`id`, `name`, `status`, `date_created`) VALUES

(1, 'Covaxin', 1, '2023-01-05 19:37:00'),

(2, 'CoviShield', 1, '2023-01-03 18:58:00'),

(3, 'Inovio', 0, '2023-01-03 18:59:00'),

(4, 'Pfizer-III', 1, '2023-01-03 18:59:00'),

(5, 'Sinovac', 1, '2023-01-03 18:59:00'),

(6, 'Sputnik', 1, '2023-01-03 18:58:00');

{Additional table}

- **Feedback information**

INSERT INTO `feedback` (`id`, `demoname`, `demoemail`, `demopriority`, `demomessage`) VALUES

(1, 'Rohan Dutt', 'rdutt@gmail.com', 'h', 'This UI really helped me manage vaccination information better!')

4.3.2 Display of populated values

- **Individual information**

SELECT * FROM individual_list;

id	tracking_code	firstname	middlename	lastname	gender	dob	contact	address	status (0=pending, 1=Partially Vaccinated, 2= Fully Vaccin...)	date_created	date_updated
1	622252548118779	Narendra	D	Lalam	Male	1978-06-13	+919854125369	#264, 5th Main, Vidhyarthi Layout, Bangalore-76	2	2023-01-05 19:37:29	NULL
7	690824438727451	Khan	E	Gowri	Female	1976-11-22	+917548263985	52nd ward, Sector 4, IISC layout, Bangalore	2	2023-01-12 11:21:41	NULL
8	895073407179520	Vaibhav	M	Shreeram	Male	1994-03-08	+918452145789	#34, 6th cross, Jai Layout, Bangalore	2	2023-01-12 11:24:20	NULL
9	219929863514334	Neeraje	E	Hari	Male	1989-01-01	+918427512306	55th Street, Kanakpura Road, Bangalore	2	2023-01-12 11:28:20	NULL

Figure 4.8: individual_list

- **System information**

SELECT * FROM system_info;

id	meta_field	meta_value
1	name	Covid Vaccination Database
6	short_name	CVDB
11	logo	uploads/cover-1634524906.png
14	cover	uploads/cover1.jpg

Figure 4.9: system_info

- **Users' information**

SELECT * FROM users;

id	firstname	lastname	username	password	last_login	type	location_id	date_added	date_updated
1	Vishnu	Kashyap	vishnu@admin	9baea88a52d949f8f2680b0c1c922552	NULL	1	NULL	2023-01-05 18:02:37	2023-01-05 19:55:07
3	Rohan	Dutt	rdutt@covid	aeae5b2f900e84d784a0f0111e650835	NULL	2	3	2023-01-05 18:03:58	2023-01-05 23:01:25
4	Shilpa	Shankar	shilpa@covid	16edabb86eadec1b0d2435402fd57108	NULL	2	1	2023-01-05 18:04:37	2023-01-12 11:22:32

Figure 4.10: users

- **Vaccination location information**

SELECT * FROM vaccination_location_list;

id	location	status	date_created
1	Vaccination Center 1 South Bangalore	1	2023-01-05 19:30:00
2	Vaccination Center 2 North Bangalore	1	2023-01-05 19:30:00
3	Vaccination Center 3 East Bangalore	1	2023-01-05 19:30:00
4	Vaccination Center 4 West Bangalore	1	2023-01-05 19:30:00

Figure 4.11: vaccination_location_list

- **Vaccination history information**

SELECT * FROM vaccination_history_list;

id	user_id	individual_id	vaccine_id	location_id	vaccination_type	vaccinated_by	remarks	date_created	date_updated
1	1	1	1	4	1st Dose	Dr. Kiran	Positively vaccinated	2023-01-05 19:37:29	NULL
10	1	7	6	4	1st Dose	Dr. Sridhar	Vaccination progress success	2023-01-12 11:21:41	2023-01-12 11:30:41
11	4	8	2	1	1st Dose	Dr. Veena	Vaccination done.	2023-01-12 11:24:20	NULL
12	3	9	1	3	1st Dose	Dr. Veena	Vaccinated yet adviced to maintain healthy nutriti...	2023-01-12 11:28:20	NULL

Figure 4.12: vaccination_history_list

- **Vaccination list information**

  SELECT * FROM vaccine_list;

id	name	status	date_created
1	Covaxin	1	2023-01-05 19:37:00
2	CoviShield	1	2023-01-03 18:58:00
3	Inovio	0	2023-01-03 18:59:00
4	Pfizer-III	1	2023-01-03 18:59:00
5	Sinovac	1	2023-01-03 18:59:00
6	Sputnik	1	2023-01-03 18:58:00

Figure 4.13: vaccine_list

- **Feedback**

  SELECT * FROM feedback;

id	demoname	demoemail	demopriority	demomessage
1	Rohan Dutt	rdutt@gmail.com	h	This UI really helped me manage vaccination inform...

Figure 4.14: feedback

4.4 Triggers

A database trigger is a procedural code that is automatically executed in response to certain events on a particular table or view in a database. The trigger is mostly used for maintaining the integrity of the information on the database. Triggers execute when a user tries to modify data through a data manipulation language (DML) event. DML events are INSERT, UPDATE, or DELETE statements on a table or view.

To accommodate triggers, a new table 'log' was created which maintains the number of records in the individual_list table. This 'log' table has the following CREATE statement:

```
CREATE TABLE total_ind (tot INT PRIMARY KEY);
```

This table is automated with the help of two triggers each of which activate during INSERT and DELETE performed on individual_list

The trigger guarding INSERT is as follows:

```
CREATE TRIGGER insert_new AFTER INSERT ON individual_list FOR

EACH ROW UPDATE total_ind SET total_ind.tot= total_ind.tot +1;
```

The trigger guarding DELETE is as follows:

```
CREATE TRIGGER `delete_old` AFTER DELETE ON `individual_list`
 FOR EACH ROW UPDATE total_ind SET total_ind.tot = total_ind.tot - 1;
```

Working:

After an INSERT operation is performed, the value within total_ind will be incremented by one for each inserted row. Similarly, the value will be decremented by one for each deleted row after a DELETE operation is performed on the individual_list table.

4.5 Database Connectivity

The Database connection now becomes a crucial step to link the user input and store relevant information under the particular column of a given table in the database.

This involves connecting the entire database to a server that can access and query the database remotely or under supervision. One of the tools used to achieve database connectivity and also the one used in this project is done through PHP which links the tables to its respective user input.

Code:

initialize.php (file):

```
<?php

if(!defined('base_url')) define('base_url','http://localhost/vaccinated/');

if(!defined('base_app')) define('base_app', str_replace('\\','/',__DIR__).'/' );



if(!defined('DB_SERVER')) define('DB_SERVER',"localhost");

if(!defined('DB_USERNAME')) define('DB_USERNAME',"root");

if(!defined('DB_PASSWORD')) define('DB_PASSWORD',"");

if(!defined('DB_NAME')) define('DB_NAME',"vaccinated_db");

?>
```

DBconnection.php (/.classes):

```
<?php

if(!defined('DB_SERVER')){
```

```
    require_once("../initialize.php");

}

class DBConnection{

    private $host = DB_SERVER;

    private $username = DB_USERNAME;

    private $password = DB_PASSWORD;

    private $database = DB_NAME;

    public $conn;

    public function construct(){

    if(!isset($this->conn)) {

        $this->conn = new mysqli($this->host, $this->username, $this->password,
        $this->database); /*host: “localhost”; username: “root”; password: “”;
        database: “vaccinated_db” */

        if (!$this->conn) {

            echo 'Cannot connect to database server';  exit;

        }

    }

    public function destruct(){

    $this->conn->close(); }
```

4.6 Source Code (front end)

index.html

```
<!DOCTYPE HTML>
<html>
  <head>
    <title>Covid Vaccination Database</title>
    <meta charset="utf-8" />
     <meta name="viewport" content="width=device-width, initial-scale=1, user-scalable=no" />
    <link rel="stylesheet" href="assets/css/main.css" />
    <noscript><link rel="stylesheet" href="assets/css/noscript.css" /></noscript>
  </head>
  <body class="landing is-preload">


      <div id="page-wrapper">

        <!-- Header -->
          <header id="header" class="alt">
            <h1><a href="index.html">Covid Vaccination Database</a></h1>
            <nav id="nav">
              <ul>
                <li class="special">
                                                    <a href="#menu" class="menuToggle"><span>Menu</span></a>
                    <div id="menu">
                      <ul>
                        <li><a href="index.html">Home</a></li>
                          <li><a href="generic.html" target="_blank">Concept of Service</a></li>
```

```
                                <li><a href="elements.html" target="_blank">About &
Contact</a></li>
                                <li><a href="http://localhost/vaccinated/admin/login.php"
target="_blank">Login</a></li>
                                </ul>
                            </div>
                        </li>
                    </ul>
                </nav>
            </header>

            <!-- Banner -->
                <section id="banner">
                    <div class="inner">
                        <h2>Covid Vaccination Database</h2>
                        <p>Centralized Vaccination Information Center<br />
                        </p>
                        <p2>A fight to prevent the spread of Covid-19 involving the latest
technology<br /> and supported by an effecient
                            Database Management System
                        </p2><br/>
                        <p>

                        </p>
                        <ul class="actions special">
                            <li><a href="http://localhost/vaccinated/admin/login.php"
class="button primary" target="_blank">Login</a></li>
                        </ul>
                    </div>
                    <a href="#two" class="more scrolly">Learn More</a>
                </section>
```

```
<!-- Two -->
   <section id="two" class="wrapper alt style2">
      <section class="spotlight">
            <div class="image"><img src="images/pic01.jpg" alt="" /></div><div class="content">
            <h2>Vaccination <br />
            a top priority</h2>
            <p>With established vaccination centers spread throughout the city to immobilize the pandemic</p>
         </div>
      </section>
      <section class="spotlight">
            <div class="image"><img src="images/pic02.jpg" alt="" /></div><div class="content">
            <h2>User friendly<br />
            Information Management</h2>
            <p>Providing highly efficient software interface to collect and process every individual data</p>
         </div>
      </section>
      <section class="spotlight">
            <div class="image"><img src="images/pic3.jpg" alt="" /></div><div class="content">
            <h2>Login module <br />
            to support data privacy</h2>
               <p>A secured administrator/staff login page to access user information</p>
         </div>
      </section>

   </section>

<!-- Footer -->
```

```
                <footer id="footer">
                    <p> Developed by:</p>
                    <ul class="icons">
                            <li><a href="https://www.instagram.com/vishnuukashyap/"
class="icon brands fa-instagram" target="_blank"><span
class="label">Instagram</span></a></li>
                        <li><a href="https://discord.gg/NfZtZ86Kd4" class="icon brands
fa-discord" target="_blank"><span class="label">Dribbble</span></a></li>
                            <li><a href="mailto:vishnu.kashyaporange@gmail.com"
class="icon solid fa-envelope" target="_blank"><span
class="label">Email</span></a></li>
                    </ul>
                    <ul class="copyright">
                        <li>&copy; Vishnu Kashyap</li></a></li>
                    </ul>
                </footer>

            </div>

        <!-- Scripts -->
            <script src="assets/js/jquery.min.js"></script>
            <script src="assets/js/jquery.scrollex.min.js"></script>
            <script src="assets/js/jquery.scrolly.min.js"></script>
            <script src="assets/js/browser.min.js"></script>
            <script src="assets/js/breakpoints.min.js"></script>
            <script src="assets/js/util.js"></script>
            <script src="assets/js/main.js"></script>

    </body>
</html>
```

config.php

```
<?php
ob_start();
ini_set('date.timezone','Asia/Manila');
date_default_timezone_set('Asia/Manila');
session_start();

require_once('initialize.php');
require_once('classes/DBConnection.php');
require_once('classes/SystemSettings.php');
$db = new DBConnection;
$conn = $db->conn;

function redirect($url=''){
    if(!empty($url))
    echo '<script>location.href="'.base_url .$url.'"</script>';
}
function validate_image($file){
    if(!empty($file)){
            // exit;
        $ex = explode('?',$file);
        $file = $ex[0];
        $param =  isset($ex[1]) ? '?'.$ex[1]  : '';
        if(is_file(base_app.$file)){
            return base_url.$file.$param;
        }else{
            return base_url.'dist/img/no-image-available.png';
        }
    }else{
        return base_url.'dist/img/no-image-available.png';
    }
}
function isMobileDevice(){
    $aMobileUA = array(
```

```
        '/iphone/i' => 'iPhone',
        '/ipod/i' => 'iPod',
        '/ipad/i' => 'iPad',
        '/android/i' => 'Android',
        '/blackberry/i' => 'BlackBerry',
        '/webos/i' => 'Mobile'
    );

    //Return true if Mobile User Agent is detected
    foreach($aMobileUA as $sMobileKey => $sMobileOS){
        if(preg_match($sMobileKey, $_SERVER['HTTP_USER_AGENT'])){
            return true;
        }
    }
    //Otherwise return false..
    return false;
}
ob_end_flush();
?>
```

login.php

```
<?php require_once('../config.php') ?>
<!DOCTYPE html>
<html lang="en" class="" style="height: auto;">
 <?php require_once('inc/header.php') ?>
<body class="hold-transition login-page  dark-mode">
  <script>
    start_loader()
  </script>
  <style>
    body{
      background-image: url("<?php echo validate_image($_settings->info('cover'))
?>");
```

```
    background-size:cover;
    background-repeat:no-repeat;
   }
   .login-title{
    text-shadow: 1px 1px black
   }
  </style>
  <h1 class="text-center py-5 login-title"><b><?php echo $_settings->info('name')
?></b></h1>
<div class="login-box">
  <!-- /.login-logo -->
  <div class="card card-outline card-primary">
   <div class="card-header text-center">
    <a href="./" class="h1"><b>Login</b></a>
   </div>
   <div class="card-body">
    <p class="login-box-msg">Sign in to start your session</p>

    <form id="login-frm" action="" method="post">
     <div class="input-group mb-3">
                <input type="text" class="form-control" name="username"
placeholder="Username">
      <div class="input-group-append">
       <div class="input-group-text">
        <span class="fas fa-user"></span>
       </div>
      </div>
     </div>
     <div class="input-group mb-3">
              <input type="password" class="form-control" name="password"
placeholder="Password">
      <div class="input-group-append">
       <div class="input-group-text">
        <span class="fas fa-lock"></span>
```

```
            </div>
          </div>
        </div>
        <div class="row">
          <div class="col-8">
          </div>
          <!-- /.col -->
          <div class="col-4">
           <button type="submit" class="btn btn-primary btn-block">Sign In</button>
          </div>
          <!-- /.col -->
        </div>
      </form>
      <!-- /.social-auth-links -->

      <!-- <p class="mb-1">
        <a href="forgot-password.html">I forgot my password</a>
      </p> -->

    </div>
    <!-- /.card-body -->
  </div>
  <!-- /.card -->
</div>
<!-- /.login-box -->

<!-- jQuery -->
<script src="plugins/jquery/jquery.min.js"></script>
<!-- Bootstrap 4 -->
<script src="plugins/bootstrap/js/bootstrap.bundle.min.js"></script>
<!-- AdminLTE App -->
<script src="dist/js/adminlte.min.js"></script>

<script>
```

```
  $(document).ready(function(){
    end_loader();
  })
</script>
</body>
</html>
```

generic.html

```
<!DOCTYPE HTML>

<html>
    <head>
        <title>CoS</title>
        <meta charset="utf-8" />
         <meta name="viewport" content="width=device-width, initial-scale=1, user-scalable=no" />
        <link rel="stylesheet" href="assets/css/main.css" />
        <noscript><link rel="stylesheet" href="assets/css/noscript.css" /></noscript>
    </head>
    <body class="is-preload">

        <!-- Page Wrapper -->
            <div id="page-wrapper">

                <!-- Header -->
                    <header id="header">
                        <h1><a href="#">Concept of Service</a></h1>
                        <nav id="nav">
                            <ul>
                                <li class="special">
                                                                    <a href="#menu" class="menuToggle"><span>Menu</span></a>
```

```
                        <div id="menu">
                            <ul>
                                <li><a href="index.html">Home</a></li>
                                <li><a href="elements.html" target="_blank">About &
Contact</a></li>
                            <li><a href="http://localhost/vaccinated/admin/login.php"
target="_blank">Login</a></li>
                            </ul>
                        </div>
                    </li>
                </ul>
            </nav>
        </header>

    <!-- Main -->
        <article id="main">
            <header>
                <h2>Software tools to back the war against Covid</h2>
                <p>The integration of Data management and Public Safety</p>
            </header>
            <section class="wrapper style5">
                <div class="inner">

                    <h3>Vaccination Registration</h3>
                        <p>With the governments across the globe mandating the
vaccination programs, it becomes essential to any software engineer to do their part
in boosting the vaccination numbers, hence with the help of effective software tools
the prevention of this infection is of utmost importance</p>

                    <h3>Promoting the 3Cs (a WHO initiative)</h3>
                    <div class="box alt">
                        <div class="row gtr-50 gtr-uniform">
                                <div class="col-12"><span class="image fit"><a
href="https://www.who.int/emergencies/diseases/novel-coronavirus-2019/covid-
```

```
19-vaccines/advice" title="This leads to WHO Vaccination Awareness page" target="_blank"><img src="images/3c.png" alt="" /></a></span></div>
                    </div>
                </div>

                <hr />

                <h3>Technicalities</h3>
                <p>The software is developed using the<br>
                <ol>
                    <li>Front end capabilities of <a href="https://html.com/" target="_blank"><b>HTML</b>(Hyper Text Mark up Language)</a> </li>
                    <li>Webpage Styling using <a href="https://www.css3.com/" target="_blank"><b>CSS</b>(Cascading Style Sheets)</a> </li>
                    <li>Back end capabilities of <a href="https://www.php.net/" target="_blank"><b>PHP</b>(PHP HyperText Preprocessor)</a> </li>
                    <li>Database connection using <a href="https://www.apachefriends.org/" target="_blank"><b>XAMPP</b>(X-operating system, Apache, Mysql, Php, Perl)</a> </li>
                </ol></p>

                </div>
            </section>
        </article>

        <!-- Footer -->
        <footer id="footer">
            <p> Developed by:</p>
            <ul class="icons">
                <li><a href="https://www.instagram.com/vishnuukashyap/" class="icon brands fa-instagram" target="_blank"><span class="label">Instagram</span></a></li>
                <li><a href="https://discord.gg/NfZtZ86Kd4" class="icon brands fa-discord" target="_blank"><span class="label">Dribbble</span></a></li>
```

```
                    <li><a href="mailto:vishnu.kashyaporange@gmail.com" class="icon
solid fa-envelope" target="_blank"><span class="label">Email</span></a></li>
                </ul>
                <ul class="copyright">
                    <li>&copy; Vishnu Kashyap</li></a></li>
                </ul>
            </footer>
        </div>

    <!-- Scripts -->
        <script src="assets/js/jquery.min.js"></script>
        <script src="assets/js/jquery.scrollex.min.js"></script>
        <script src="assets/js/jquery.scrolly.min.js"></script>
        <script src="assets/js/browser.min.js"></script>
        <script src="assets/js/breakpoints.min.js"></script>
        <script src="assets/js/util.js"></script>
        <script src="assets/js/main.js"></script>

  </body>
</html>
```

elements.html

```
<!DOCTYPE HTML>


<html>
  <head>
    <title>Contact</title>
    <meta charset="utf-8" />
     <meta name="viewport" content="width=device-width, initial-scale=1, user-
scalable=no" />
    <link rel="stylesheet" href="assets/css/main.css" />
    <noscript><link rel="stylesheet" href="assets/css/noscript.css" /></noscript>
  </head>
```

```
<body class="is-preload">

<!-- Page Wrapper -->
<div id="page-wrapper">

<!-- Header -->
<header id="header">
<h1><a href="#">About & Contact</a></h1>
<nav id="nav">
<ul>
<li class="special">
<a href="#menu" class="menuToggle"><span>Menu</span></a>
<div id="menu">
<ul>
<li><a href="index.html">Home</a></li>
<li><a href="generic.html">Concept of Services</a></li>
<li><a href="http://localhost/vaccinated/admin/login.php" target="_blank">Login</a></li>
</ul>
</div>
</li>
</ul>
</nav>
</header>

<!-- Main -->
<article id="main">
<header>
<h2>Know more about the initiative</h2>
<p>A passionate thought to connect the simple act of medical prevention with modern technological solutions</p>
</header>
<section class="wrapper style5">
```

```
<div class="inner">

<section>

<h5>A quote to go by</h5>
<blockquote>“I am alive, well and fully vaccinated, despite pledging allegiance to no authority. Listening to experts is not complacency, it's just an act of common sense humanity.”
<br> - Abhijit Naskar, Handcrafted Humanity: 100 Sonnets For A Blunderful</blockquote>

<h5>About the developer</h5>
<p><span class="image left"><img src="images/profile.jfif" alt="" height="250" width="100" /></span> <b>Vishnu Kashyap</b>, an enthusiastic engineering student aspiring
to solve any given problem in the walk of life. The initiative to develop this project was fueled by the general awareness and thought to <i>prevent rather than repent</i>
the spread of the Covid-19 pandemic. The project also kept in mind the much needed User Interface for the active vaccinators and managers to help everyone in
providing a clear and a better picture of user data.
<br><br><br><br></p>

<section>
<h4>Review Form</h4>
<p><i>Stored for further evaluation for the betterment of the webpage</i></p>

<form action="http://localhost/vaccinated/webpage/insert.php" method="POST">
```

```
                    <div class="row gtr-uniform">
                        <div class="col-6 col-12-xsmall">
                            <input type="text" name="demoname" id="demoname" placeholder="Name" required/>
                        </div>
                        <div class="col-6 col-12-xsmall">
                            <input type="email" name="demoemail" id="demoemail" placeholder="Email" required />
                        </div>

                        <div class="col-10 col-12-small">
                            <p>Rating</p>
                        </div>
                        <div class="col-4 col-12-small">
                            <input type="radio" id="demoprioritylow" name="demopriority" value="l" required>
                            <label for="demoprioritylow">Low</label>
                        </div>
                        <div class="col-4 col-12-small">
                            <input type="radio" id="demoprioritynormal" name="demopriority" value="n" required>
                            <label for="demoprioritynormal">Normal</label>
                        </div>
                        <div class="col-4 col-12-small">
                            <input type="radio" id="demoprioorityhigh" name="demopriority" value="h" required checked>
                            <label for="demoprioorityhigh">High</label>
                        </div>

                        <div class="col-12">
                            <textarea name="demomessage" id="demomessage" placeholder="Enter your message" rows="6"></textarea>
                        </div>
                        <div class="col-12">
```

```
                                    <ul class="actions">
                                        <li><input type="submit" value="Send Message"
class="primary" name="submit" /></li>
                                        <li><input type="reset" value="Reset" /></li>
                                    </ul>
                                </div>
                            </div>
                        </form>

                    </section>



                </div>
            </section>
        </article>

        <!-- Footer -->
        <footer id="footer">
            <p> Developed by:</p>
            <ul class="icons">
                    <li><a  href="https://www.instagram.com/vishnuukashyap/"
class="icon brands fa-instagram" target="_blank"><span
class="label">Instagram</span></a></li>
                <li><a href="https://discord.gg/NfZtZ86Kd4" class="icon brands
fa-discord" target="_blank"><span class="label">Dribbble</span></a></li>
                <li><a href="mailto:vishnu.kashyaporange@gmail.com" class="icon
solid fa-envelope" target="_blank"><span class="label">Email</span></a></li>
            </ul>
            <ul class="copyright">
                <li>&copy; Vishnu Kashyap</li></a></li>
            </ul>
        </footer>
```

```
            </div>

        <!-- Scripts -->
            <script src="assets/js/jquery.min.js"></script>
            <script src="assets/js/jquery.scrollex.min.js"></script>
            <script src="assets/js/jquery.scrolly.min.js"></script>
            <script src="assets/js/browser.min.js"></script>
            <script src="assets/js/breakpoints.min.js"></script>
            <script src="assets/js/util.js"></script>
            <script src="assets/js/main.js"></script>

    </body>
</html>
```

insert.php

```
<?php
if (isset($_POST['submit'])) {
        if (isset($_POST['demoname']) && isset($_POST['demoemail']) && isset($_POST['demopriority']) && isset($_POST['demomessage']))
        {
        $demoname = $_POST['demoname'];
        $demoemail = $_POST['demoemail'];
        $demopriority = $_POST['demopriority'];
        $demomessage = $_POST['demomessage'];

          if (!empty($demoname) || !empty($demoemail) || !empty($demopriority) || !empty($demomessage)) {
            $host = "localhost";
            $dbUsername = "root";
            $dbPassword = "";
            $dbname = "vaccinated_db";

            $conn = new mysqli($host, $dbUsername, $dbPassword, $dbname);
```

```
        if ($conn->connect_error) {
            die('Could not connect to the database.');
        } else {
            $SELECT = "SELECT demoemail FROM feedback WHERE demoemail
= ? LIMIT 1"; //unique email!
                $INSERT = "INSERT INTO feedback(demoname, demoemail,
demopriority, demomessage)
                values (?,?,?,?)";
            $stmt = $conn->prepare($SELECT);
            $stmt->bind_param("s", $demoemail);
            $stmt->execute();
            $stmt->bind_result($resultEmail);
            $stmt->store_result();
            $stmt->fetch();
            $rnum = $stmt->num_rows;

            if ($rnum == 0) {
                $stmt->close();
                $stmt = $conn->prepare($INSERT);
                 $stmt->bind_param("ssss", $demoname, $demoemail, $demopriority,
$demomessage);
                if ($stmt->execute()) {
                    echo "Thank for your review!";
                } else {
                    echo $stmt->error;
                }
            } else {
                echo "Someone has already reviewed using this email!";
            }
            $stmt->close();
            $conn->close();

        }
```

```
        } else {
            echo "All fields are required to be filled.";
            die();

        }
    }
}
else{
    echo "Submit button is not working!";
    die();
}
?>
```

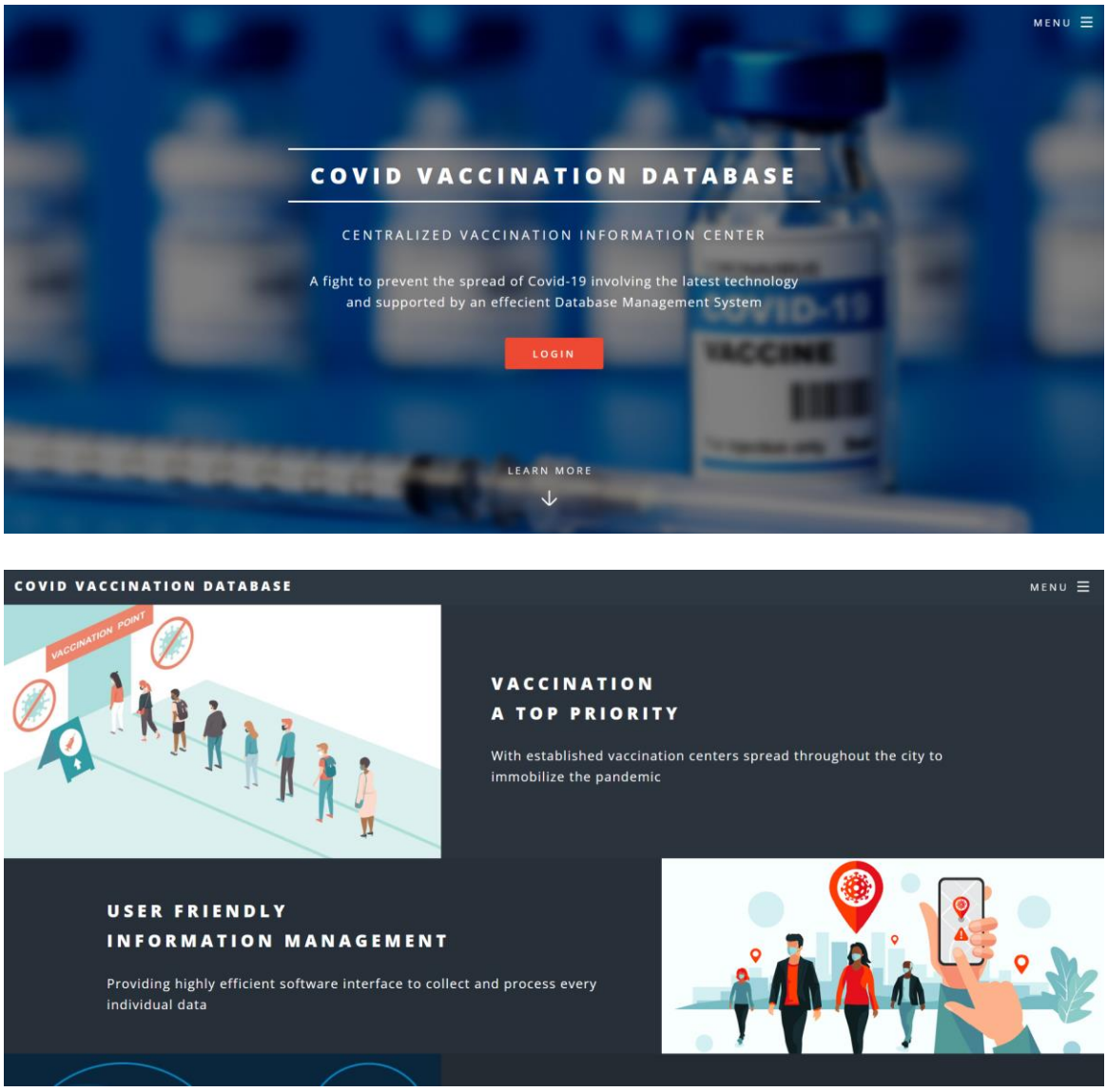
CHAPTER 5

Results

Home page

Figure 5.1 index.html

The home page welcomes the user with the general information surrounding the website project with a side menu feature and a login link for user login



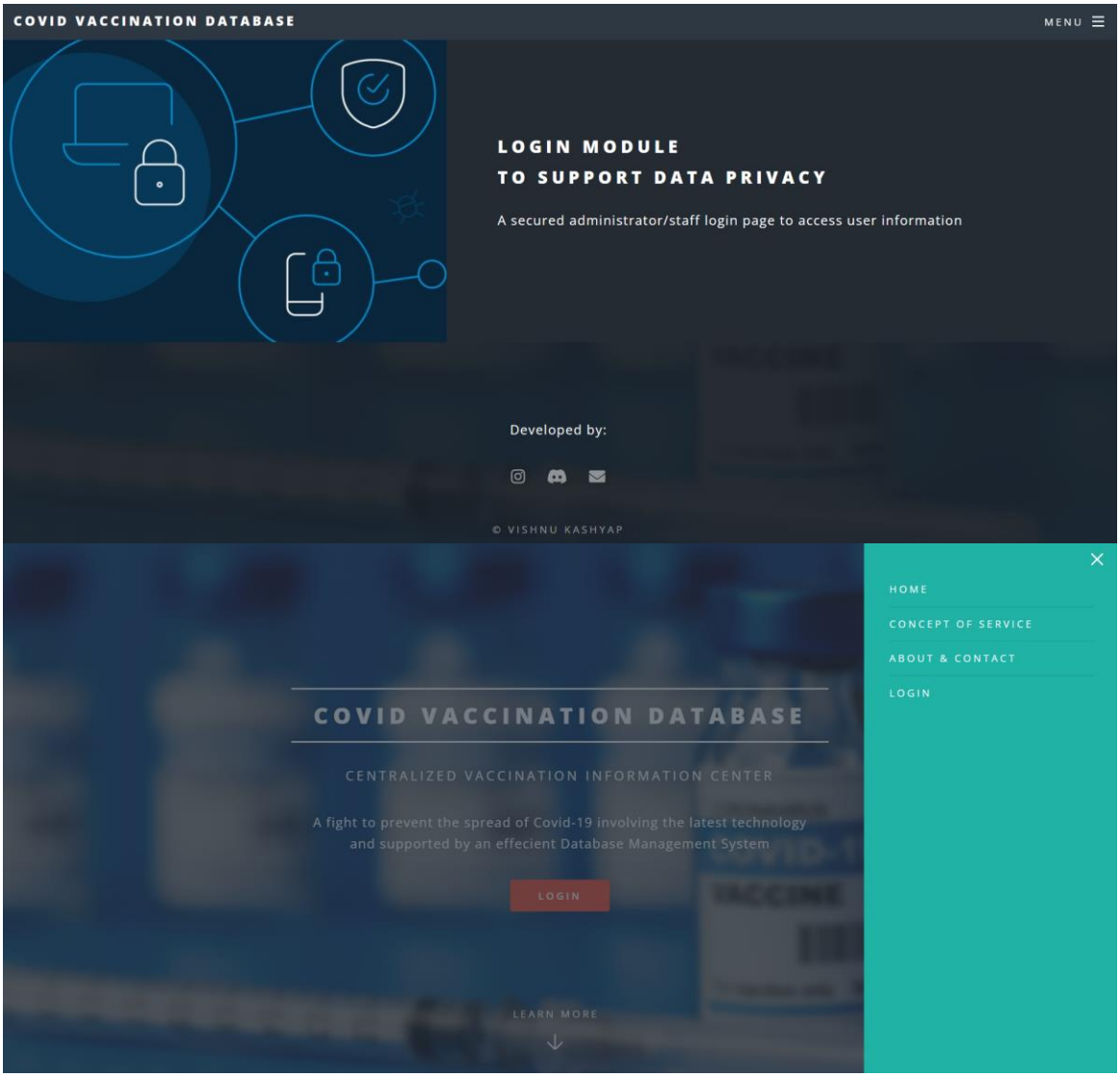
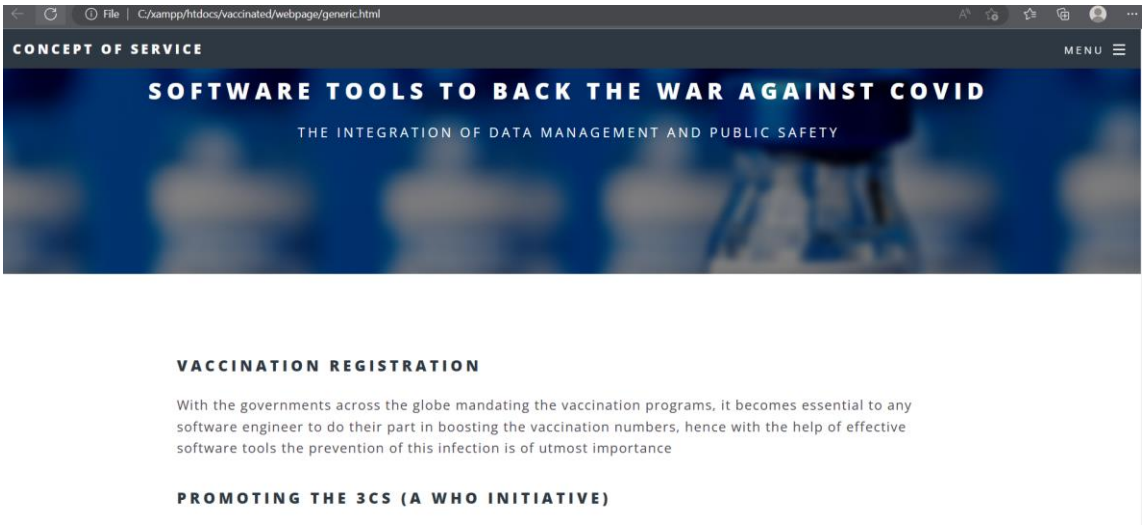


Figure 5.2 generic.html

The CoS page promotes safe Covid practices and represents the importance of a covid vaccination database management system



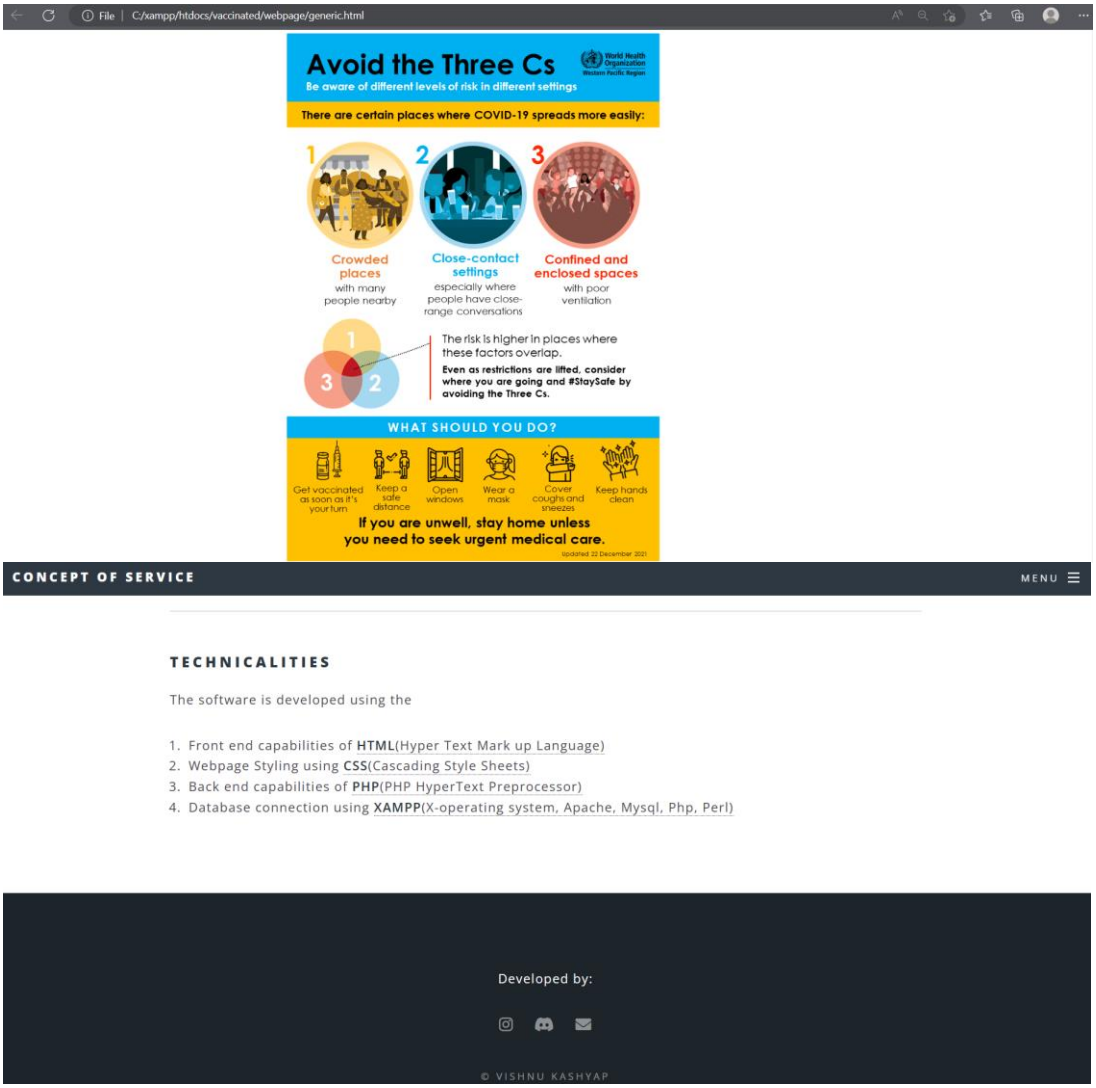
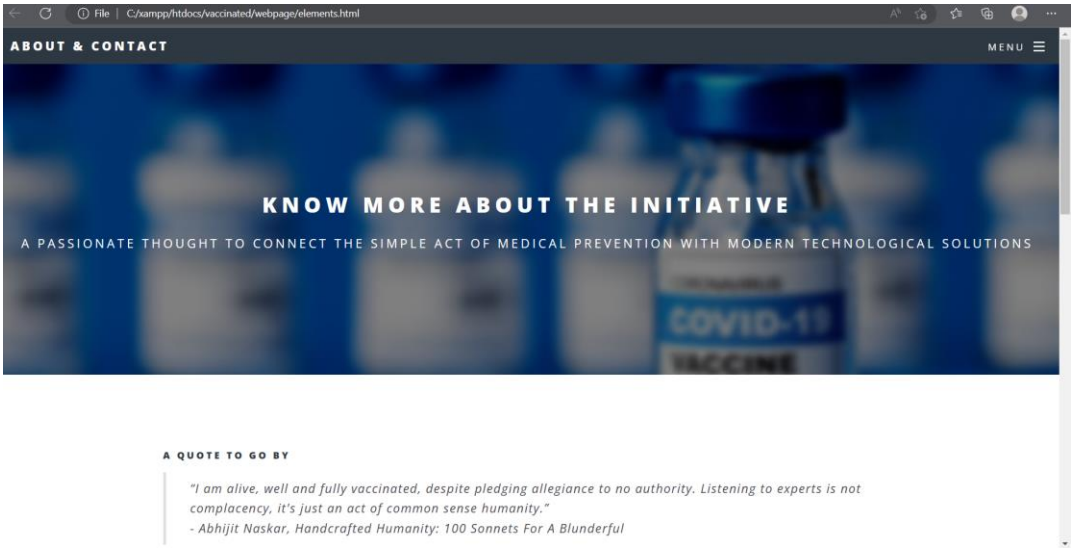


Figure 5.3 elements.html

The About & Contact page accepts user review which is also stored in the database and provides the brief information of the developer



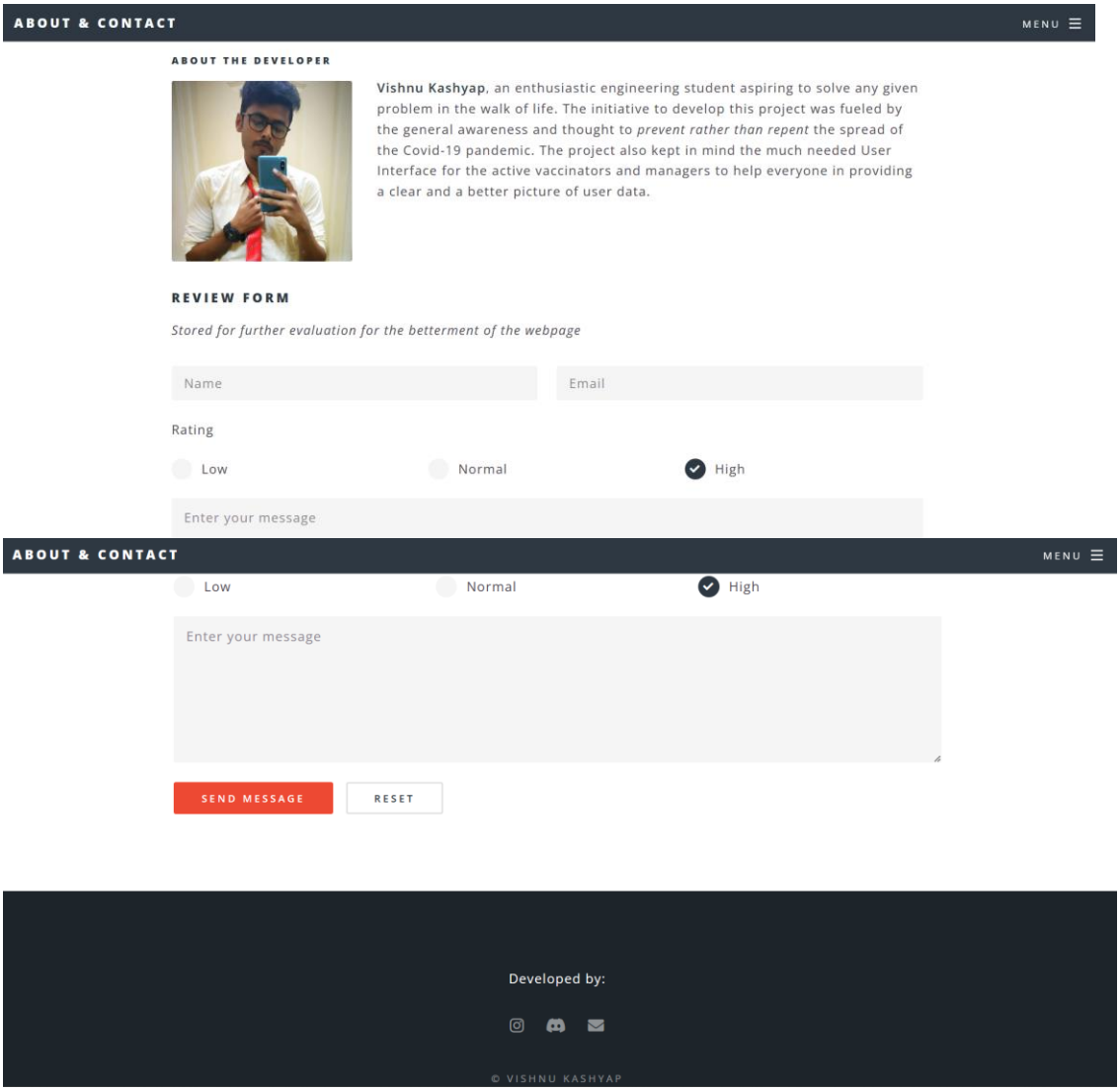
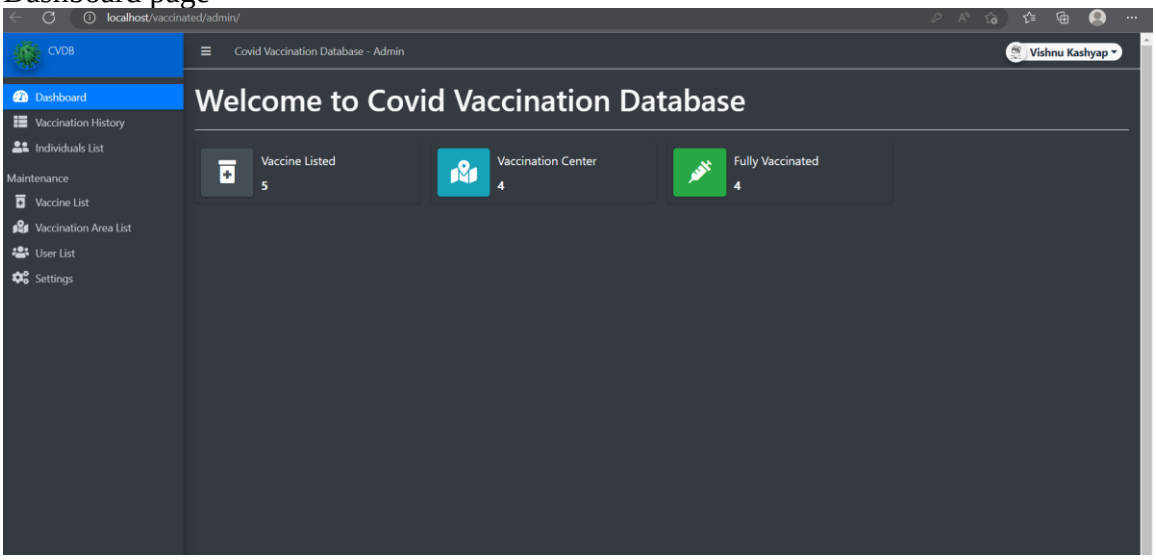


Figure 5.4 login.php(LOGIN PAGE)

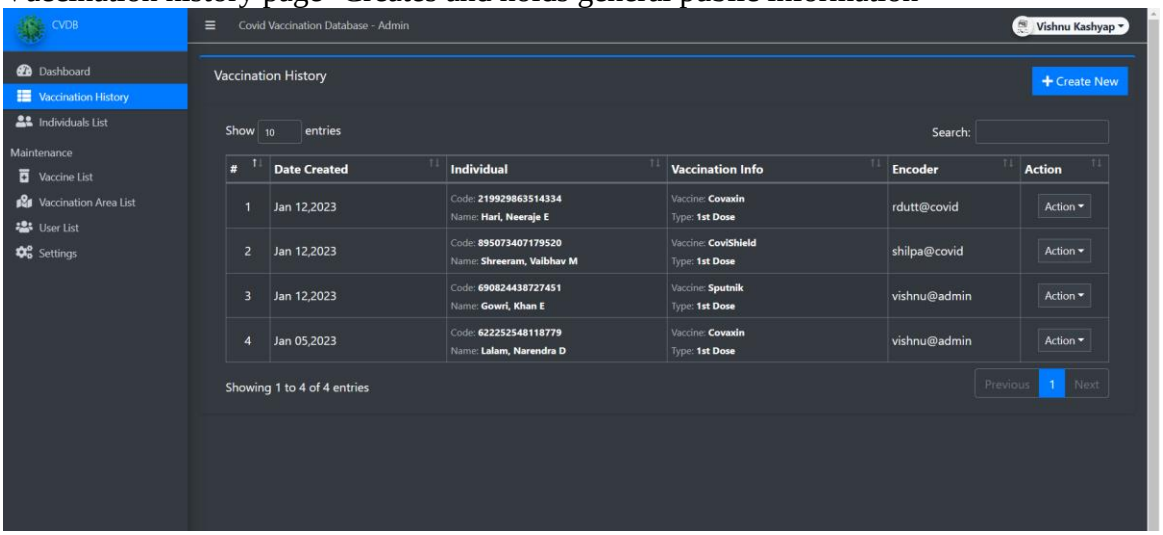
The login page is designated for the admin/staff faculty coordinating vaccinations

Figure 5.5 Side menu contents (with expansion of every cell)

Dashboard page-

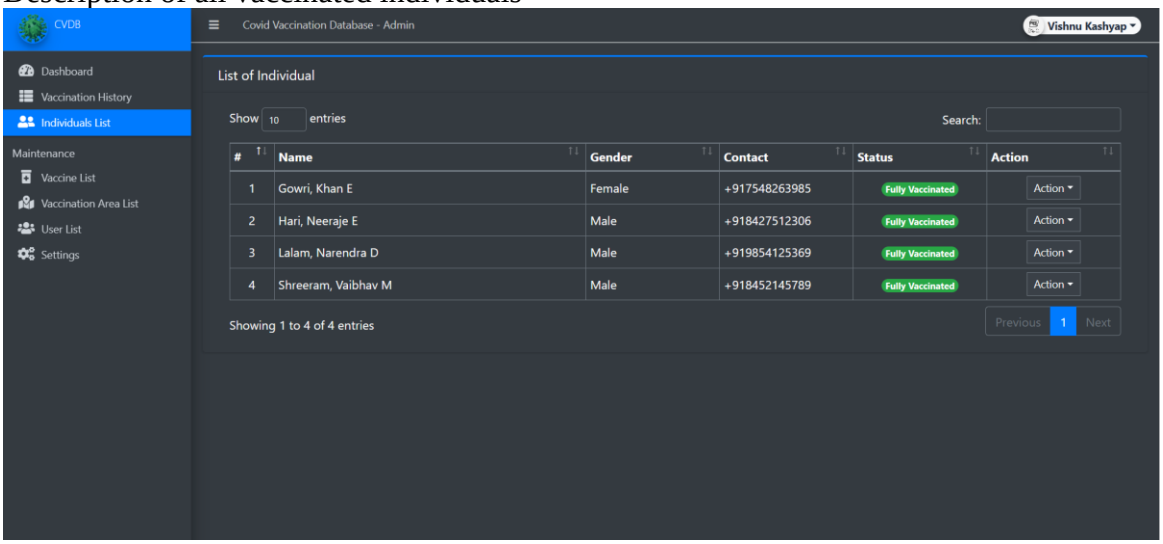


Vaccination history page- Creates and holds general public information-

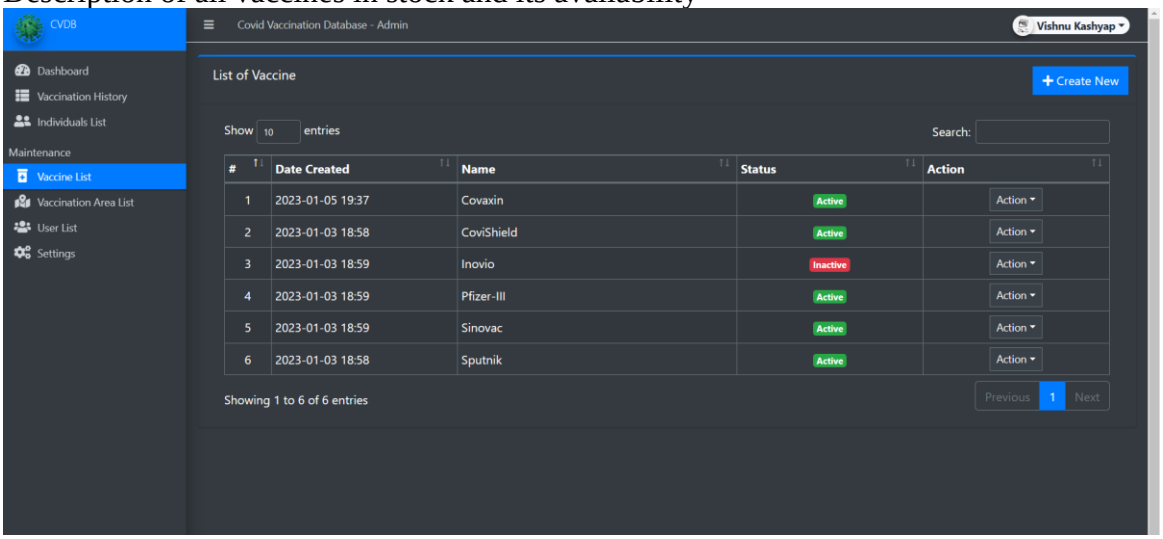


Vaccination history page- Creating new individual data-

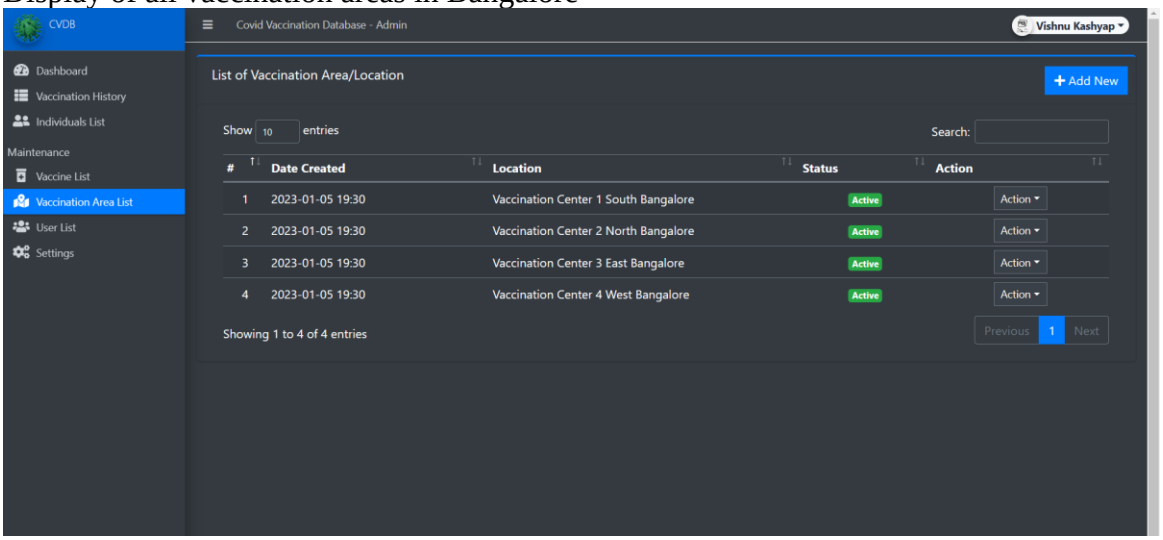
Description of all vaccinated individuals-



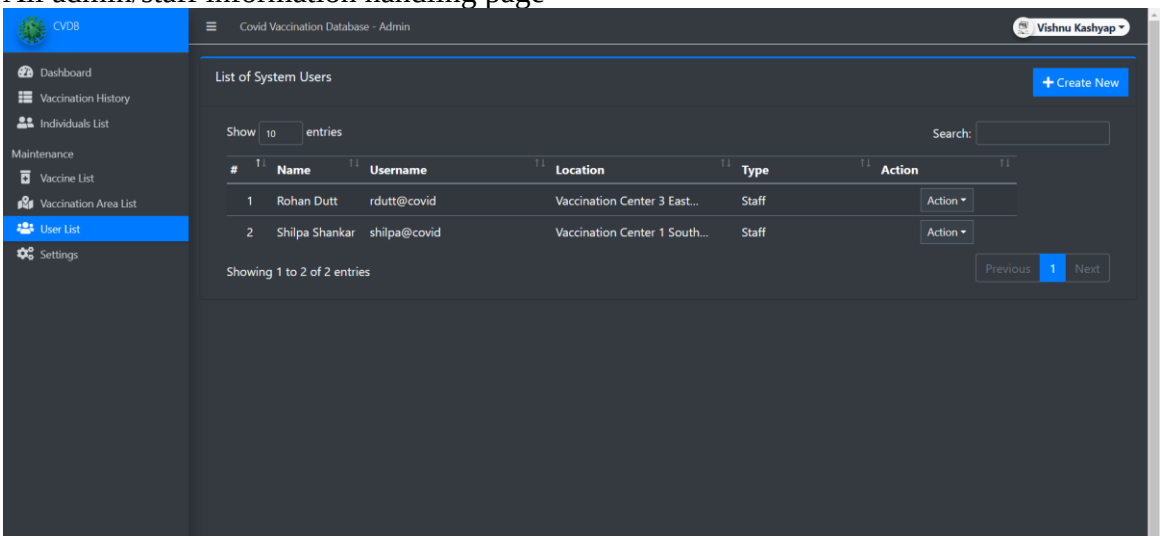
Description of all vaccines in stock and its availability-



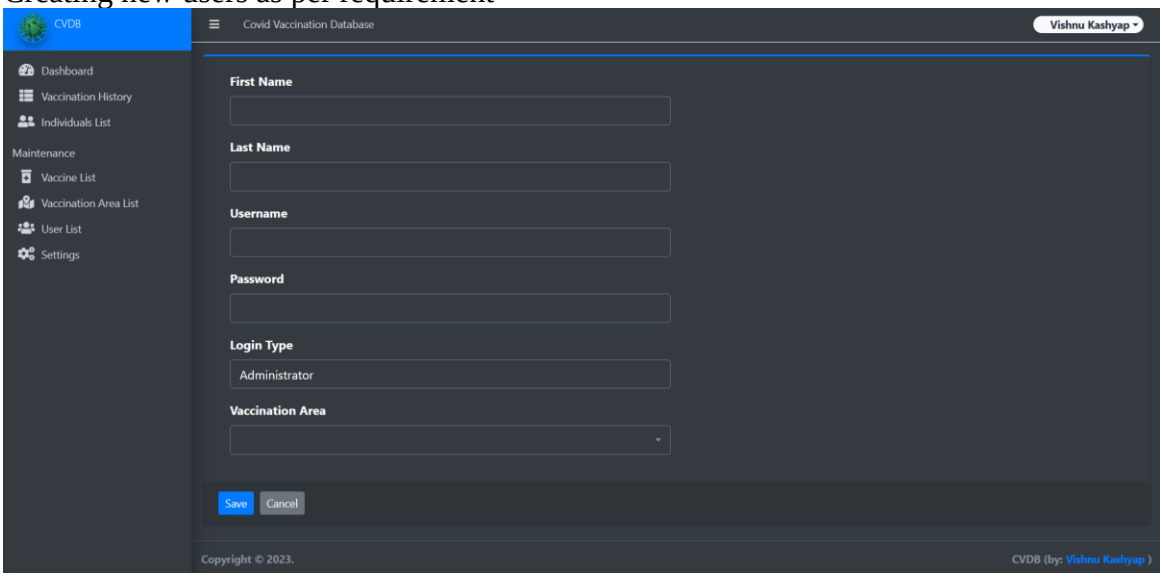
Display of all vaccination areas in Bangalore-



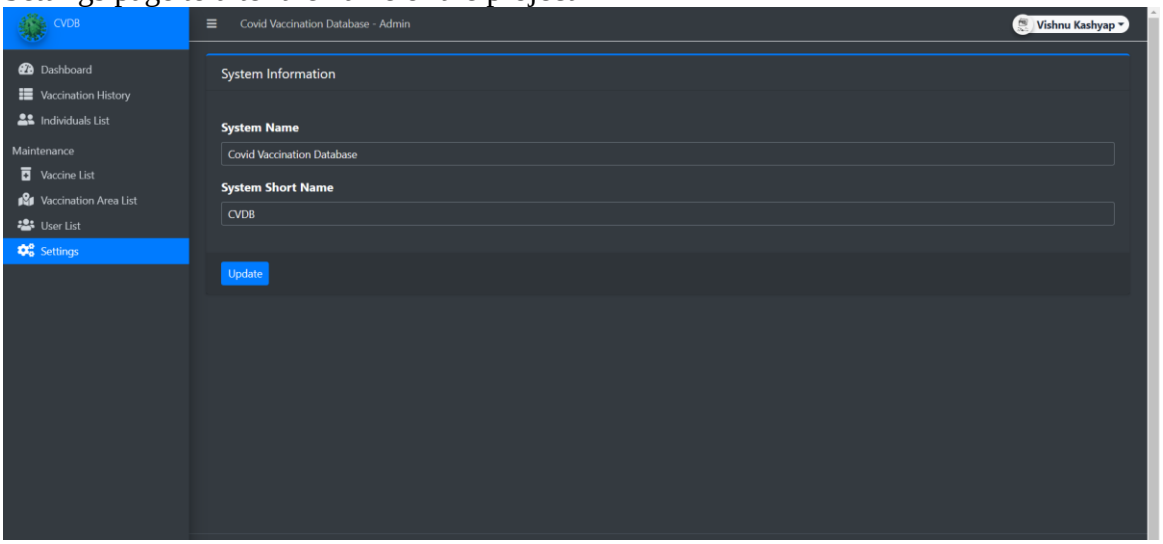
All admin/staff information handling page-



Creating new users as per requirement-



Settings page to alter the name of the project-



CHAPTER 6

Conclusion and Future Enhancements

6.1 Conclusion

The Vaccination database as shown provides the fundamental support to tackle the corona virus infection through technological solutions.

The idea of a common login page makes it efficient to provide a single point of entry to all vaccinating authority. The idea of data presentation to the general public in the for of pdf certificate ready to print is also helpful in providing a required hard copy of vaccination history.

The feedback form also saves the user review in the database which can be further evaluated for better enhancing the project.

6.2 Future Enhancements

The whole login page with its various dashboard elements can be updated to add new records to accommodate a better perspective of user information through more required fields to be filled in by vaccination sign ups.

The UI module can be well protected using enhanced security protocols to better protect the patient data and maintain data privacy.

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