

**DESIGN AND DEVELOPMENT OF A WEB BASED
VACCINE TRACKING SYSTEM**

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This Report Presented in Partial Fulfillment of the Requirements for the
Degree of Bachelor of Science in Computer Science and Engineering

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**DAFFODIL INTERNATIONAL UNIVERSITY
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APPROVAL

This Project titled “**Design and Development of a Web Based Vaccine Tracking System**”, submitted by MD. Redoy Howlader (ID: 152-15-5822) and Md. Arafatul Islam (ID: 152-15-5690) to the Department of Computer Science and Engineering, Daffodil International University has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of B.Sc. in Computer Science and Engineering and approved as to its style and contents. The presentation has been held on *January 2023*.

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DECLARATION

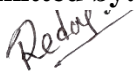
We hereby declare that, this project has been done by us under the supervision of **Tapasy Rabeya, Senior Lecturer Department of CSE** Daffodil International University. We also declare that neither this project nor any part of this project has been submitted elsewhere for award of any degree or diploma.

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ABSTRACT

The monitoring system for vaccines is our initiative. It has the ability to save an user's vaccination information. Nobody needs to keep track of the type or timing of their vaccinations. This webpage is incredibly user-friendly and is accessible to everyone. The user of this program can be a physician, a client, or an ordinary person. We gave this initiative some thinking, especially in light of the COVID-19 scenario and the fact that we must receive many vaccinations to protect themselves from the corona virus. Everyone must have this vaccination, regardless of age. There have been three doses of this viral vaccination to yet. These vaccinations must be administered on various occasions. Additionally, many vaccines have been developed by various businesses. Various sorts of vaccines are given to different people. Therefore, it would be difficult for the average person to recall all of this knowledge without writing it down somewhere. There is a possibility that you'll lose the material after writing it down. On the contrary, memorizing every single patient's vaccination information is practically difficult for any physician or staff member of any healthcare organization. Because of this, patients' lives are occasionally at danger. We had the concept of developing an implementation that could address all of the issues we had previously outlined after considering all of these challenges. This is a simple webpage with loads of functionalities for users. It is incredibly simple to comprehend and operate with.

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CHAPTER 1

INTRODUCTION

1.1 Introduction

The epidemic has transmitted quickly after Bangladesh reported its first case of COVID-19 on March 8 of 2020 [2]. Bangladesh launched its immunization campaign on January 27, 2021, for front-line healthcare providers, and on February 7, 2021, for the general public [3]. It is more difficult to personally monitor immunization data in a nation with a high population density like Bangladesh. It is challenging because we must receive the vaccine annually, not just for the COVID-19 vaccine but also for other diseases. Therefore, it is a difficult effort for groups and regular people to recall every immunization record. By considering all of these difficulties, we build a framework that can facilitate such research. Ordinary individuals may readily keep track of any vaccinations they have had throughout their lives.

1.2 Motivation

Bangladesh is a small nation with a huge citizenry. We frequently deal with different diseases and require pharmaceuticals in the form of vaccines or countermeasures. Typically, we receive those vaccinations through a variety of government-approved hospitals or organizations. However, tracking a vaccination or an immunized person is a difficult task. Even occasionally, we lack a proper understanding of the number of vaccines we need to buy or create, as well as a general understanding of the population's vaccination status. We anticipate being capable of tracking any type of vaccine and injected person using our platform.

1.3 Objectives

This concept is ideal for the state of the world today. It might make a fantastic platform for quickly managing health records quickly. It can be used by each and every individual. Individuals are no more required to recall or record their vaccination record. It can be utilized by patients as well as health organizations depending on their needs. This platform has many simple and practical capabilities. Due to the characteristics' step-by-step

operation, they are all quite obvious. Consumers can see their vaccination records online without visiting a hospital or speaking to a doctor. The immunization records of any client can be found in our platform if a doctors in the united them.

1.4 Expected Outcome

Our website was supposed to bring us a lot of advantages. We desire it to function for both everyday citizens and therefore any healthcare institution at the exact same moment. This program will keep track of all the vaccinations an user has ever received. Each user is able to have their own identity here. A user can view the vaccines they have received and whether or not they are recurring any of them. By looking at their characteristics, we can also learn more about COVID-19 vaccine recipients' past

1.5 Project Management and Finance

The cost, income, and profitability of a project are all managed through projects financial management, often commonly referred to as financial reporting.

It combines strategy, forecasting, planning, sourcing, controlling project expenditures, and invoicing in order to achieve this.

Project implementation accounting is unquestionably the most crucial of all these facets of economic project planning. After there, it becomes a matter of maintaining that budget during the duration of the project while making sure the task is finished within the agreed budget. Budget-conscious strategic planning seeks to keep initiatives on track. As a result, managerial accounting for initiatives on a personal level not only aids in better project organization and administration, but also has a favorable impact on the company's growth. This occurs as a result of project finance management's contribution to harmony:

- Capital and anticipated profits on a project.
- the possible effects of a current project on future developments.
- influence on your agency as a whole.

1.6 Report Arrangement

The report layout is given below:

Chapter 1: Introduction

In Chapter 1, we made an effort to outline the development's beginning, inspiration, goals, and anticipated end. The whole notion is ultimately communicated through the document layout.

Chapter 2: Background

This chapter has covered the user's historical context. Additionally, we pinpoint and outline the development's related tasks and boundaries. Here, the challenges are also described.

Chapter 3: Requirements specification

The functional requirements will constitute the entire subject of this section. simulation of company operations, evaluation of obtained criteria, and modelling and definition of projects use cases. Furthermore, a logical information model and technical specifications are present.

Chapter 4: Design Requirements

The development's design will be addressed in this section. These specifications cover front-end, back-end, information architecture, user experience (UX), and specifications.

Chapter 5: Implementation and testing

This is the point at which the project is complete in its entirety. Mark down any concepts you have for other initiatives

Chapter 6, Impact on society, environment and sustainability

Here actually discuss about this project social acceptances, effectiveness and sustainability plan

Chapter 7, last but not least, Conclusion and future work.

Here discuss about future scope and work ending discussion.

.

CHAPTER 2

BACKGROUND

2.1 Introduction

This is a brand-new but crucial technology for our pandemic-ridden society of today. Consumers must be inoculated with the cure even before making purchases after COVID-19 destroys the earth. Visa restrictions for immunized commonwealth citizens are common. We were required to take vaccines for several illnesses even before the corona infection. Given the number of illnesses and immunizations, recalling the complete history of vaccines is nearly impossible. They will be able to simply document their whole history of vaccinations using our program, and physicians will be capable of easily manage those records when treating patients. Users are able to sign up and create their own accounts.

2.2 Related Works

- Gavi
- PRAEKELT.ORG
- UNIDOS US
- UL
- Gocanvas
- Calcium Benefits
- Workplace screening

2.3 Comparative Studies

For everyone who wishes to keep track of their health records, our website is the ideal resource. There are other sites such as this, but ours is unquestionably a remastered edition. It might be beneficial for both patients and medical professionals. The previous vaccination record of any individual is likewise visible to physicians. Users have access to there own vaccine kind, the location where they will receive it, and numerous other details. People can add their own profile by signing up here.

2.4 Challenges

We all encounter numerous difficulties at work. It was really difficult to plan this project and carry it through. To finish this app, we must successfully clear numerous sections and hurdles.

- i. We needed to consider some special qualities, and putting them into practice was difficult.
- ii. We attempted using raw scripting for the most of the task, but it proved challenging.
- iii. To create a website free of errors, we evaluated and ran trials repeatedly.
- iv. Managing our schedule between employment and studies was really difficult.

CHAPTER 3

REQUIREMENT INSTRUCTION

3.1 Business Process Modeling

In terms of understanding a work processes, BPM signifies the creation of a framework for that procedure. A simple graphic is frequently used to depict a process model. To give a visual representation, tools like charts and graphs, Gantt charts, and PERT drawings are employed. These designs can be used to assess procedure and other facets of an organizational processes anytime there is a bigger backdrop for a thorough business strategy [4].

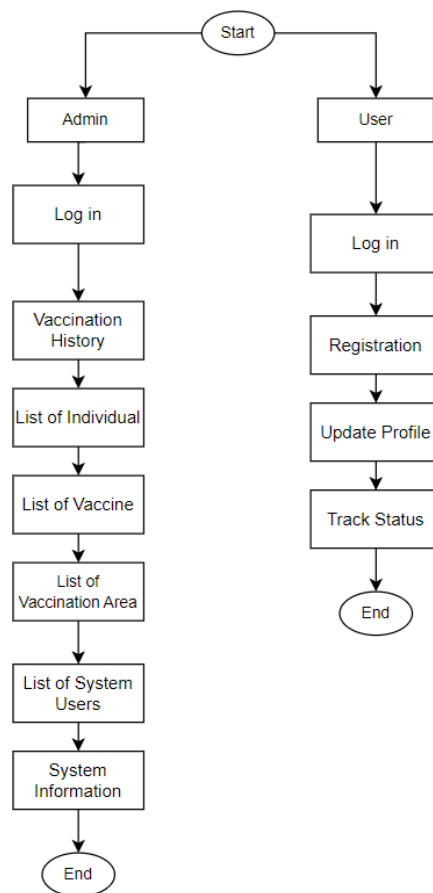


Fig 3.1 Business Process Modeling

3.2 Requirement Collection and Analysis

In order to finish a task or part of a project, we must gather and assess the criteria.

3.2.1 Services To facilitate

Signup and Login

3.2.2 Ineffective Requirement

- Vaccination location
- Vaccination category
- Vaccination recipients

3.3 Use Case Modeling and Description

Use case links between any cases, actors, and institutions are typically condensed in use case diagrams. There are sporadic deviations from the established pattern. It essentially builds a system's framework, documents the goals, and validates the system design. The actor is also given the option to create, accept, change, and remove features, and it outlines the architecture of the development's intended features. Thespian customers and administrators have access to particular functionalities, as shown in Figure 3.1. Connections are formed between users and the guest book, as well as between administrators and the administration panel.

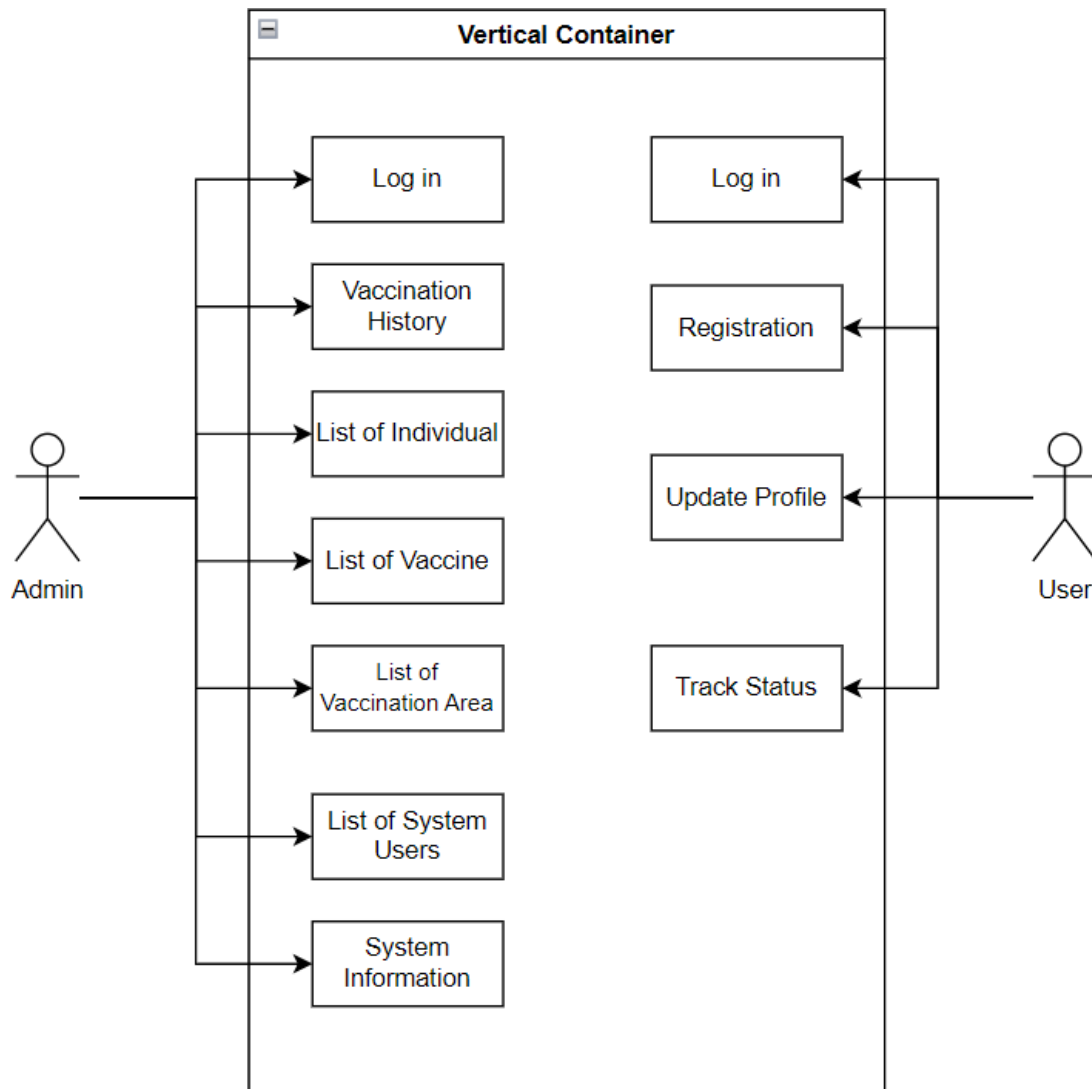


Figure 3.3: Use Case Model Diagram

3.4 Design Requirements

Each project requires certain technical requirements in order to create a high-quality piece of work.

Effective: We created a straightforward webpage.

User-Friendly: We worked very difficult to develop a platform that is user-friendly, which is the primary necessity for every venture.

3.5 System Requirements

Tools:

1. Xampp
2. VS code editor

Languages:

1. HTML
2. CSS
3. Bootstrap
4. JS
5. Php
6. My sql

CHAPTER 4

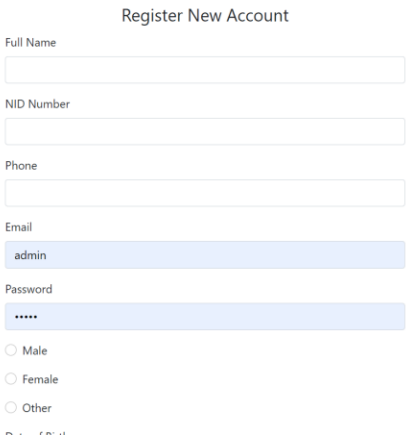
DESIGN SPECIFICATION

4.1 Front-End Design

Generally front-end design is the decoration or design part of any application. We used HTML, CSS, Bootstrap and JS. In Front-end part we design the features given below:

4.1.1 Identification

Users must register as users before utilizing our website. They must enter certain basic details about themselves in the registration process.



Register New Account

Full Name

NID Number

Phone

Email

Password

Male
 Female
 Other

Fig 4.1.1 Identification

4.1.2 The User Interface

Customer dashboard looks like this. The very first thing that an individual sees on their monitor when logging in is this webpage.

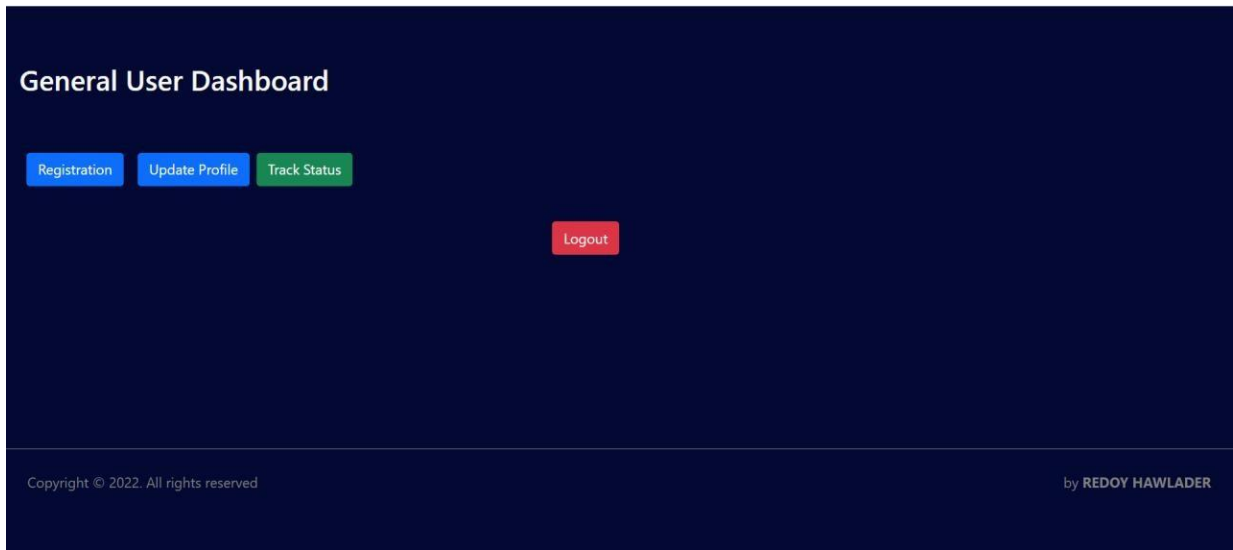


Fig 4.1.4 The User Interface

4.1.3 Vaccine Registration

In this feature user can register for vaccination.

Register for a vaccine process

First Name *

Middle Name

Last Name

Current Address

[This is the address from where you want to receive vaccine. Mention the City/Village correctly, Mention your Ward number too, ex- Ward: 33, Townhall, Mohammadpur, Dhaka]

Vaccine Category

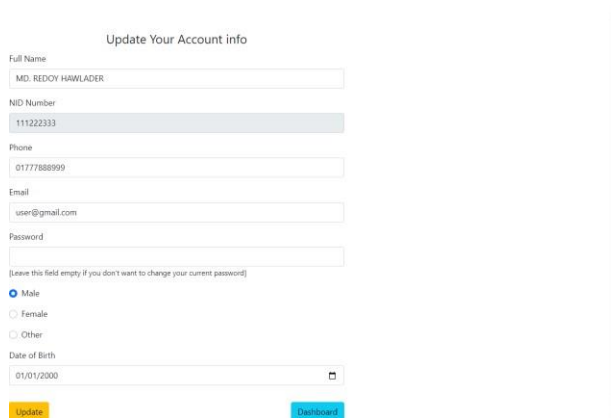
[Please select which vaccine you want to have. You can't choose the name of vaccine you'll get the available one, just select the purpose or antibody you want.]

[Registration](#) [Dashboard](#)

Fig 4.1.3 Vaccine Registration

4.1.5 Update Profile

In this feature user can update their profile.



Update Your Account info

Full Name
MD. REDDY HAWLADER

NID Number
111222333

Phone
0177888999

Email
user@gmail.com

Password
(Leave this field empty if you don't want to change your current password)

Male
 Female
 Other

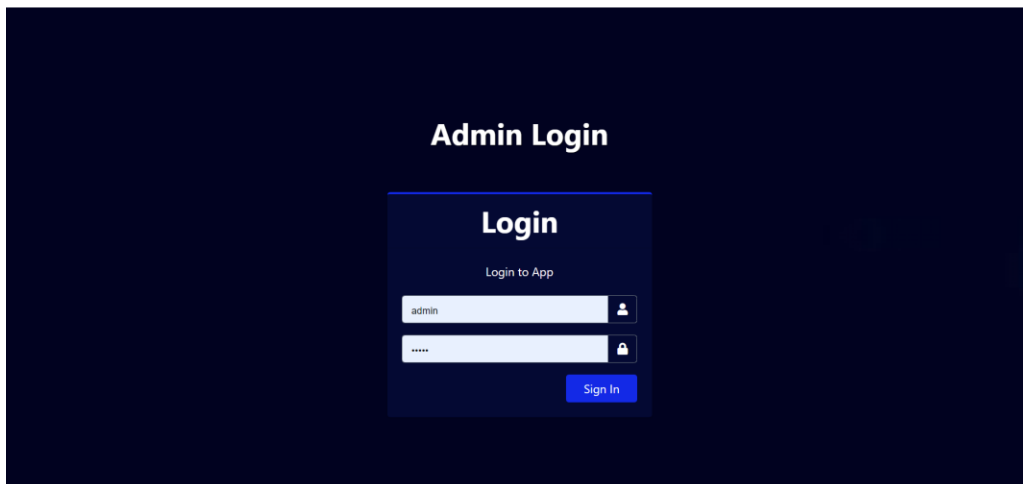
Date of Birth
01/01/2000

Update Dashboard

Fig 4.1.5 Update Profile

4.1.5 Sign in As the Admin

This portal is visible to users whenever they log in as administrators. Here, the administrator may control the applications as needed.



Admin Login

Login

Login to App

admin

.....

Sign In

Fig 4.1.5 Sign in As the Admin

4.1.5.1 Vaccination History

Vaccination Record All individual's vaccination histories are visible to admins on this webpage.

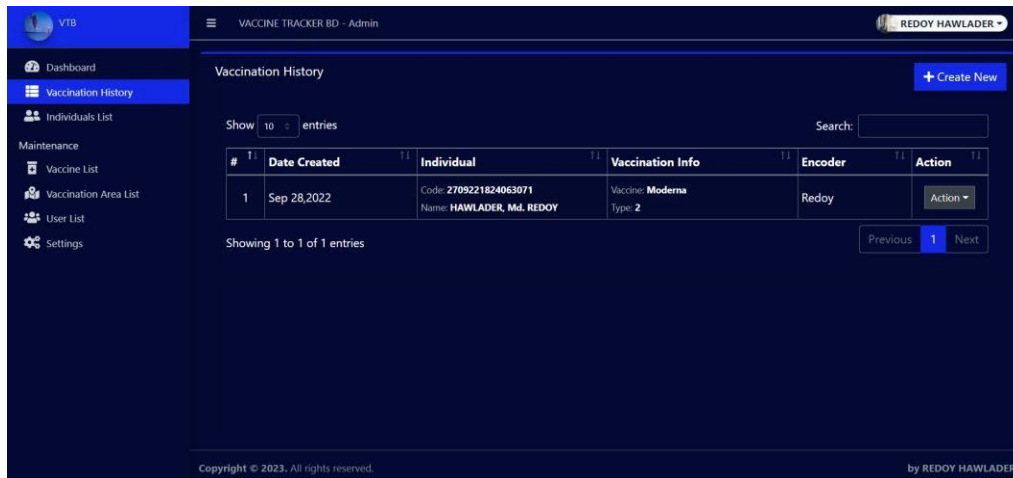


Fig 4.1.5.1 Vaccination History

4.1.5.2 Everyone's Record

The records within each individual are on this webpage. Admin may control individuals here.



Fig 4.1.5.2 Everyone's Record

4.1.5.3 Vaccine Schedule

This website in the admin panel will provide the full list of vaccines.

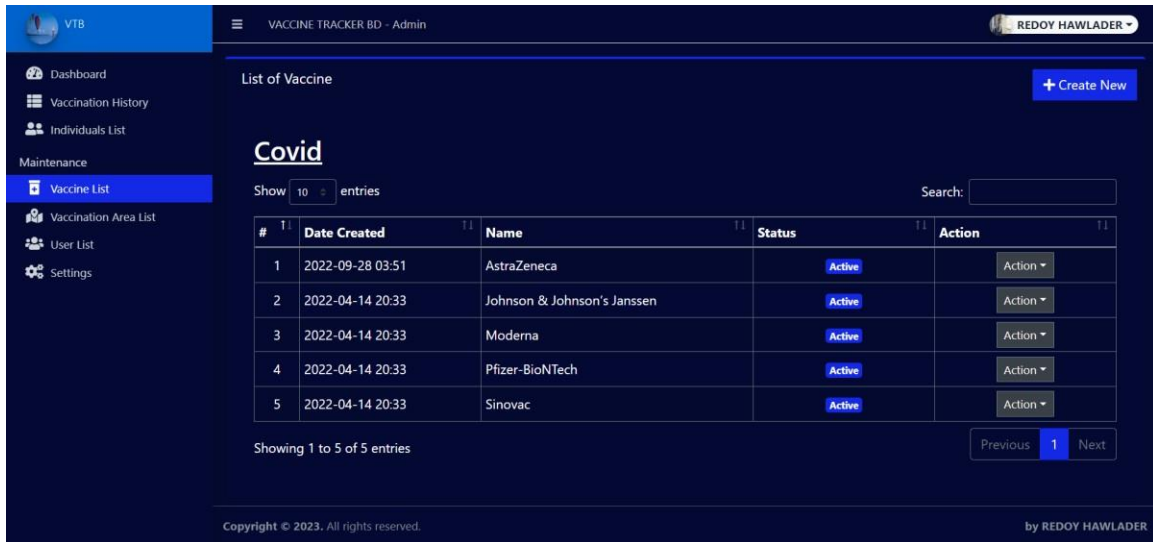


Fig 4.1.5.3 Vaccine Schedule

4.1.5.4 Region/Place

This website is for monitoring any vaccination agency's position or surrounding region.

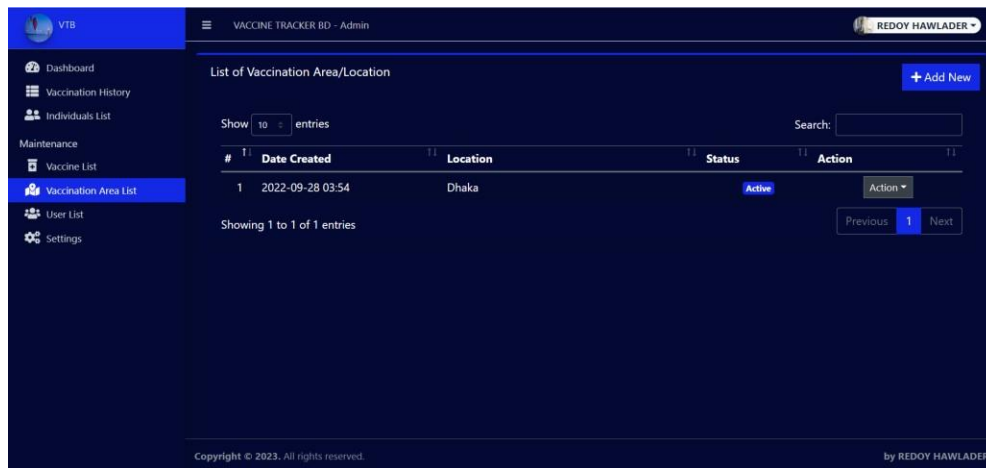


Fig 4.1.5.4 Region/Place

4.1.5.5 Control of New Users and Rolls

The administrators will use this webpage to monitor the individuals, add or eliminate any clients, and change their data.

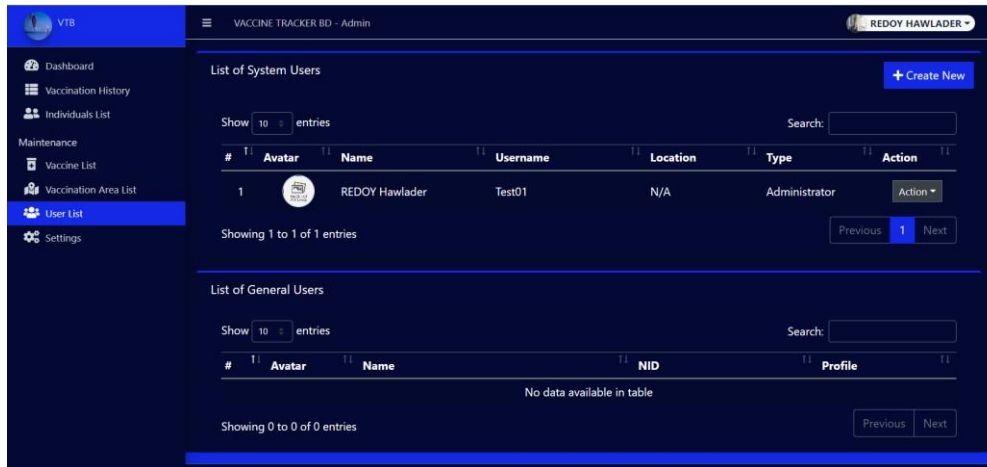


Fig 4.1.5.5 Control of New Users and Rolls

4.1.5.6 Preferences

The information management webpage is located here. To use this webpage, the administrator can change any application-related data. Here, they may also change the design.

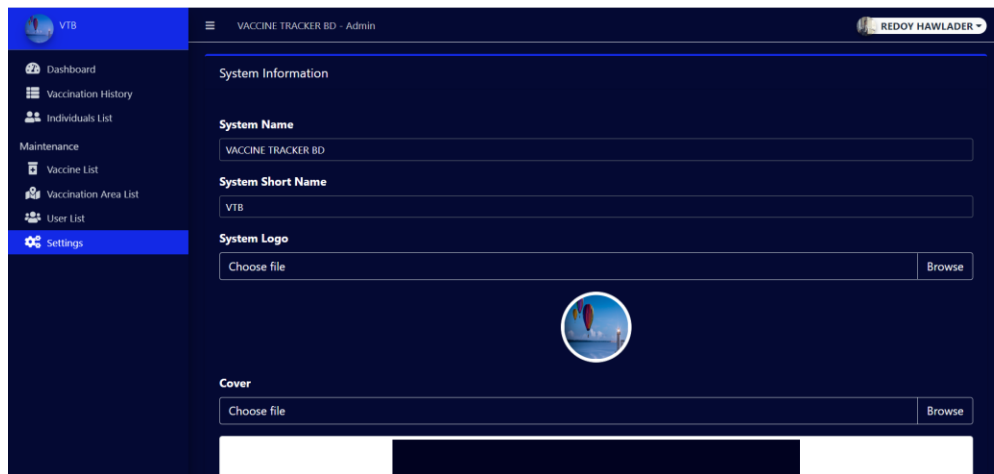


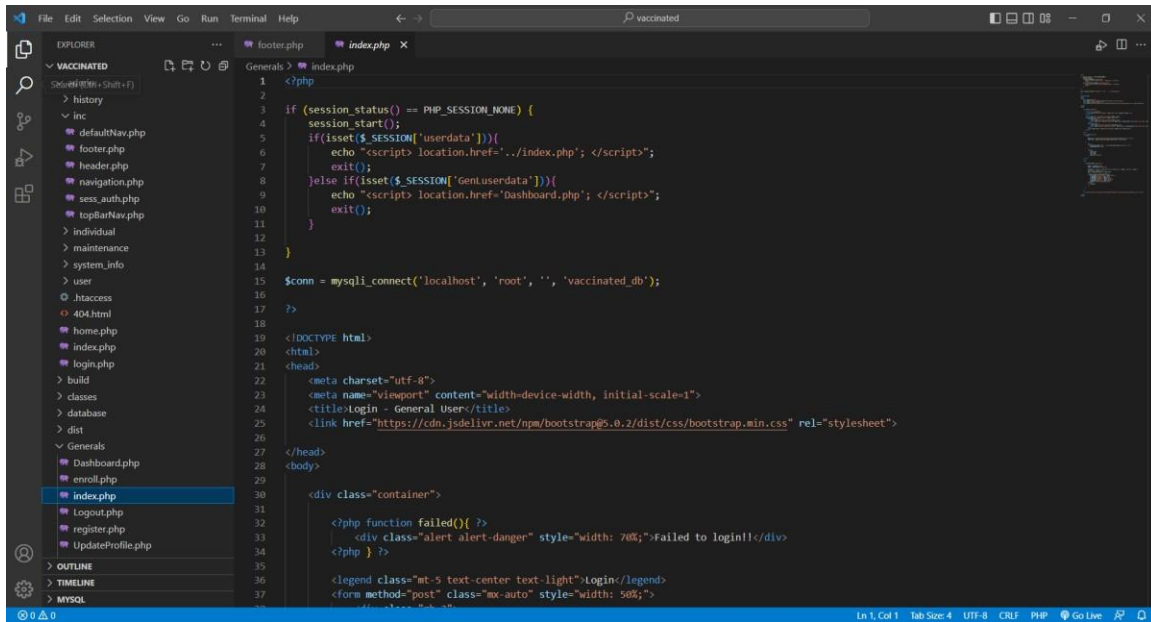
Fig 4.1.5.6 Preferences

4.2 Back-End Design

The core functional component of a full application is this.

4.2.1 Code

In order to code this section, we utilized PHP. And we put this into practice using VSCode.



```
1 <?php
2
3 if (session_status() == PHP_SESSION_NONE) {
4     session_start();
5     if(isset($_SESSION['userdata'])){
6         echo "<script> location.href='../index.php'; </script>";
7         exit();
8     }else if(isset($_SESSION['GenUserdata'])){
9         echo "<script> location.href='dashboard.php'; </script>";
10        exit();
11    }
12 }
13
14
15 $conn = mysqli_connect('localhost', 'root', '', 'vaccinated_db');
16
17 ?>
18
19 <!DOCTYPE html>
20 <html>
21 <head>
22     <meta charset="utf-8">
23     <meta name="viewport" content="width=device-width, initial-scale=1">
24     <title>Login - General User</title>
25     <link href="https://cdn.jsdelivr.net/npm/bootstrap@5.0.2/dist/css/bootstrap.min.css" rel="stylesheet">
26
27 </head>
28 <body>
29
30     <div class="container">
31
32         <php function failed(){ ?>
33             <div class="alert alert-danger" style="width: 70%;>Failed to login!!</div>
34         <php ?>
35
36         <legend class="mt-5 text-center text-light">Login</legend>
37         <form method="post" class="mx-auto" style="width: 50%;>
```

Fig. 4.2.1 Code

4.2.2 Database Loading

We utilized PhpMyadmin to load the information.

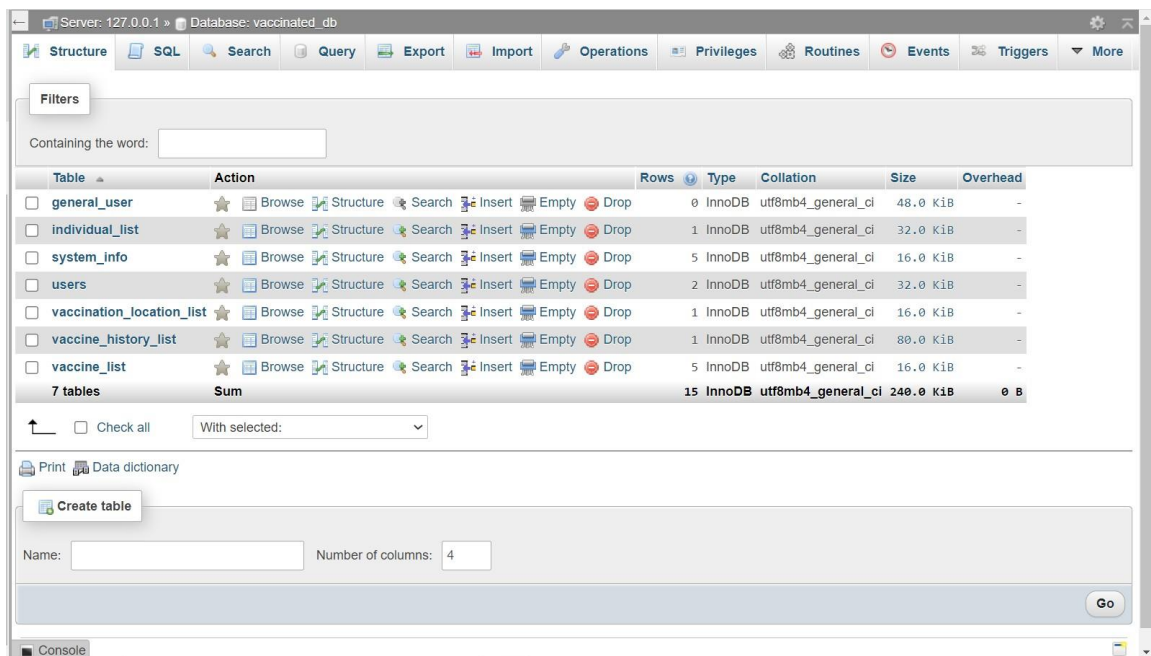


Fig 4.2.2 Database Loading

4.2.3 Server

We utilize Xampp to access our database.

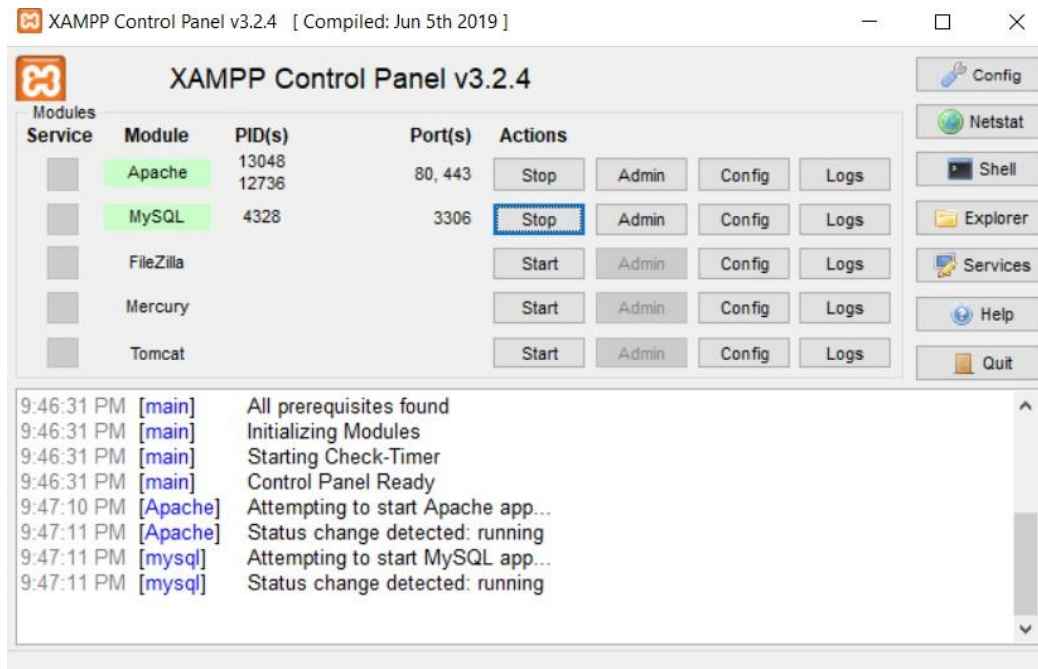


Fig 4.2.3 Server

4.3 User Experience and Ux

The objective of interface architects is to enhance the interacting user's encounter at the point where they connect with an item. The actual encounter is only one stage of a patient's experience while interacting with a brand, according to Design professionals. Every client feature of a device or system are taking into account during designing the user interaction [5].

4.4 Prerequisites for Implementation

We must meet certain prerequisites in order to implement or execute the program. To execute our PHP code, we made advantage of VSC. Since our program is an application program, an internet explorer is absolutely necessary in order to use our homepage.

CHAPTER 5

IMPLEMENTATION AND TESTING

5.1 Implementation of Database

For implementing our database, we used

- **MYSQL**

For webpages with huge amounts of information and users, MySQL is the de-facto standard relational database [6].

5.2 Execution of Front-End Design

We use- HTML, a library from CSS called bootstrap and JavaScript.

5.3 Implementation of Interactions

It's important to engage with plenty of people and get their input while developing a strong application. Our application plan was mostly discussed with and received comments from our professors. To create a user-friendly program, we even discuss our ideas with family and friends after integrating some features.

5.4 Testing Implementation

Creating a system needs to be confirmed. We can never work without committing errors. So monitoring is an important stage. It will require somewhat less time to repair a fault if we evaluate our webpage after each and every step of the creation process.

5.5 Test Results and Reports

The test case table is given below:

Table 1: A Test Case for the Application

Test case Type	Details	Expected Result	Actual Result	Status	Testing Date
Registration	Registered as User	Successfully Registered	Successfully registered	Passed	21/01/2023
Log In	Insert Log in information	Log In	Log In	Passed	21/01/2023
Manage User	Add, delete, edit Users	All the details available	All the details available	Passed	21/01/2023
Add vaccine	Add new vaccine	Successfully added new vaccine	Vaccine added successfully	Passed	21/01/2023
Add Area	Add new Area	Successfully added new area	Vaccine added successfully	Passed	21/01/2023
Print Report	Print new report	Successfully print the report	Report printed Successfully	Passed	21/01/2023
Logout	Logged out from account	Successfully logout	Successfully logout	Passed	21/01/2023

CHAPTER 6

IMPACT ON SOCIETY, ENVIRONMENT AND SUSTAINABILITY

6.1 Impact on Society

We frequently don't consider or give much thought to how a project will affect our community when we are developing it. On the other hand, a new feature is not often welcomed in our culture. Therefore, it is our responsibility to help kids grasp what is right and wrong. They will undoubtedly embrace it if we can convince them that it is wonderful, and our webpage represents one of those excellent things. There is no doubt that it is advantageous for modern society.

6.2 Impact on Environment

Any modification to the environment—whether favorable or unfavorable—resulting from the operations or services of a facility is referred to as an environmental consequence. It might also be used to describe the effects that people's choices and deeds have on the surroundings. Our site requires to be ecologically responsible because it deals with concerns regarding human health. By keeping this in mind, we tried to design our webpage in such a manner that would have a minimal effect on the climate.

6.3 Ethical Aspects

Less explicitly codified and operating through acculturation than formal codes, ethics is a component of morality. Rather of concentrating on laws and standards, it commits with attitudes [1].

But rather one of concentrating on laws and standards, it commits with attitudes [1].

- Beneficence [1] is one of the ethical guidelines.
- Least Damage (1)
- Least Damage (1)
- Nonviolence or Peace [1].
- Justice (p. 1).
- Honesty [1] is a virtue.

6.4 Sustainability Plan

Plans for longevity can benefit a website in the longterm. • First, come up with a novel concept for our webpage.

- The project must be free of bugs.
- We need to gather some credible sources.
- Pick quality components.
- Compile the supplies.
- Evaluating the product is essential.

CHAPTER 7

CONCLUSION AND FUTURE OPPORTUNITIES

7.1 Future Opportunities

7.2 Limitations

No work is perfect. Although we tried to make a bug and error free application, but still, we have some limitations.

In near future we will surely going to try to remove all these limitations.

7.3 Discussion

This endeavor will bring a fresh discovery to the nation's medical industry. All people can use this webpage. Everybody needs to keep in mind their health information, particularly whenever it refers to vaccinations. Despite assistance from a doctor, the average person may record their vaccination record using our software. In any major condition, they can locate it quickly if they require it. Physicians can safely provide the client with the background with the adequate treatment.

7.4 Conclusion

This website has been developed as our senior project. We came up with a lot of projects and plans. but was unable to identify a plan that may work well for our nation. Then, after much study and investigation, we developed this concept. As it can assist us in the COVID-19 circumstance, this notion seemed ideal. To come up with and implement such an idea was difficult.

By using this platform, physicians and nurses won't have to spend as much time remembering each patient's vaccination record. Additionally, when sick, individuals are not required to move about with their entire vaccination documentation.

Everybody can register an identity here. Everybody else in our community, from the oldest member to the youngest, can still save their vaccination record in the program. Individuals can also obtain a large number of details about a vaccination, such as the name, the purpose for administering it, the type of vaccine, the location where they will receive it, etc. Every

person is allowed to have their own profile, which will contain their details and display it on their own homepage.

There will be an administrative section as well. The webpage will be managed by administrator. They have the capability to control the website, add and remove people, and edit any content.

A capability for using vaccines is also included here. Users can request for any new vaccine they require through this tool.

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