A WEB BASED APPLICATION ON UNDERSTAND THE PRESCRIPTION AND TAKE THE RIGHT MEDICINE

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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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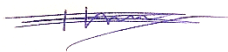
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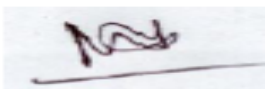**DHAKA, BANGLADESH**

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APPROVAL

This Project titled **"A Web based application on Understand thr Prescription and Take the Right Medicine"**, submitted by **Forhad (181-15-1953)** and **Sazidul Islam (181-15-2005)** and **Md. Mafujur Rahman Shohan (181-15-2007)** 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 17 January, 2022.

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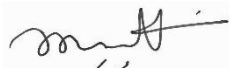Daffodil International University

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DECLARATION

We hereby declare that, this project has been done by us under the supervision of **Md. Reduanul Haque, Assistant Professor, 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.
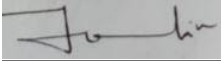
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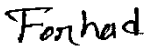Assistant Professor
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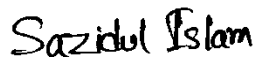
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ABSTRACT

Often, we get sick in one way or another. And we have to go to the doctor. The doctor checked us up and prescribed us medicine to get well. We go to the pharmacy with that prescription to buy that medicine. But we are often confused about prescriptions. It is often seen that the medicine prescribed by the doctor is given with the wrong medicine due to lack of correct idea about the prescription from the pharmacy. As a result, the health of a patient is later threatened. We want to avoid this embarrassment through our project. It is from this inspiration that we work on this project. We will digitize a prescription through image processing. We are working on our project through image processing. Where Python and Django have been used. And through this image processing, every medicine of prescription will be sorted in the form of list. From that list the customer will be able to get a detailed idea about each drug. Like the ingredients of that medicine, you will know the effectiveness and value. The rate of giving wrong medicine from pharmacy will also be reduced. This will keep the customer informed about the medication to be taken. He will be able to make himself and the people around him aware of taking medicine. We will work more on our project in the future.

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CHAPTER 1

Introduction

1.1 Introduction

There was a time when people were not so aware that even a small disease would take the form of an epidemic. And that epidemic would have killed many people. There was famine again. In a word, life would have become unbearable. People are gaining success in all field's day by day due to the welfare of technology. Technology is also being used extensively in the health sector. And ordinary people are able to enjoy those benefits, which made our life easier. With that in mind, we are interested in doing this project.

Most of the time people get sick for various reasons. You need to consult a doctor to get rid of that illness. Then the doctor prescribes some medicine in the form of a prescription. Accordingly, we recover by taking medicine. Now it is said that the name of the medicine became obscure when the doctors went to write the prescription. Which becomes a lot harder to understand. As a result, they often give other medicines by mistake from the pharmacy. And ordinary people take that medicine after taking various health risks. By doing this, he may become lifeless.

1.2 Image Processing

Before I explain what image, processing is, I'd like to start with a brief narrative. Assume you're on your way to a mountainous location, and you call a friend to tell him how gorgeous the area is. When you describe the natural environment in front of you, your companion will conjure up a reflection of the scene. This is exactly how image processing works. A photo is taken as input and a picture is output in image processing. The processing and labor take place between the input and output. Some of the algorithms used in imaging sciences are listed below. These algorithms are used to portray the image in a beautiful manner, as well as to perceive and interpret the image's microscopic details.

Figure 1.2 Image Processing

1.3 Goal of Image Processing:

- **Visualization:** This is the process of observing objects that are not visible to the naked eye.
- **Image repair and sharpening**: Image restoration and sharpening.
- **Pattern measurement**: This is the process of determining the range of different items in an image.
- **Image recognition**: Finding the difference between an object and an image is referred to as image recognition.

1.4 Kinds of Image Processing

Image processing can be divided into two categories: -

- Analog image processing
- Digital image processing

1.4.1 Analog Image Processing

Analog image processing is also known as visual technique. In image processing, a hard copy (original letter) such as a printout is used, as well as the photographic technique.

1.4.2 Digital Image Processing

Digital image processing is a technique for efficiently processing a digital image through a computer. We give the example of digital image processing, for example: If the images we see on the satellite were not processed on a computer, then we might not understand anything by looking at the images.

Image processing has made a significant contribution to medical science. Image processing is used to diagnose a variety of disorders that are difficult to diagnose.

1.5 Motivation

The right medicine should reach the common man by understanding the writing in the prescription from the pharmacy. Our project is aimed at ensuring that ordinary people do not endanger their own health due to their ignorance.

1.6 Objective

Proper use of this project will play a big role in the development of healthcare. It is not our intention to harm someone's life by taking the wrong medicine.

1.7 Expected Outcome

- Understand the prescription
- Know about medicine
- Take proper medicine
- Save money
- Harassment will go away
- Good health

1.8 Overview

Our project has 2 parts. One of them is Admin part and other one is user part.

When an ordinary user enters our website, he will first be able to get some general ideas on the home page. If any one can use our site 1st he should register then log in to our site. Then he can upload an image of prescription. If he uploads a mistake image, he can remove

it. After uploaded he can see the medicines as a list. Then he easily knows the details of the medicines. Admin can control the site. He can update the details of the medicines.

The most important opportunities in this project –

- Users can know about which medicines they have taken.
- They will be alert about right medicines.
- Maintain good health both themselves and their family.

The data entered by the user will be saved in a database in this project. Admin can see those data and will be alert his updates.

CHAPTER 2

Background

2.1 Introduction

Users may easily find the medicine they need and comprehend their prescription with the aid of this "Understanding the Prescription using Image Processing."

And, because according to internet technology, it can be accessible from anywhere. People will substantially profit from this technology, and anyone may use it to protect their health.

2.2 Related Works

We frequently see that when individuals want anything specific, it is quite simple to obtain it online. For instance, if we need to hire a car, we use uber; if we need to buy anything, we use sites like Daraz, Amazon, Flipkart, Future Bazaar, Homeshop18, and so on. But, at the same time, we must look after our health. And we make this project keeping in mind this good health. Which sets us apart from all other projects. The job of our project is to give the customer an idea about the medicine and explain the prescription clearly if the customer does not understand the prescription and is not aware of the medicine.

So that there is no risk of the customer buying the wrong medicine. And that is the mistake we often make. We all know how dangerous taking the wrong medicine is for our health. Taking the wrong medicine can also be the cause of our death. And working on our project considering all these aspects. We think the interface of our project is user friendly and anyone can easily understand and use it.

2.3 Comparative Analysis

Our project is different from other projects or Google sites. Before we start working on the project, we have researched and found out that all the websites that are available online are about online drug delivery.

We will also add this delivery system to our project. But our main purpose is to make the prescription understandable to everyone. We have been able to meet that goal. Other online sites do not have this feature. For which our project will be ahead of others.

2.3 Issues of Scope

While working on this project, we ran into various issues.

- Pick a category for us.
- Create a plan that will allow you to do things the right way.

2.4 Obstacles

- To give high-quality services.
- It will be simple to use.
- A high number of visitors might cause the server to slow down.
- Completely reliant on the internet.

CHAPTER 3

Requirement Specification

3.1 Introduction

We acquired information about what consumers require at this point, as well as outlined the challenges the system is anticipated to answer. We've gathered software requirements such as the programming language to be used, hardware requirements, and the database model that must be used.

3.2 User Interface

This is a desktop application for system software. The system form has been created to be simple to use. For all users, the login form is the same. For each, the login procedure is the same. As a result, when a person logs in, they will see the identical popup.

3.3 System Interfaces

Our project is connected with Firebase database. We can use firebase database to store all the information of our project. Like as Medicine details, User details etc.

3.4 Communication Interface

The communication protocol between user and admin are connected with TCP and IP connection.

- Transmission Control Protocol (TCP)
- Internet Protocol (IP)

3.5 Memory Constraints

This program does not have a memory restriction. Project compilation, quality planning, testing, and the writing process are all completed during the planning stage.

3.6 Operations

The data passage on the structure is the main activity, which includes:

- Database.
- Uploading
- Updating.
- Deleting

3.7 Analysis and Specification of Requirements

The first and most crucial step is to determine the needs, price, and specificity of the software product you desire. To welcome consumers, consider what software is and what it can do, and then consider whether or not there is an issue with software engineering.

3.7.1   Hardware Requirement

Processor	Any PC or smart phone CPU will suffice.
Motherboard	Any motherboard will do.
Ram	RAM must be at least 256 megabytes.
Internet Card	Any kind of internet card will do.
Graphics Card	Any type of graphics card will suffice.
Hard Disk	50 GB
Casing	ATX
Monitor	Any monitor will suffice.
Keyboard	Any
Mouse	Any

Table 3.7.1: Hardware Requirement

3.7.2 Software Requirement

Software	Usage
Any Windows operating system version	To turn on the computer and organize all of the equipment, software, and customized programming.
Firebase	To make a local server in our computer.
Django	This is the most amazing proof reader for writing code.
API	To make a database.
Python	To run the project with the Python Django

Table 3.7.2: Software Requirement

3.8 Design

We've gone through the software development process, database architecture (which is the data design), structure, and other documents as a whole in this part. Use Case Diagram, Sequence Diagram, DFD (Data Follow Diagram), Flow Chart Drawing, and other efforts to improve this software are listed below.

These are the programming languages that were utilized to create this software:

- HTML
- CSS
- Bootstrap
- JavaScript
- Payton
- Django
- Firebase
- API

3.8.1 The Hyper Text Markup Language (HTML)

HTML is a computer language that is used to create the majority of web pages and online applications. A hypertext is a piece of text that references other pieces of text, whereas a markup language is a set of symbols that notify web servers about a document's style and structure. HTML is not a programming language since it lacks the ability to develop dynamic functionality. Instead, online users may utilize HTML elements, tags, and attributes to design and organize sections, paragraphs, and connections.

3.8.2 Cascading Style Sheets (CSS)

CSS stands for Cascading Style Sheet, and it is a style sheet language that is used to show the look and feel of a markup record. As a result, Cascading Style Sheets (CSS) are commonly used with HTML to modify the appearance of pages with User Interfaces. We can give our old HTML frame a new style, and we can use CSS to update the look of our site for this space. In 1994, this language was proposed as a web styling language.

3.8.3 Bootstrap

The most popular CSS Framework for creating responsive and mobile-first websites is Bootstrap. Bootstrap 5 is the most recent version of the Bootstrap framework. In August 2011, Bootstrap was published on GitHub by Twitter.

3.8.4 JavaScript

JavaScript is an interpreted, lightweight programming language. It is intended for the development of network-centric applications. It works in tandem with and complements Java. Because JavaScript is interwoven with HTML, it is incredibly simple to use. It's free to use and cross-platform.

3.8.5 Python

A high-level object-oriented programming language. Guido Van Rossam originally released it in 1991. Python was developed on the concept of program readability. The job of the programmer is emphasized above that of the computer. The basic syntax and

semantics of Python are simple, yet the language's standard library is extensive. Python philosophy has its roots in the Python programming community.

3.8.6 Django

Django is a high-level Python web framework that promotes quick development and simple, practical design. It's built by professional developers to take care of a lot of the headaches of web development so you can concentrate on developing your app instead of reinventing the wheel. It's open source and free.

3.8.7 Firebase

Backend-as-a-Service provider Firebase (Baas). It offers a number of tools and services to assist developers create high-quality apps, expand their user base, and make money. It is based on Google's technology. Firebase is a NoSQL database application that saves information in JSON-like documents.

3.8.8 API

Companies can open up their applications' data and functionality to external third-party developers, commercial partners, and internal departments through an application programming interface, or API. Through a specified interface, services and products can communicate with one another and benefit from each other's data and capability. Developers don't need to understand how an API works; they only need to be able to communicate with other products and services using the interface. API usage has exploded in the last decade, to the point where many of today's most popular web applications would be impossible to create without them.

3.9 ER Diagrams

A database contains one or more NTTs / tables. The relationship between these tables is called entity relationship. And the diagram through which this relationship is expressed is called E-R relationship diagram.
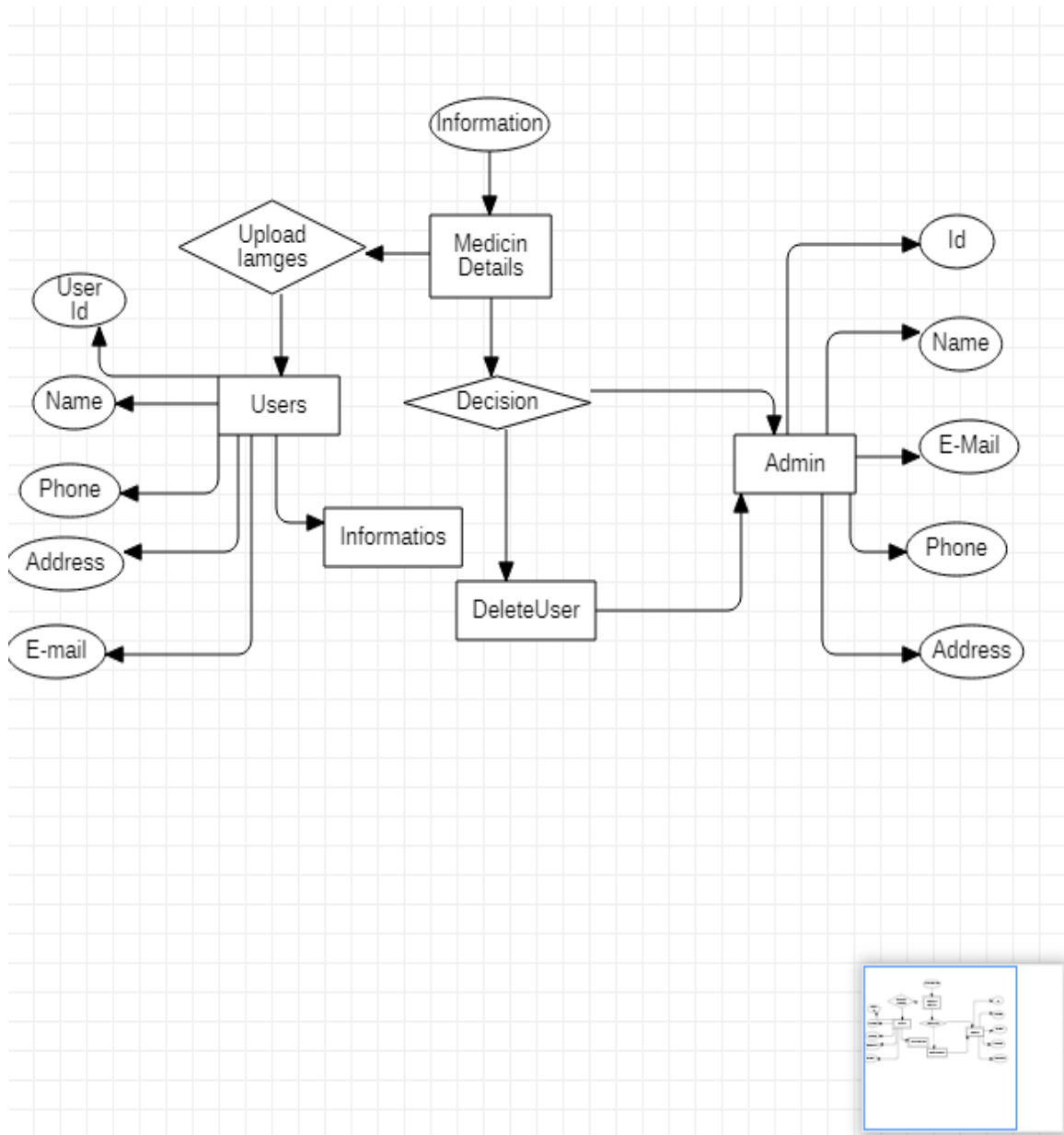

Figure 3.9: ER Diagram

3.10 Use Case Diagrams

A graphical depiction of a system with probable user interactions is called a case application drawing. The Application Case diagram is a highly valuable tool in this project for identifying, clarifying, and organizing system requirements. This graphic depicts how a user utilizes the application to accomplish a certain goal.
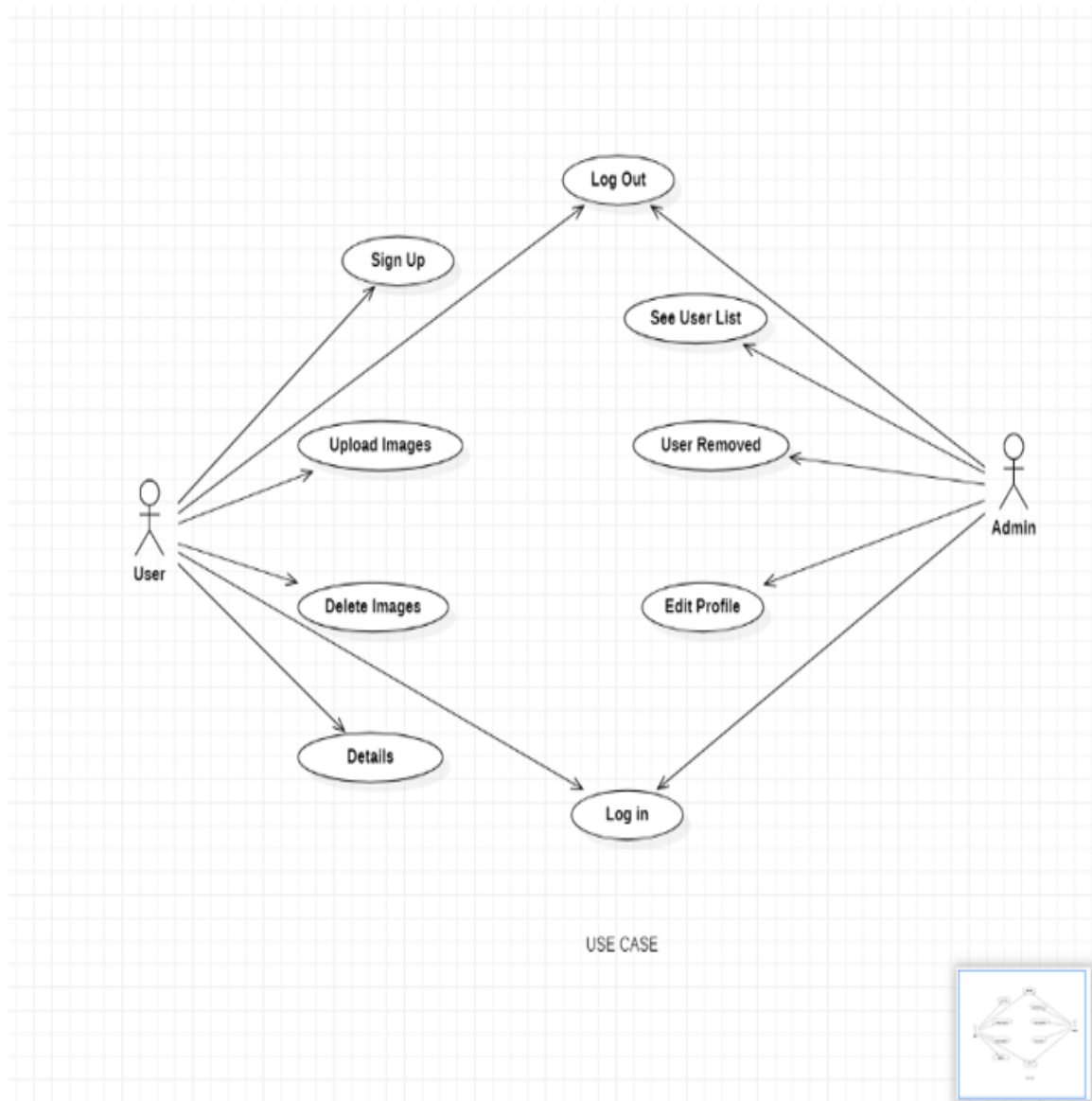
Figure 3.10: Modeling and Use Case Diagrams

3.11 Sequence Diagram

A sequence diagram is a communication diagram that shows how activities are completed as well as what messages are delivered and when. A sequence diagram is a conversation diagram in this work because it explains how the order of a group of things works and how they interact. The lifeline, or processes and objects living together, is the emphasis of the Sequence Diagram, with messages being passed between them to complete the task until the end of the life line.
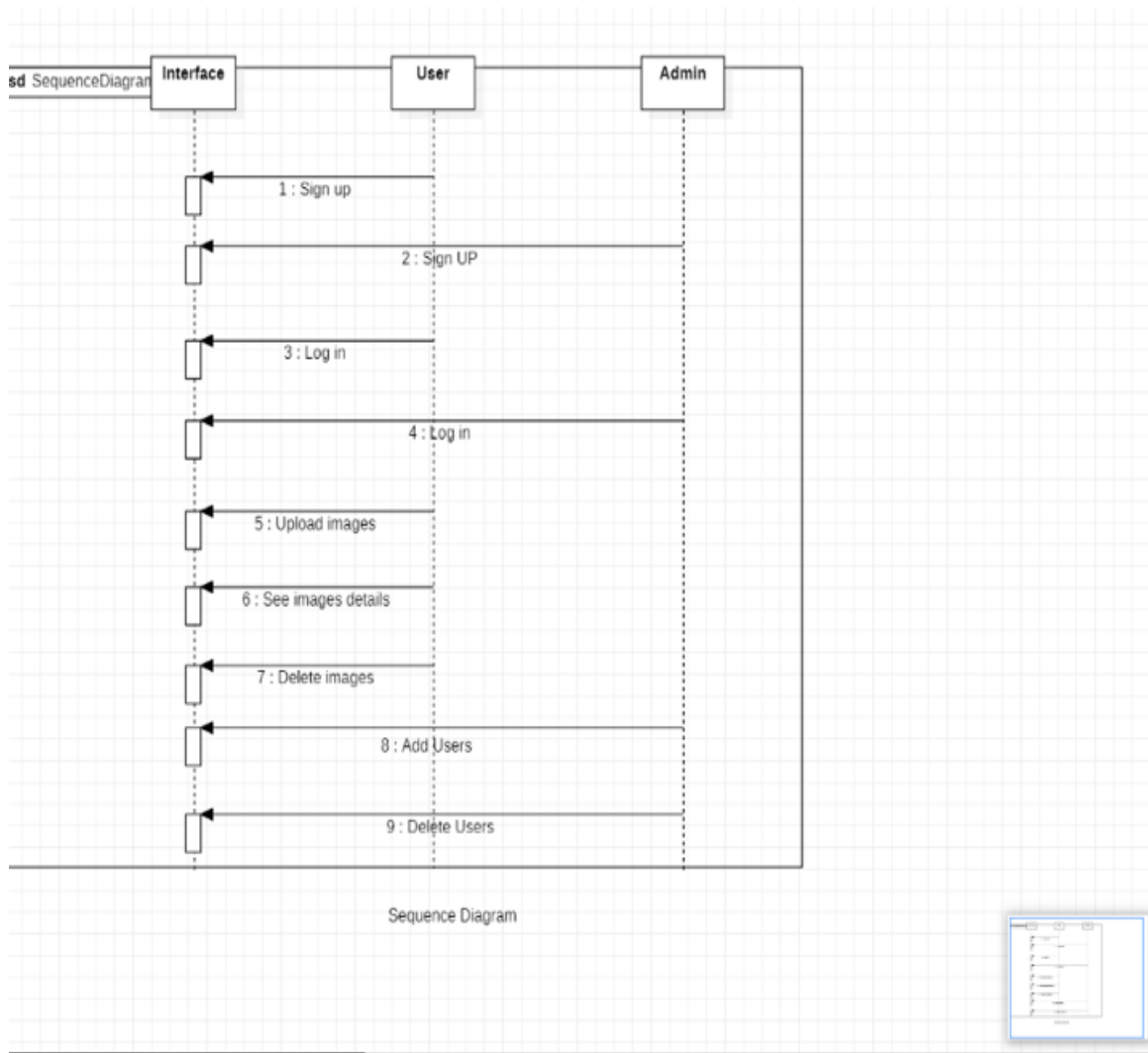

Figure 3.11: Modeling and Sequence Diagram

3.12 Data Flow Diagram (DFD)

We can see where data arrives and inputs the Rental Service Management System in Figure Two (2) Data Flow Data (DFD). We can also more precisely identify the significance of breaking operations. This level not only shows the system's comprehensive procedure, but it also gives a precise flow area.
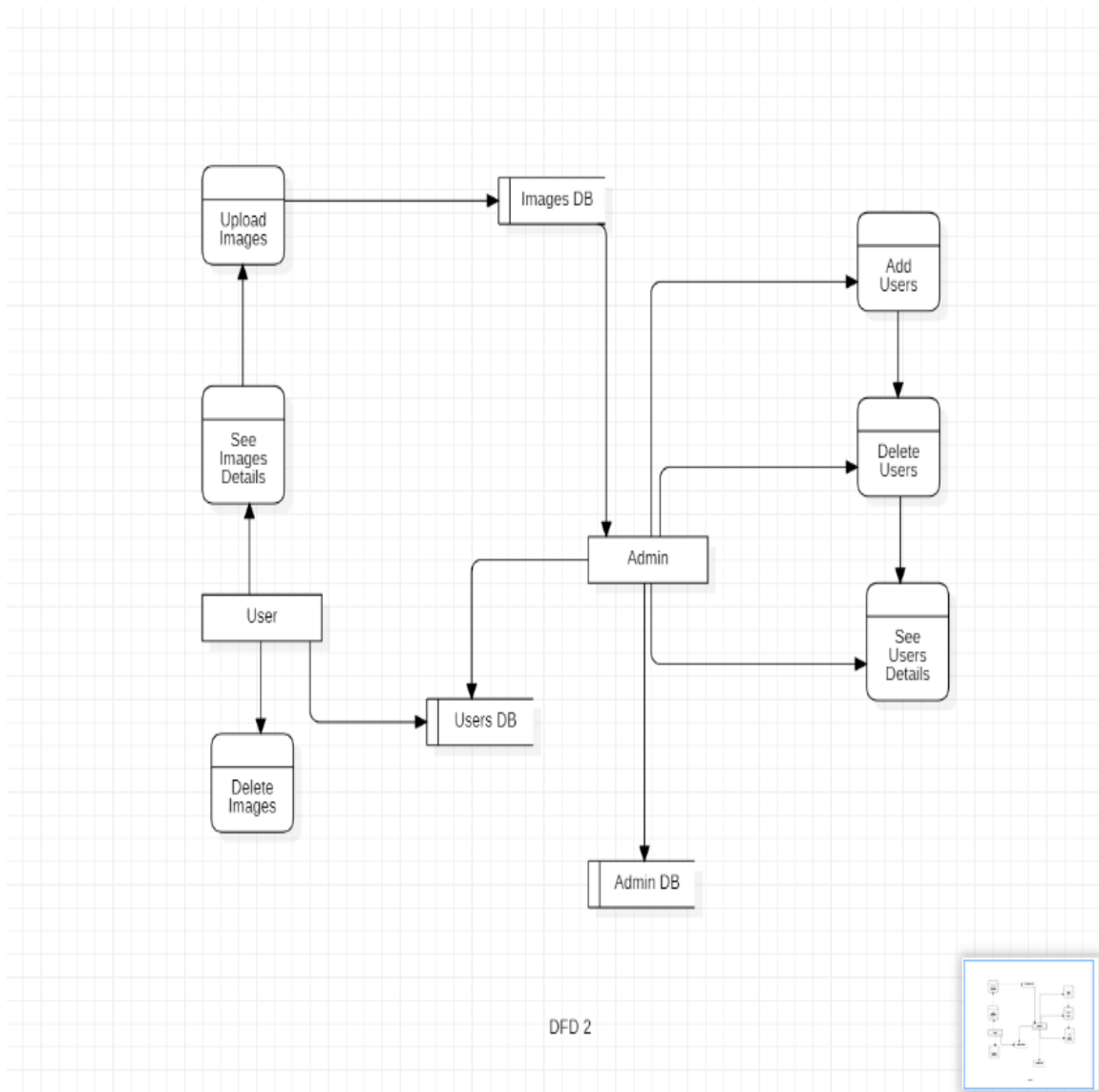

Figure 3.12: Data Flow Diagram (DFD)

3.13 Flow Chart Diagram

A flow chart diagram is a sort of diagram that depicts how an activity is completed. This drawing also necessitates the use of an algorithm. This method can be used to construct a step-by-step approach to any problem or assignment. The flow chart diagram connects the arrows to show the distinct steps of the boxes and their sequences.
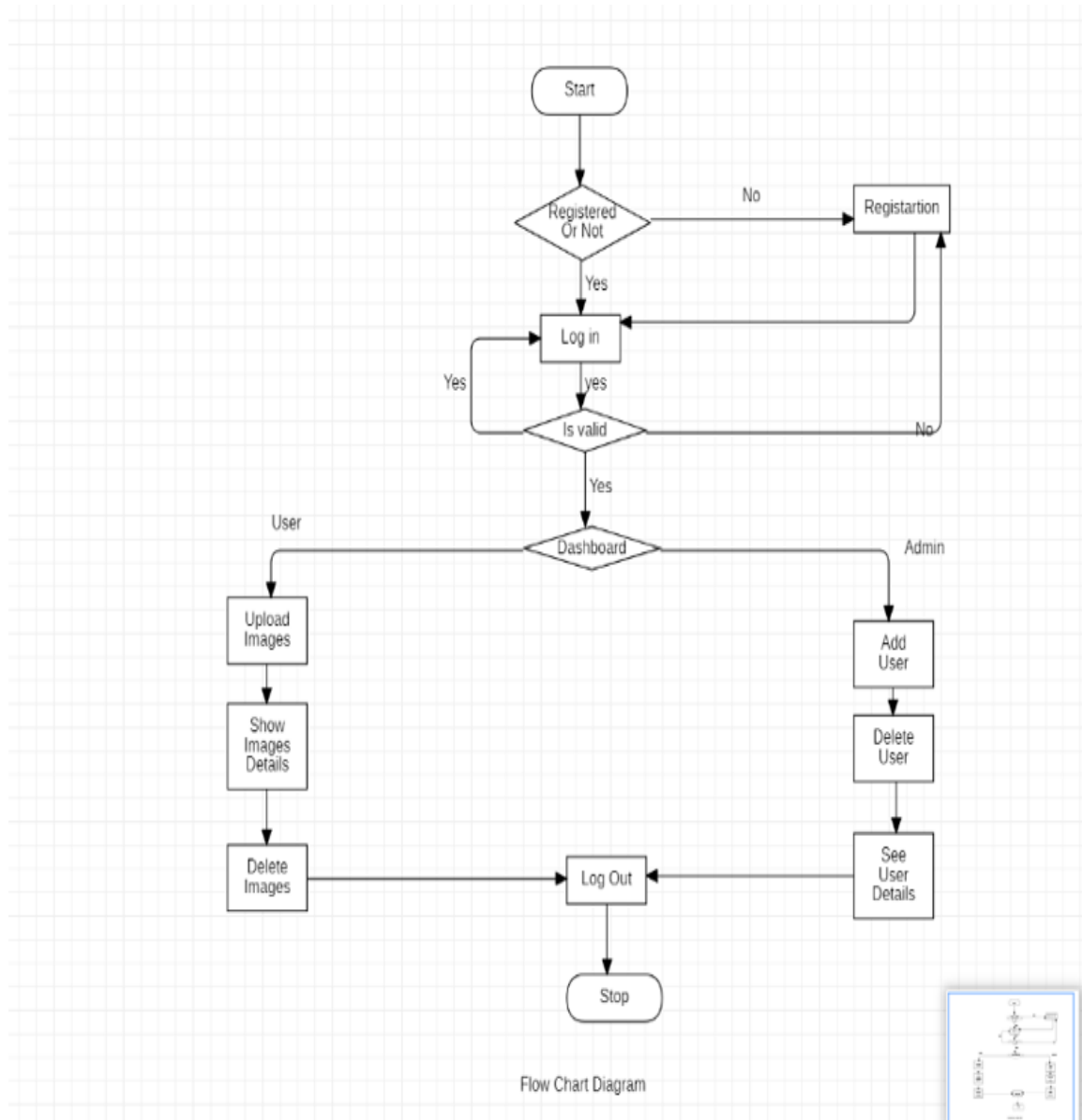

Flow Chart Diagram

Figure 3.13: Flow Chart Diagram

CHAPTER 4
Design Specification

4.1 Front-End Design

When entering someone on our website, then the first page will enter it. And there will be our project name. The front page will be presentation, the following chat and contact. Our team will see the member.
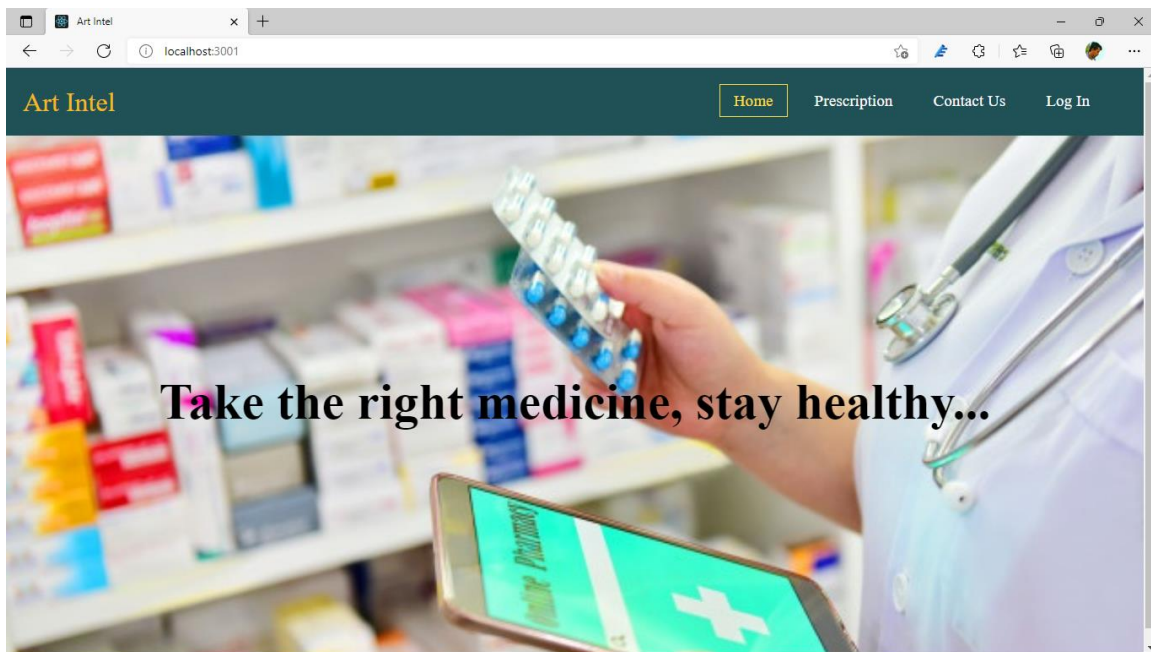

Figure 4.1: Front-end Design

4.2 User Registration

If any user wants to use our project 1st, he has to create an account. For creating an account first user need to input his name. Then user will input a valid email address then he/she will give a password and again confirm the password for sure. After that user have to click the button Create an account.

If user already have an account then he/she dose not need to create another account. For log in user will go the log in page.
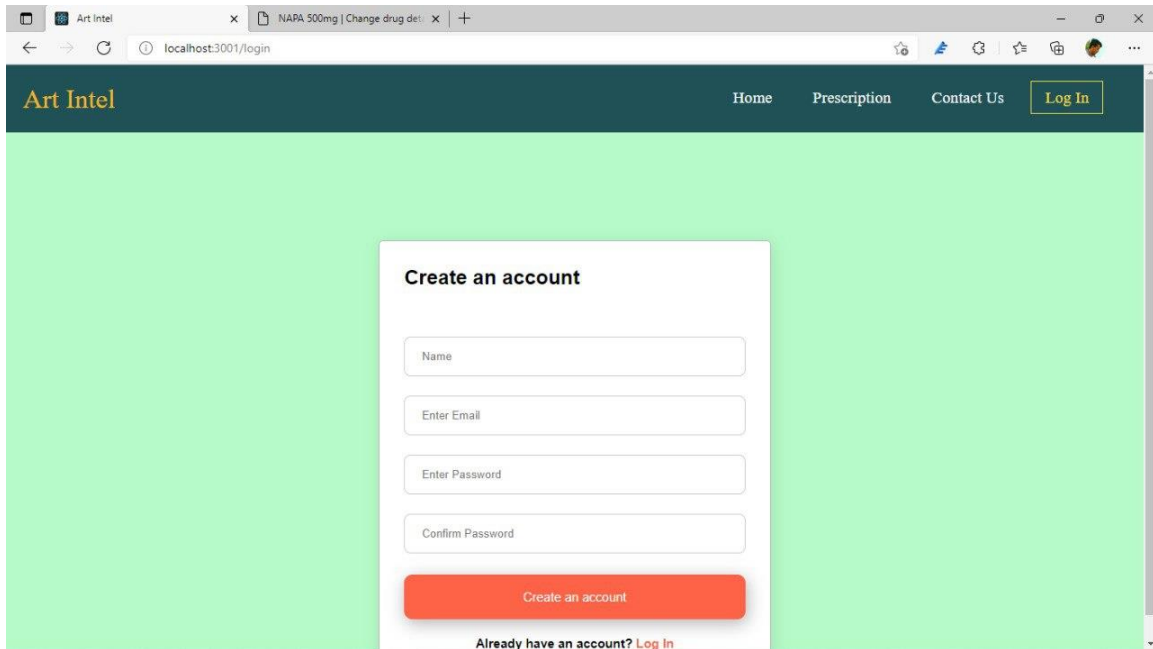
Figure 4.2: User Registration

4.3 User Log in

After creating account user will go to the login page. There he/she will input the email and password. After that user can log in to our project and he/she can take our services.
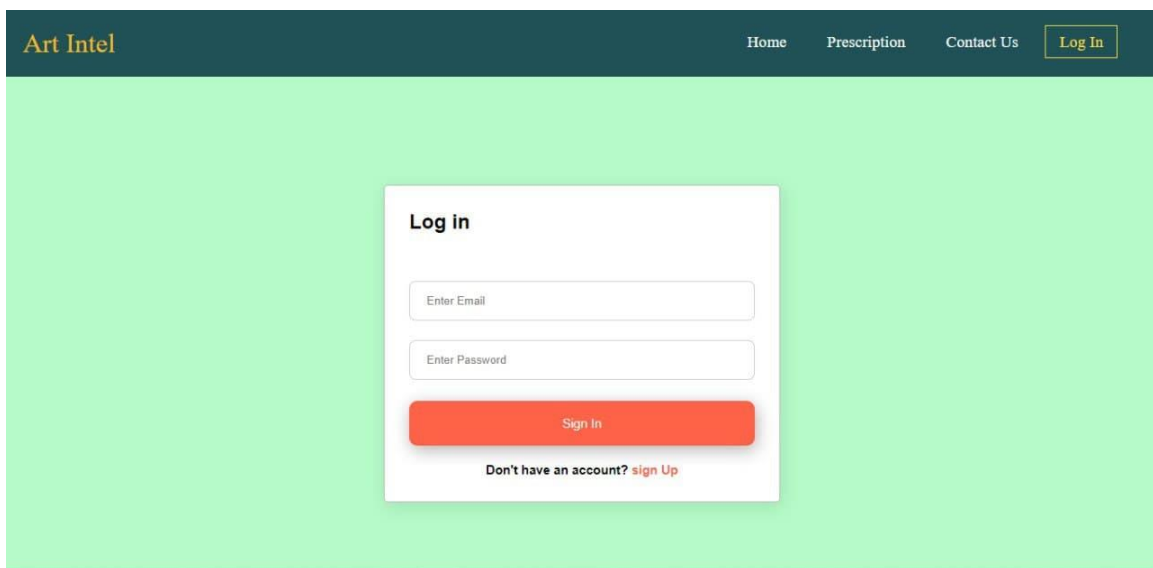

Figure 4.3: User Log in

4.4 Prescription Page

Here user will upload the image of prescription. If he uploads a wrong image, he can remove it and can upload the right one again.
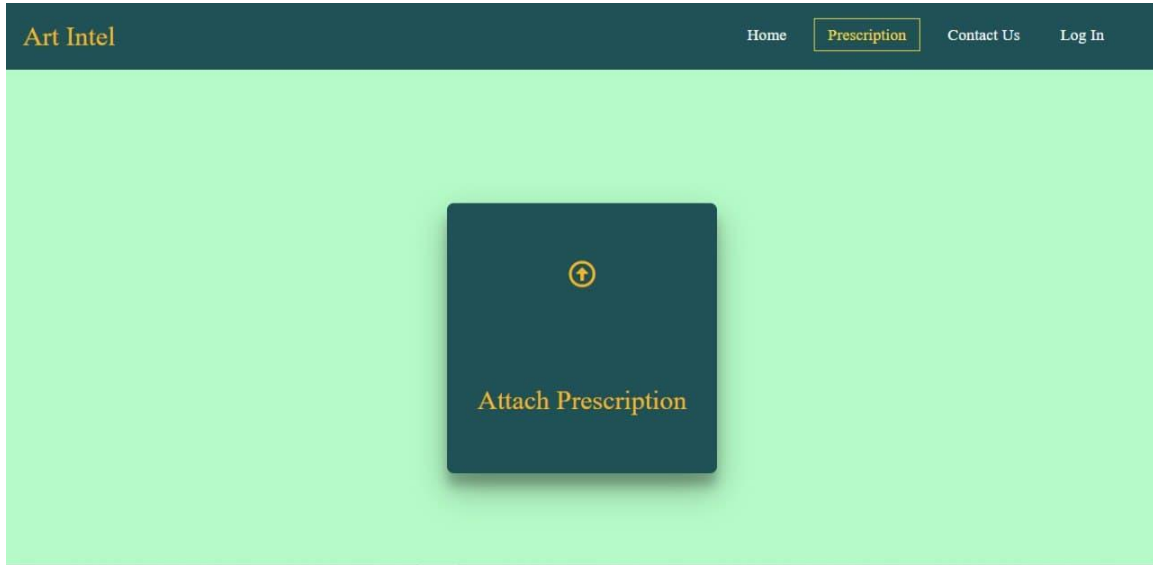

Figure 4.4: Prescription Page

4.5 Upload Prescription

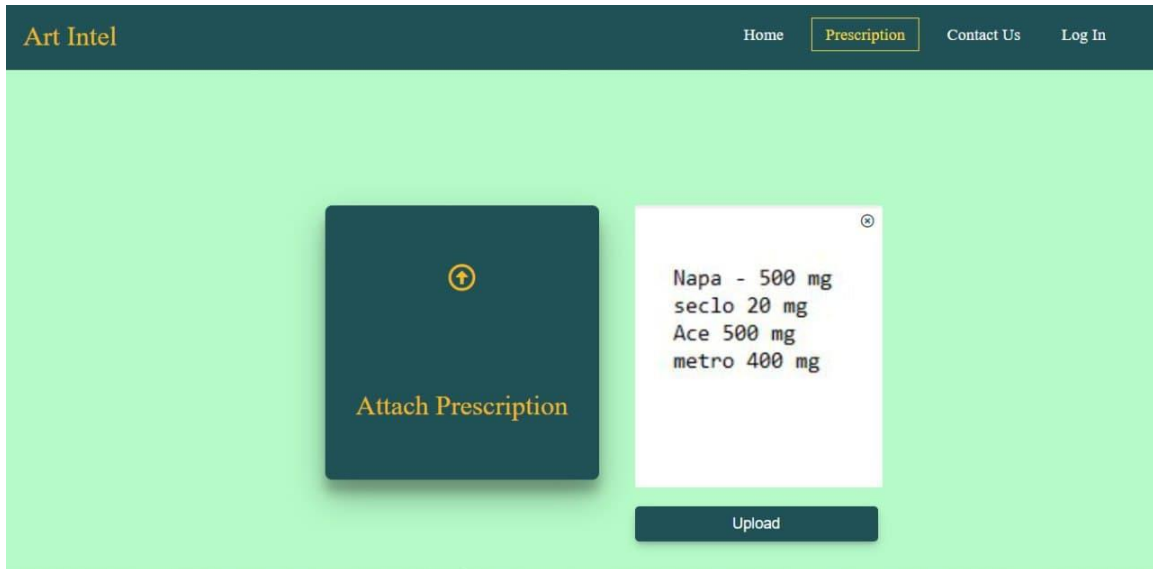Here we can see a page after uploaded image.

Figure 4.5: Upload prescription

4.6 Medicine Details

After uploading prescription here will show the medicines name. When user click the details button then he can see the details of the medicine. User can know about the materials of the medicine, for why the medicine is used also can know the market value of every particular medicine. We are working our API for the user recommends.
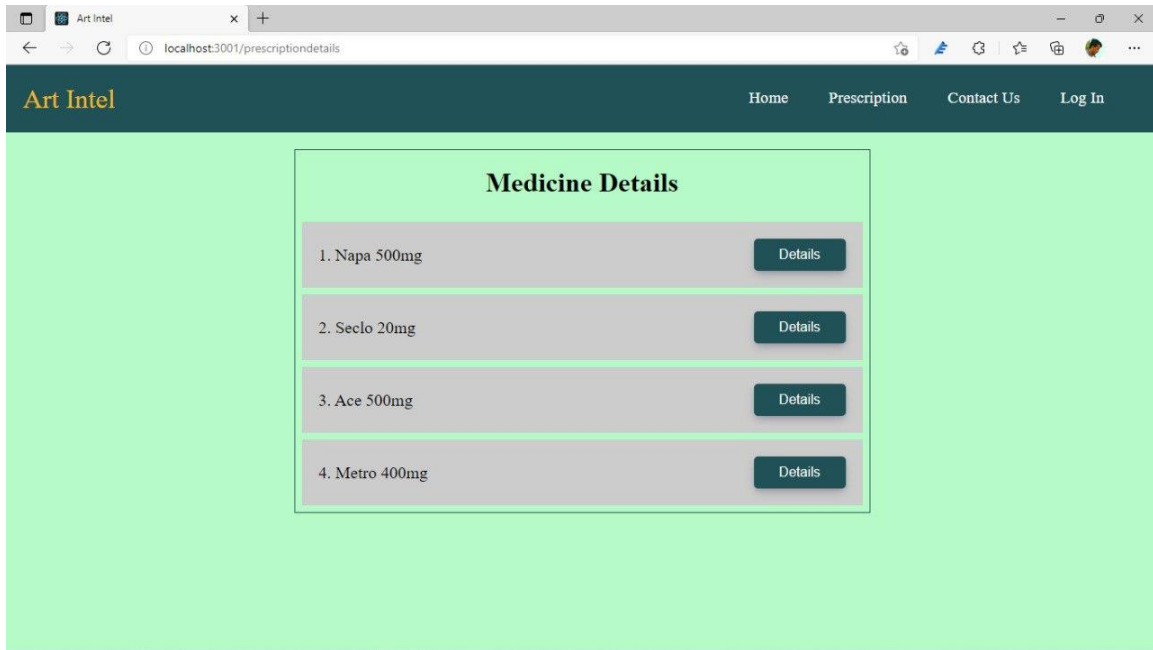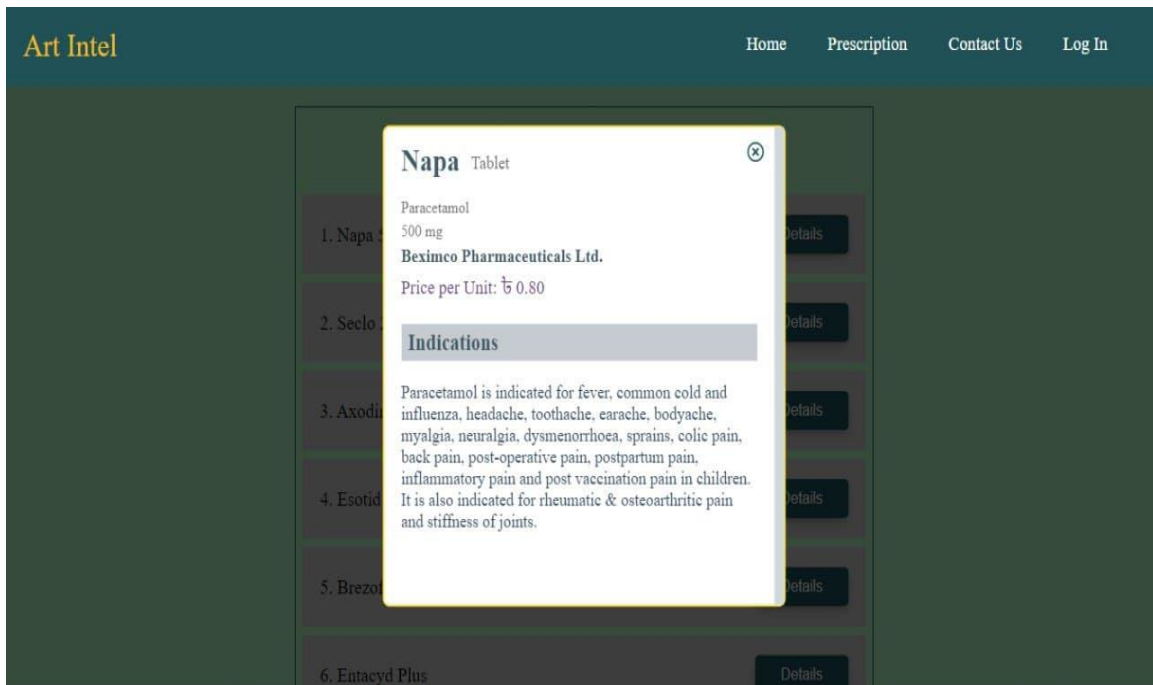

Figure 4.6.1: Medicine Details

Figure 4.6.2: Medicine Details

4.7 Contact Us

Here user can contact with admin by typing his name and email address. User can write his opinion as massage. Then he submits it. Admin can see the massages and can reply it.
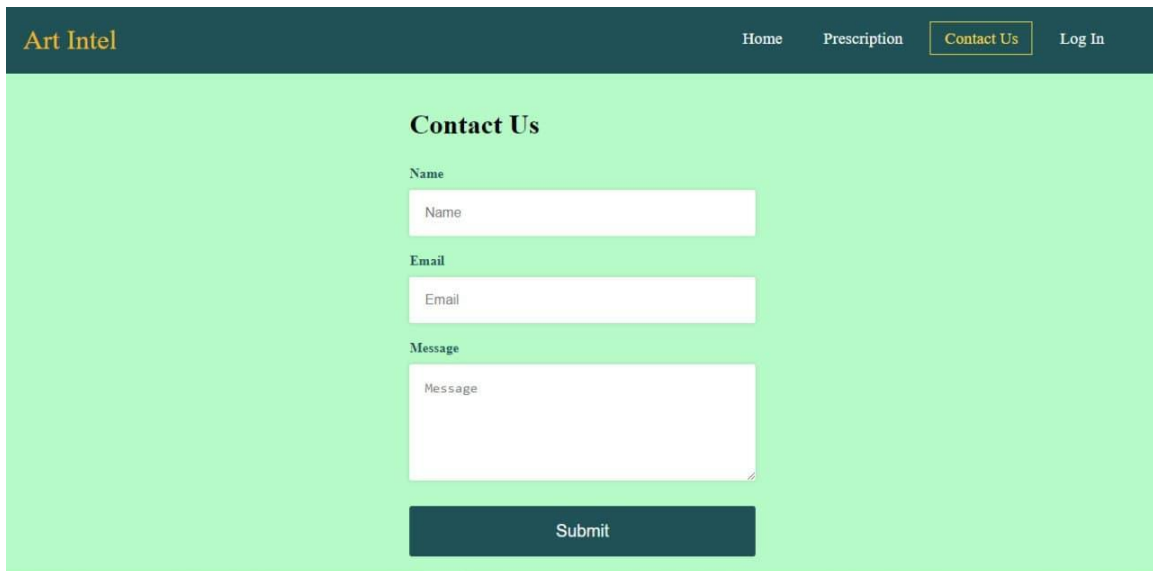

Figure 4.7: Contact Us

4.8 Back-End Design

We're utilizing the administrator template in the admin panel. All administrator panel resources must use this template. The data is displayed in a table format on the admin panel. The administrator can create, update, delete, edit, and show any data from the admin panel. To gain access to the administrator panel, the administrator had to first sign in. The administrator panel dashboard appears when the administrator logs in to the administrator panel.
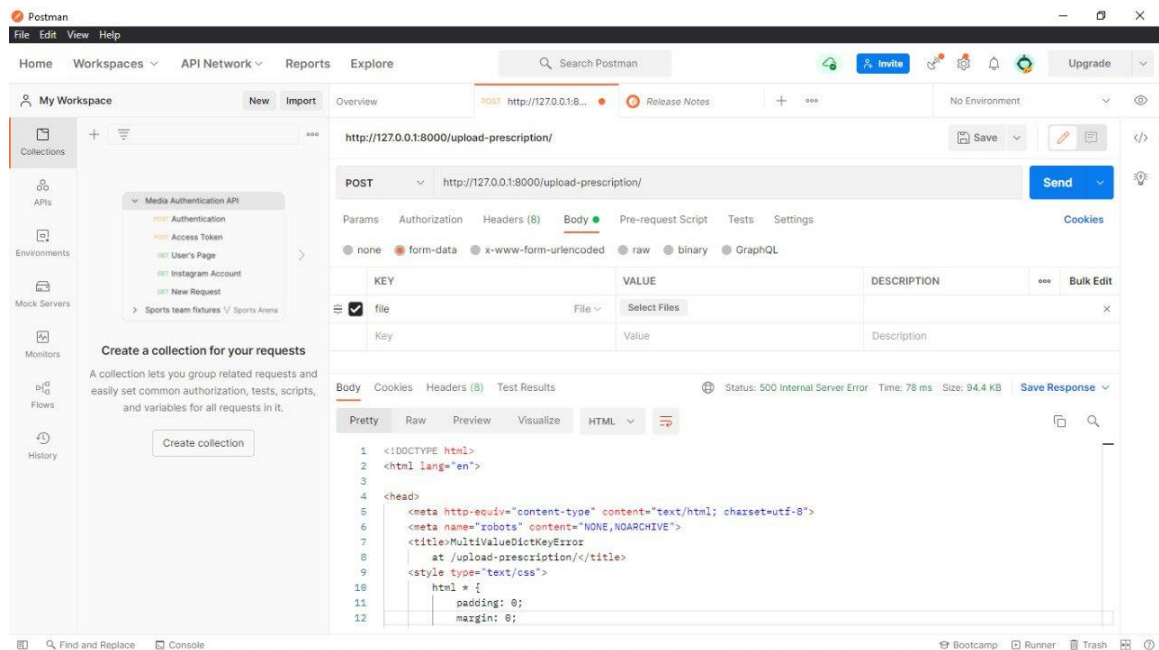

Figure 4.8.1: Input image

In figure 4.8.1 this is the django part which works for input the image of a prescription. After that the image will convert.
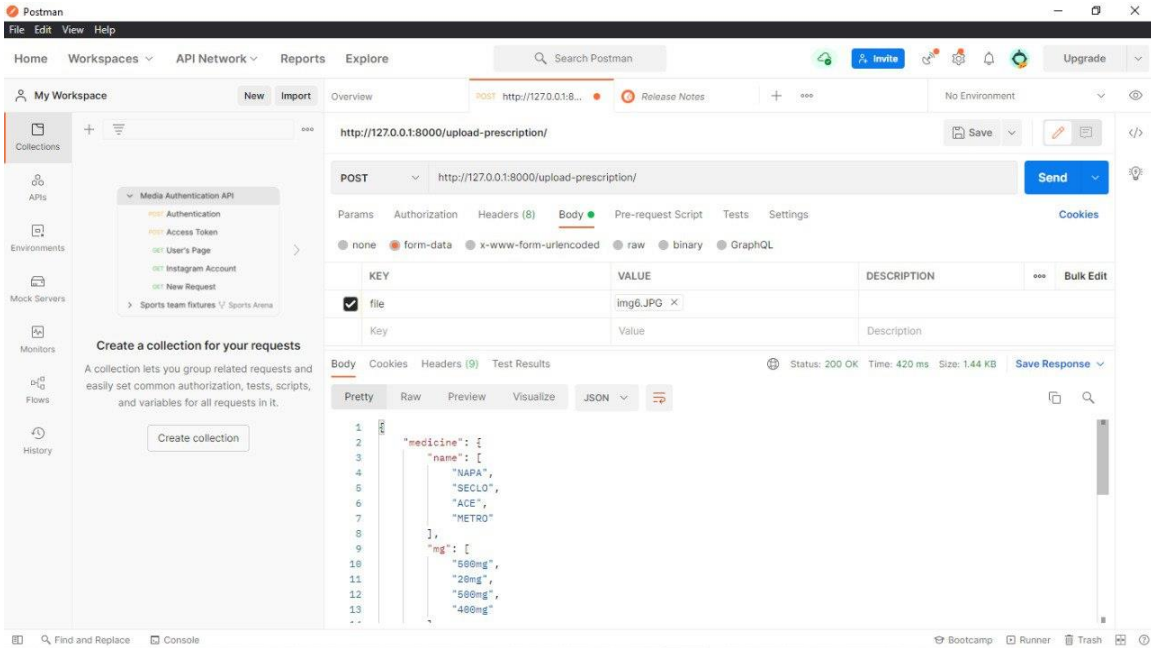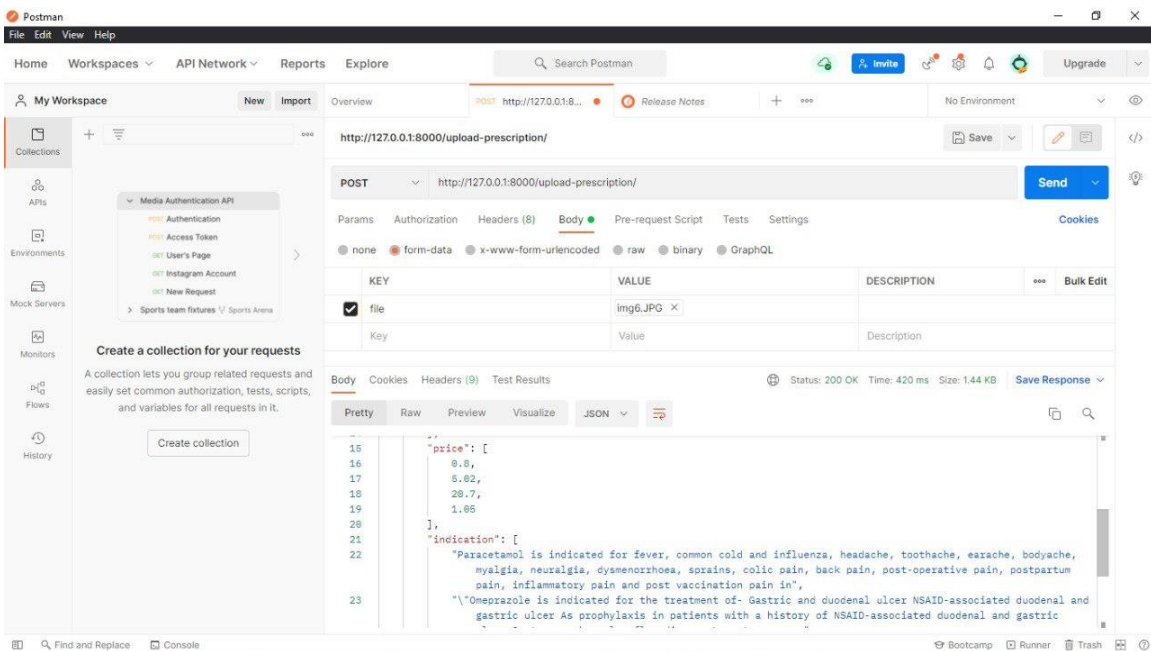
Figure 4.8.2: Back end Output

Figure 4.8.3: Back end Output

CHAPTER 5

Implementation and Testing

5.1 API Implementation

We understand that the database is the most crucial component of any project. In our project, we're attempting to create a database with a wide range of categories. We created our own API and are now working on it. For administration, we use Firebase.

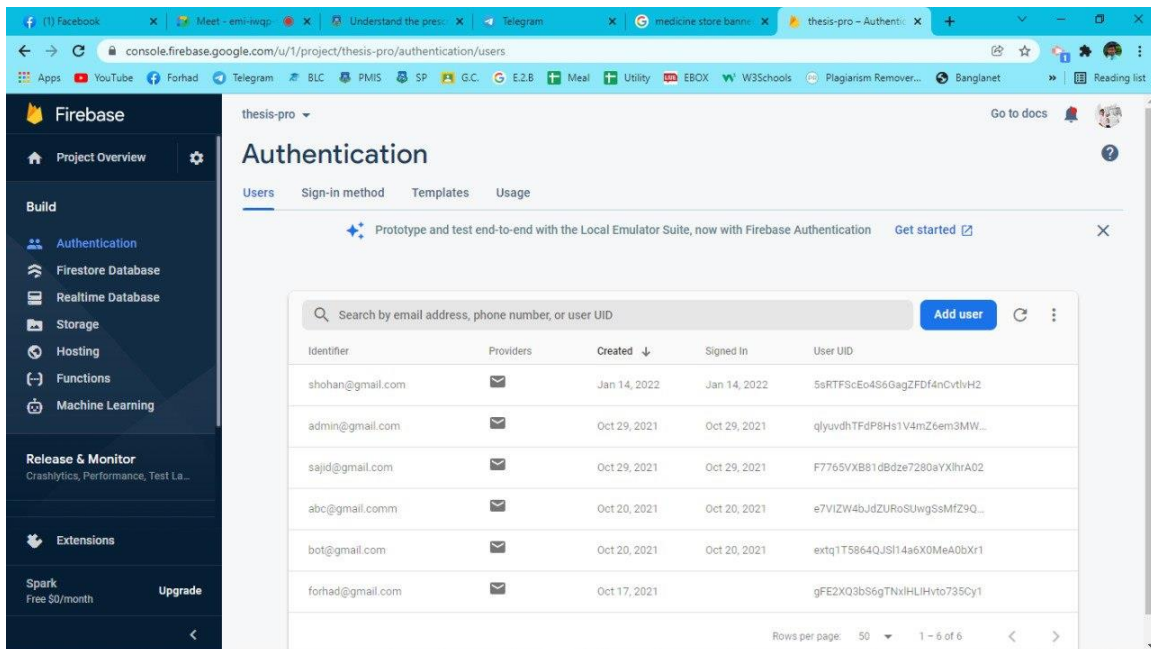Figure 5.1.2: Firebase Database

Firebase database table where admin can see who are creating account to this site. It records when he/she logged in and logged out.
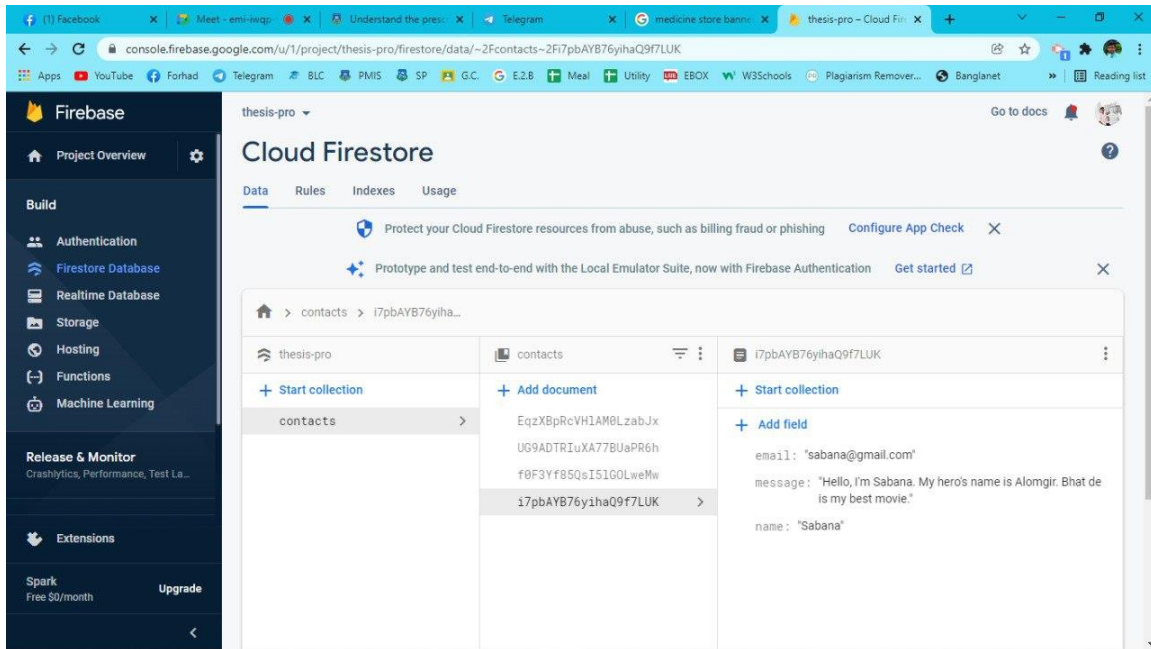
Figure 5.1.3: Database Table

We give an option for people those who use our site to inform or contact with us. If anyone contact with us it will be recorded. If they complain anything, we will be fixed it.
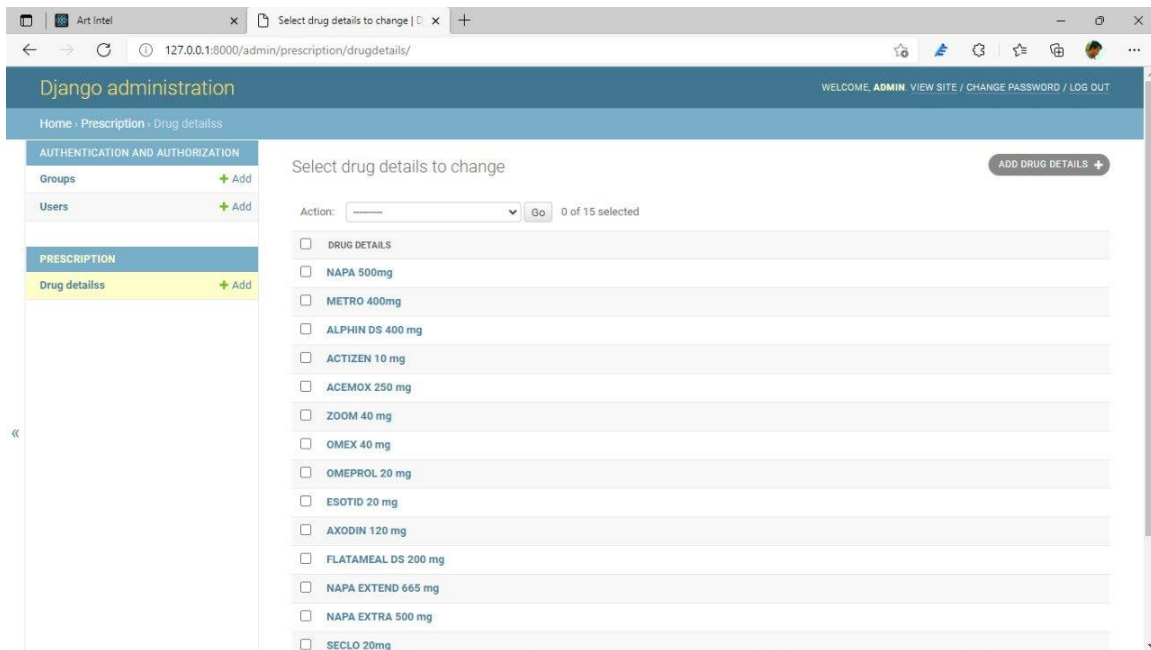

Figure 5.1.4: Django Admin Panel

Here all of the information will be stored. Every drugs detail is here. When people input prescription image and after convert it will show the drugs list and details from here.
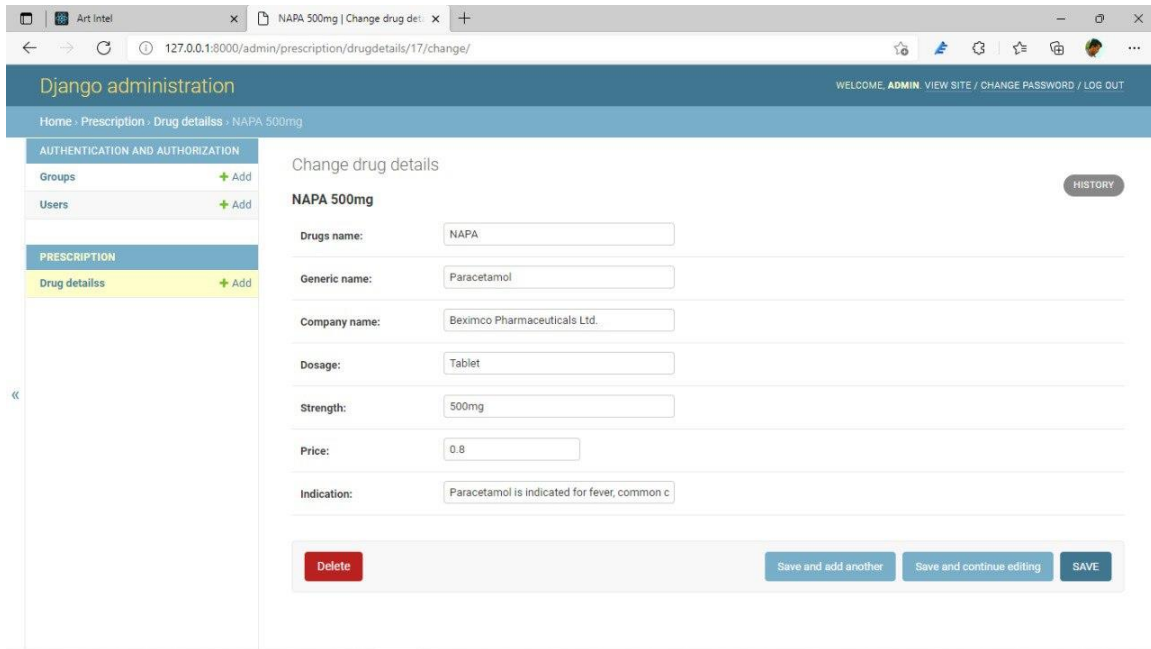
Figure 5.1.5: Django Admin Panel

Admit can update everything from here. Like admin can update or add new drugs, can delete a drug form the list. The details about every drugs admin can update here.

5.2 Implementation

Any software design's implementation in code and form construction is a critical aspect of any project. It is a stage in the development of an application. This area is where the codes are written and the prerequisites for building the software are compiled.

5.3 Testing and Integration

We aim to bring all of the elements together in each test area in this section. After that, we'll look at bugs and bug interactions.

5.4 Result of Testing

In this section, we examine our plan in order to determine the project's outcome. There are no technical errors in the application during testing. The system functions flawlessly, and there are no glitches to contend with.

S.L No	Test	Expected Result	Result
1	Sign Up	The data is recorded in the Firebase database when an unregistered user signs up or registers in the system.	Successful
2	Log In	When the user Log in to the system for service then the user should be able to access their account using the present credentials.	Successful
3	Upload Image	User can be upload image.	Successful
4	Remove Image	When user uploaded a wrong image then he can remove that image and re-upload the correct one.	Successful
5	Message Passing	When a user has a question regarding the services or anything else, they can utilize the contact us page, which has a form, to send a message using their name and email address.	Successful
6	Sign Out	Exit from the application.	Successful

Table 5.4.1: Result of Testing Table

CHAPTER 6

Conclusion and Future Scope

6.1 Conclusion

The main objective of our project is to create a Web based system. Which every customer can avail this Web based service from their respective location. And can take knowledge about the medication and prescription required by the customer.

6.2 Possibilities

It is possible to develop our ideas. We will do more about this project in the future. A few areas of future development of our project are highlighted here-

- In our project we will add machine learning.
- Now it takes uploads of prescriptions in our project. We will work on Android versions with the web version of the Future.
- Then the picture of the medication will be known by not clicking up without taking up images.
- Add online order again. Accordingly, I will reach the medicine like dimensions. At first, we will start the world through this day after we start this online order

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