



KHULNA UNIVERSITY OF ENGINEERING & TECHNOLOGY

Department of Computer Science and Engineering

Course Name : System Development Project

Project Name : A Web-based system for Health-care Management

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Introduction :

- ❑ For our system development project, we tried to develop a healthcare management system that can help to reduce peoples suffering.
- ❑ This system targets to provide the complete solution for appointment and blood donation.
- ❑ This system can be used in any hospital, clinic or doctor personal appointment for maintaining patient details, hospital seat or ICU management .

Features :

- ☐ Doctor's Appointment
- ☐ Blood Donor List Management
- ☐ Blood Donor Registration
- ☐ Admin Control Panel
- ☐ Payment Method and Premium subscription for patient
- ☐ Seat or ICU Availability check
- ☐ Hospital Billing System
- ☐ Messaging system with doctor and patient
- ☐ Recorded admitted patient data
- ☐ Death Count and Reason of death

System Overview :

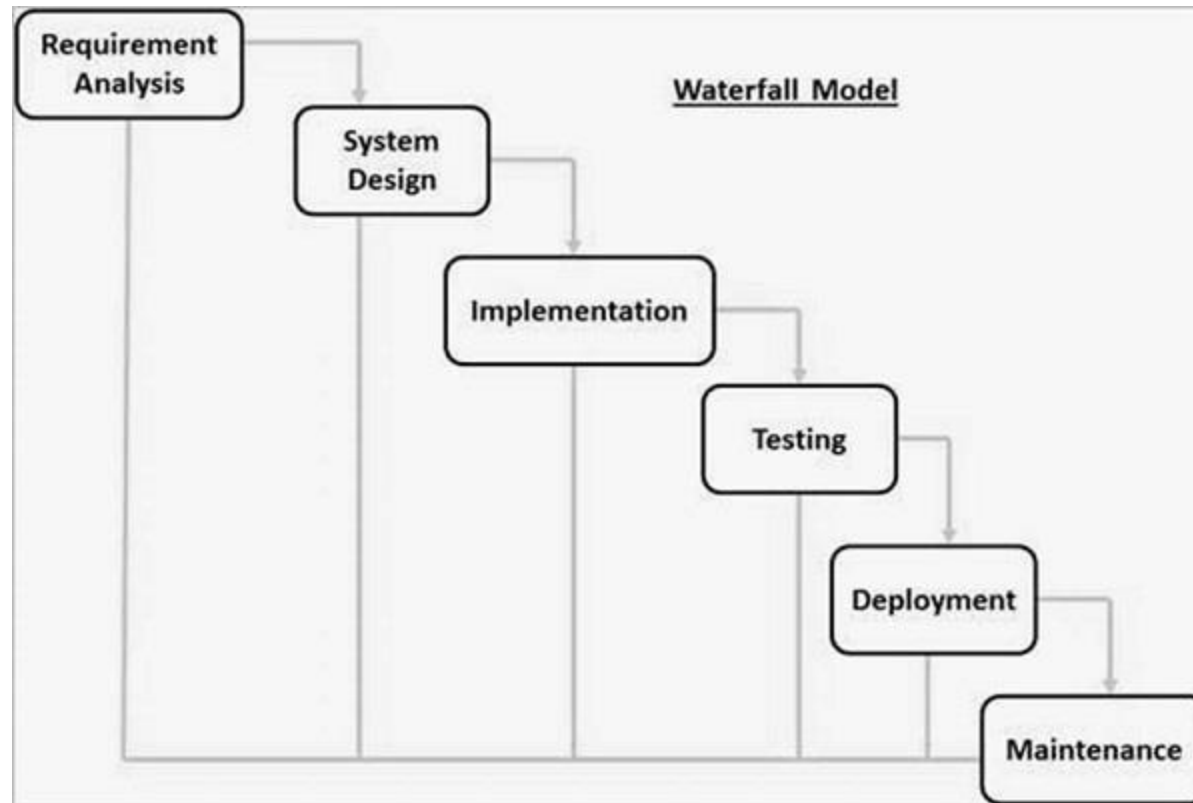


Figure 0 : Waterfall SDLC Model

Tools used :

- ❑ For building this application we use HTML, CSS, PHP, JavaScript .
- ❑ HTML describes the structure of a Web page . HTML elements tell the browser how to display the content.
- ❑ We use CSS to style an HTML document. CSS describes how HTML elements should be displayed.
- ❑ By using PHP we can generate dynamic page content, add, modify data in our database.
- ❑ To Communicate with HTML and different PHP Files we used JavaScript. One of the most helpful tool was JavaScript module called Ajax.
- ❑ SQL stands for Structured Query Language, and it's a computer language for managing data in relational databases. This ensures the accuracy and security of data, as well as the integrity of databases of any size.

Data-flow Diagram : A data-flow diagram is a way of representing a flow of data through a process or a system.

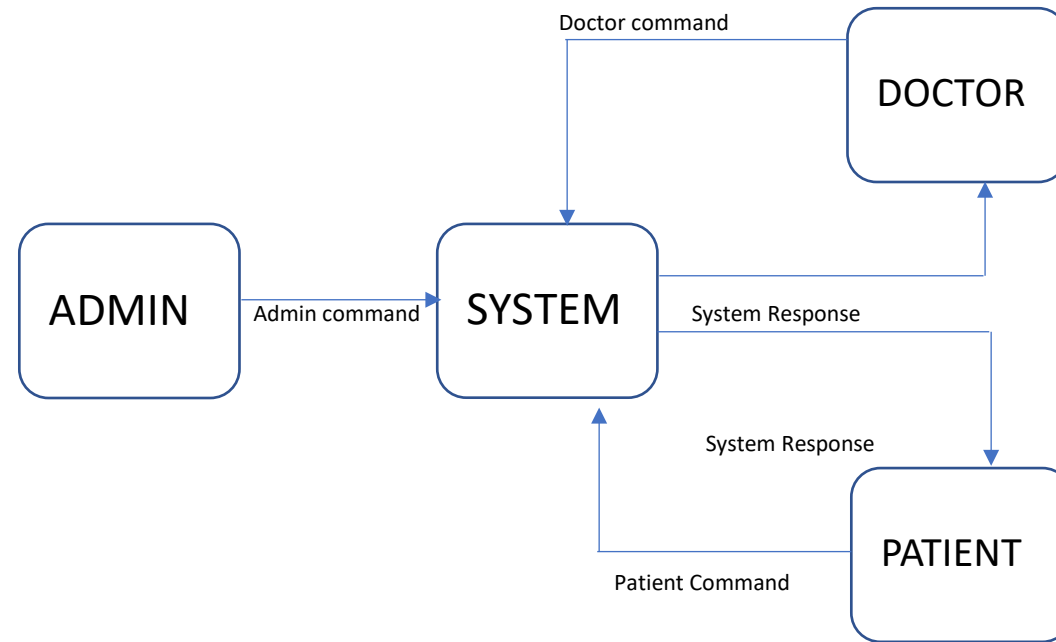


Figure 1 : High Level Representation of Data-flow Diagram

Schematic Diagram :

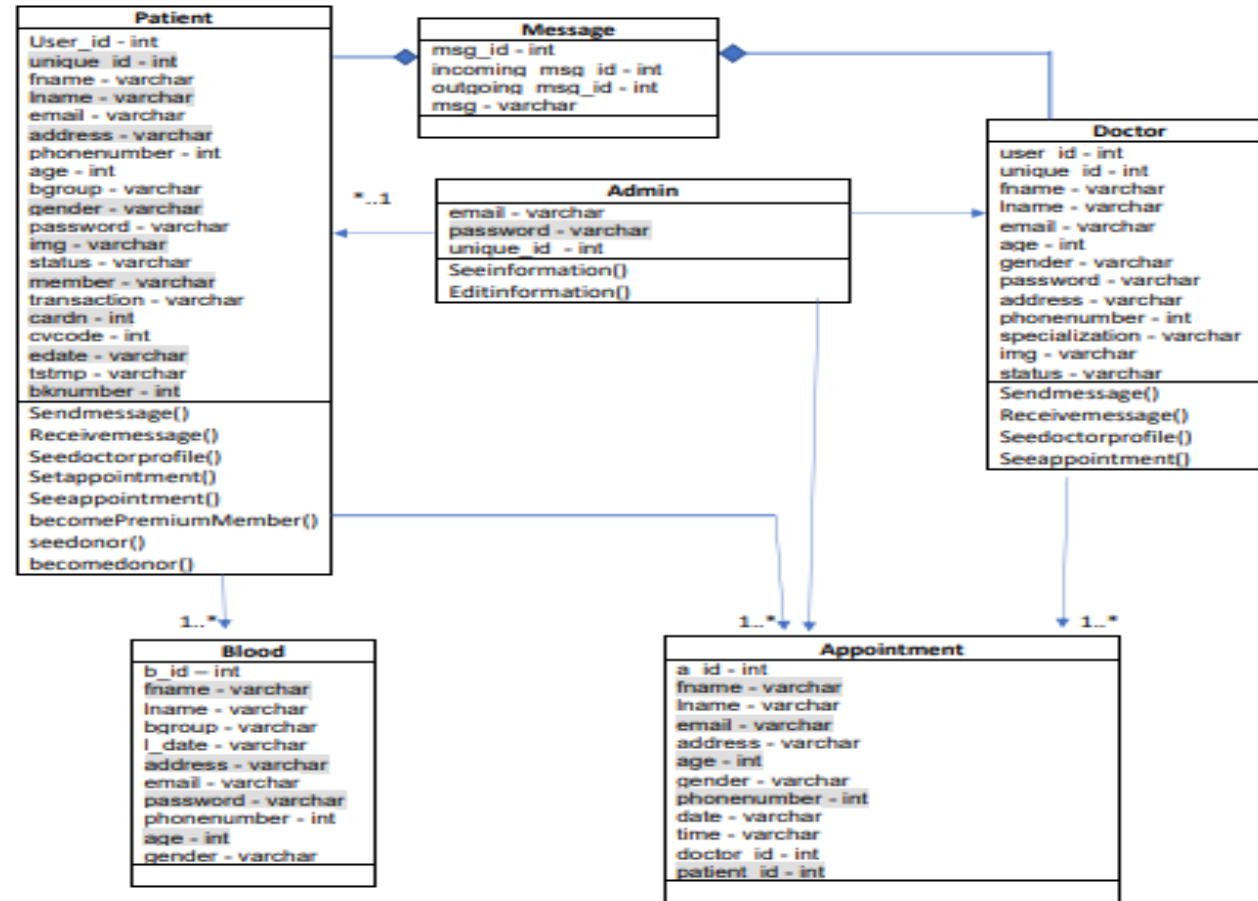


Figure 2 : Schematic Diagram of the web application

Appointment Module :

- ❑ **Register or Login** :For using this module, a doctor or a patient must register to our system and then log in to use other features.
- ❑ **Book an Appointment** : Here we can create appointments with doctors at their available time .We can create multiple appointment for multiple patients.
- ❑ **My appointments** : A doctor or patient can view the booked appointments and appointments details(name, phone number).Doctors can check their appointments on a selected day.

Signup as Patient

First Name

Last Name

First Name


Last Name

Email Address

Enter Your Email

Address

Enter Your Address



Phone Number

Enter Your Phone Number

Age

Enter Your Age

Blood Group

Enter Your Blood Group



Gender

Select an option

▼

Password

Enter new Password



Select Image

Choose File

No file chosen

Sign Up

Already signed up? Login now


Signup as Doctor?

Login as Doctor

Login as Patient



Email Address

Enter Your Email



Password

Enter your Password



Login

Not yet signed up? Signup now

Figure 3 : Sign Up and Login UI for Patient

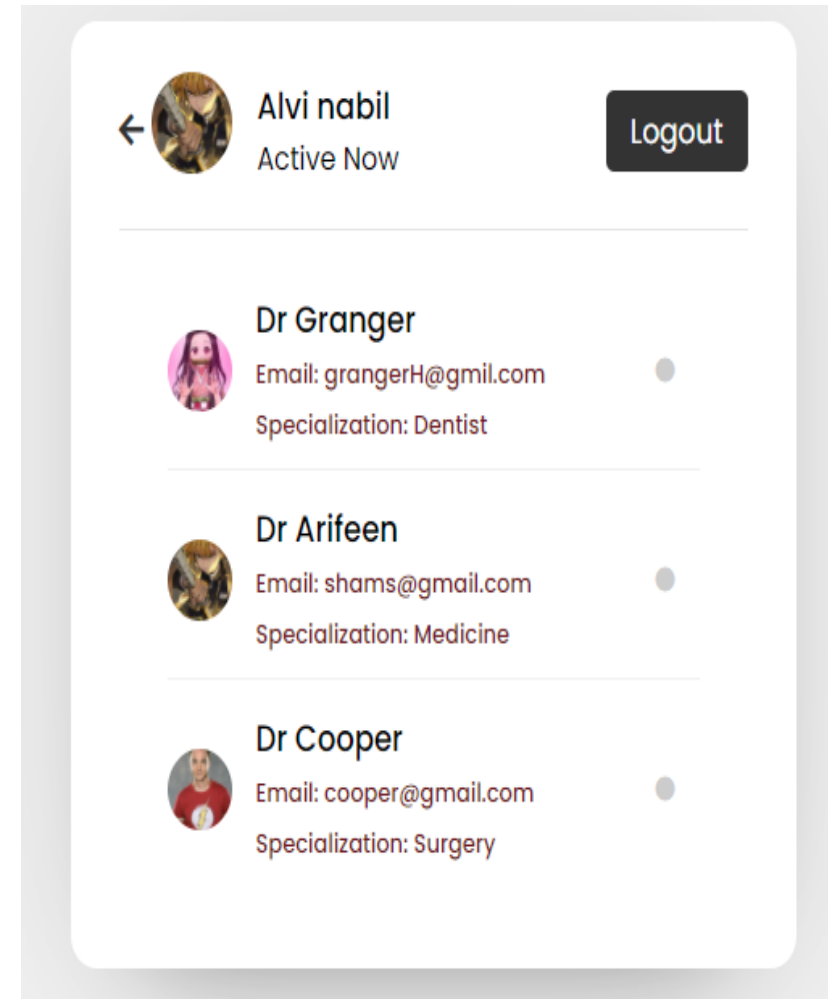
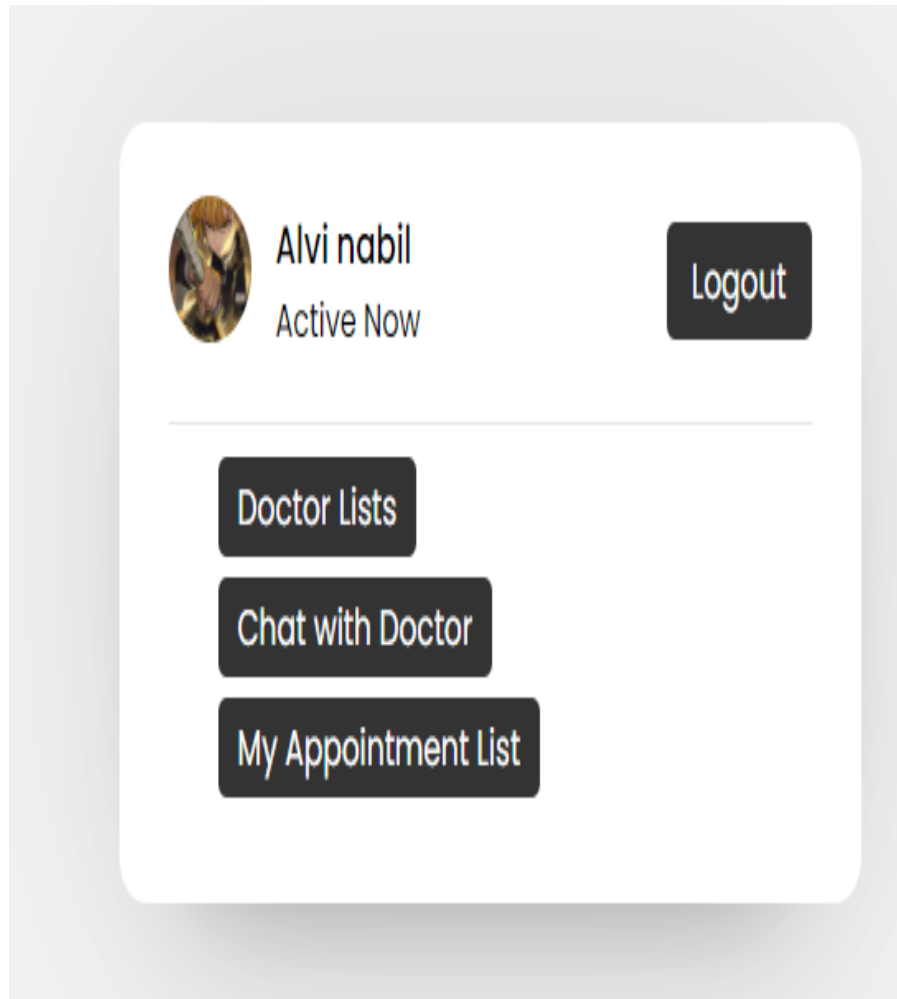





Figure 4 : Homepage for Patient & Doctor List



Dr Arifeen
Offline Now

Gender: male
Email: shams@gmail.com
Status: Offline Now
Address: mirpur, Dhaka
Phone Number: 1888888888
Specialization: Medicine



Message

Set Appoinment

Set Appointment With Doctor

First Name

Enter Your Name

Last Name

Enter Your Name

Email

Enter Your Email

Address

Enter your Address

Age

Enter your Age

Phone Number

Enter your Phone Number

Gender

Select an option

Date



mm/dd/yyyy

Appointment Time

Select an option

Confirm Appoinment

Figure 5: Doctor Profile and Registration form for booking an appointment



Alvi nabil
Active Now

Logout



Dr Granger
Date: 2021-06-23

Dr Granger
Date: 2021-06-23

Dr Arifeen
Date: 2021-06-23

Dr Cooper
Date: 2021-06-23


Dr Cooper
Date: 2021-06-24



Appointment Details

Doctor Name:
Doctor Email:
Status:
Phone Number:
Specialization:

Dr Arifeen
shams@gmail.com
Active Now
1888888888
Medicine



Patient Name:
Patient Email:

Zahim Hassan
hassan@gmail.com

Figure 6 : Appointment List for patient and Appointment Details page

Signup as Doctor

First Name

Last Name

Email Address

Address

Phone Number

Specialization

Age

Password

Select Image
 No file chosen

[Continue to Chat](#)

Already signed up? [Login now](#)

[Signup as Patient?](#) [Login as Patient](#)

Login as Doctor

Email Address

Password

[Continue to Chat](#)

Not yet signed up? [Signup now](#)

Figure 7 : Sign Up and Login page for Doctor

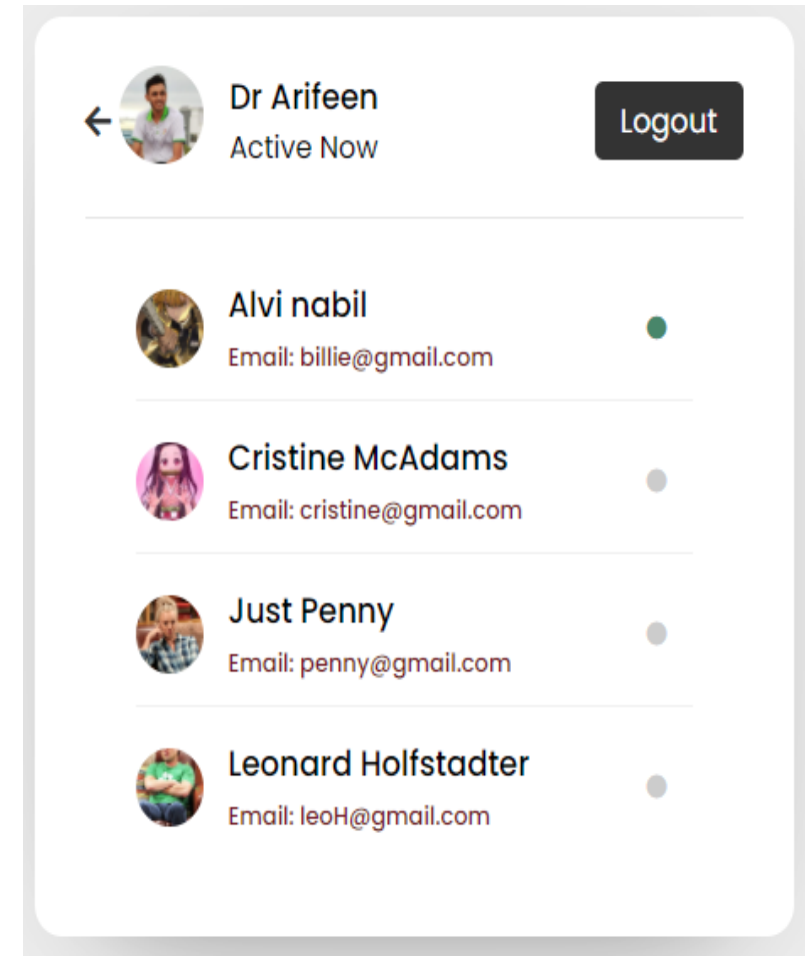
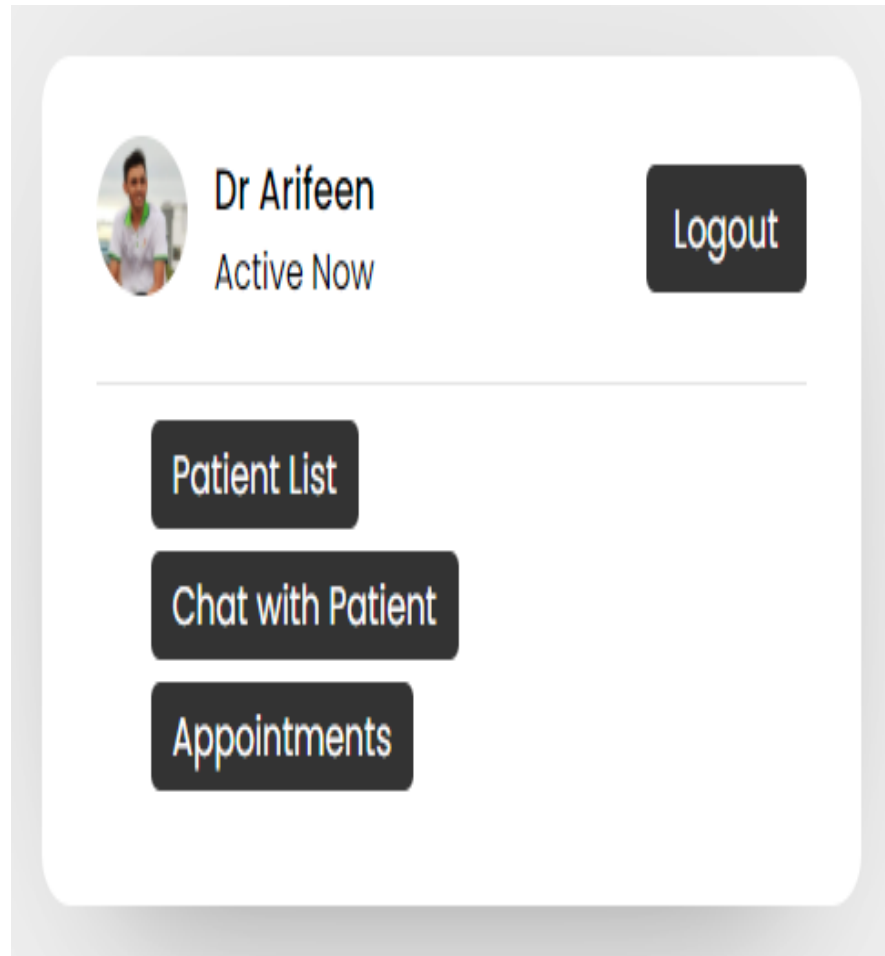


Figure 8: Homepage and patient List for Doctor

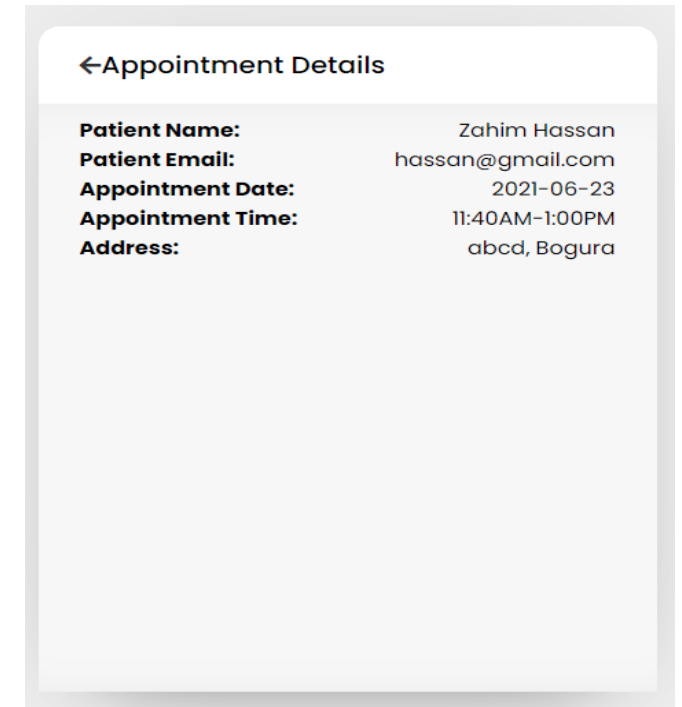
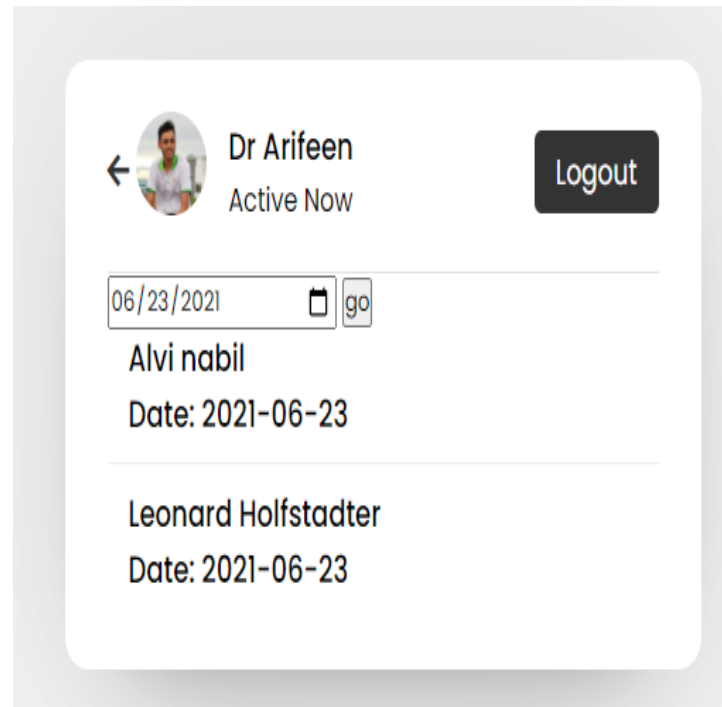
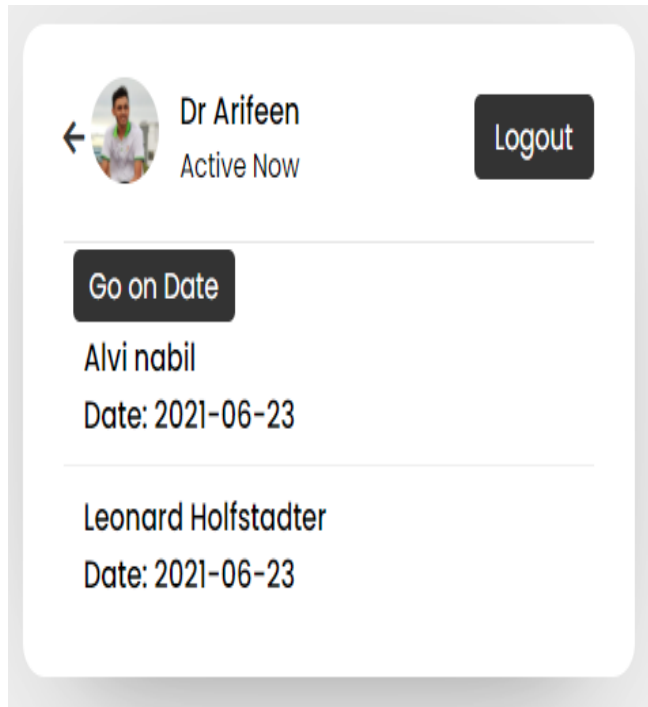


Figure 9 : Appointment List , Date-wise Appointment List and appointment Details for Doctor

Chat Module :

- ☐ Here a patient can see which doctor is online and if a patient wants to ask something like primary treatment or send update of himself, he can do it.
- ☐ Here doctor can reply to the message of his/her patient and he will be able to collect the update from his patient.

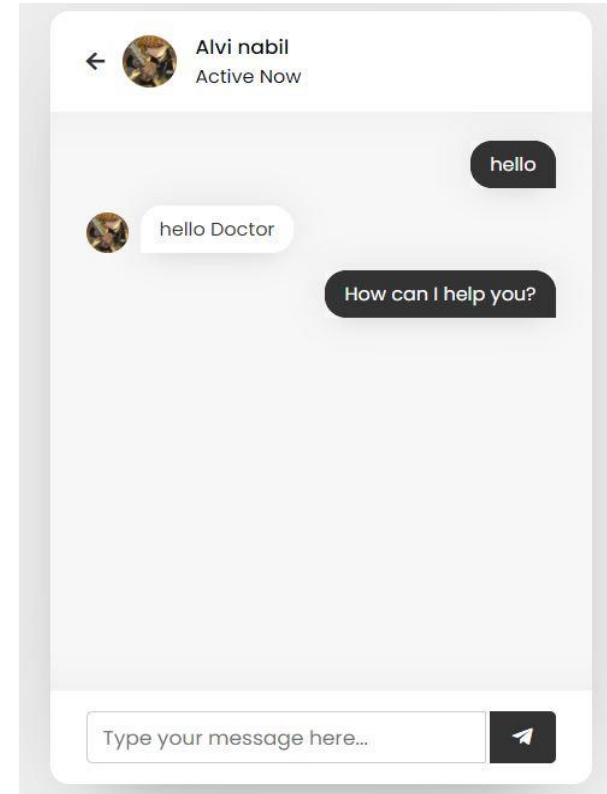
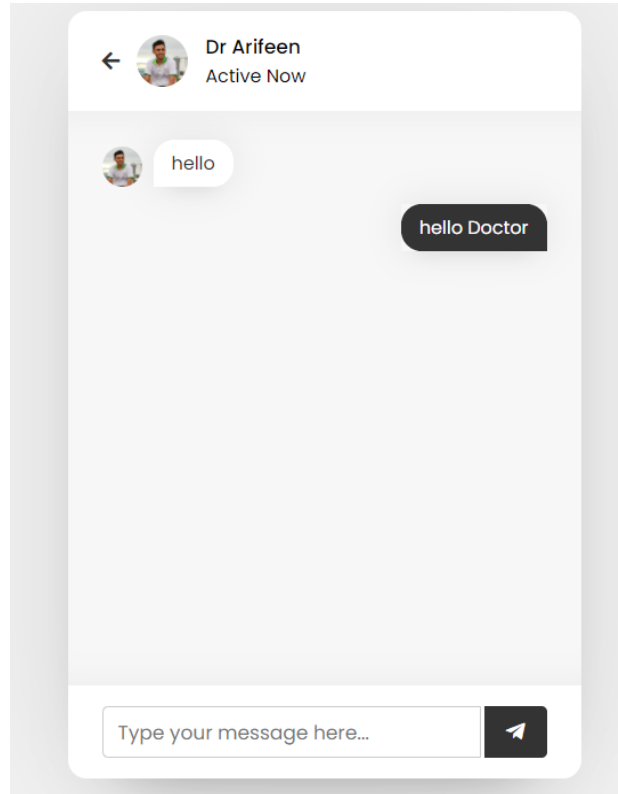


Figure 10 : User Interface of the chat module

Donor Module :

- ❑ **Sign up / Login :** A user can also register as a donor and also can login to his donor account to update his information.
- ❑ **Activity :** Here user can check if blood donor are available based on his blood group and last donation date. User can also collect his phone number or the necessary information.
- ❑ **Update :** Here donor can update his last date of donation . To update the information he must sign in as a donor.

Fill up the following form

First Name

Last Name

Blood Group

Email

Password

Address

Phone Number

Age

Gender

When did you donate blood last time

Save Information

Login as Donor to Update info

Email Adress

Password

Continue to Update

Figure 11 : Donor Sign Up and Donor Login

← Available donor lists

Select one to see profile

Select Group

Zahim Hassan

Email: hassan@gmail.com

Blood Group: O+

Ahmed Habib

Email: habibA@gmail.com

Blood Group: AB-

Are you donor? Update Info.

← Available donor lists

AB-

▼

go

Ahmed Habib

Email: habibA@gmail.com

Blood Group: AB-

←Zahim Hassan

Name:

Zahim Hassan

Blood Group:

O+

Age:

23

Gender:

Email:

hassan@gmail.com

Address:

Bogura

Phone Number:

980

Last Donated on:

2021-02-01(141 days ago)

Figure 12 : Donor List ,Donor List based on group and donor profile

Admin Module :

Update : If a patient or doctor get in trouble to edit his profile , he can contact with admin and the admin will be then update this.

Subscription : After registration all the users will be normal users. To access some of the special features one has to activate the membership subscription. Without that normal users can't access those features. Without the subscription the "Available Discounts" and "Special Features" option will be locked. On clicking the "Be a member" the user will be taken to a "Payment" page to activate the subscription.

Payment Method : We have included two payment method. One is through "VISA/Mastercard" and the other is through the "BKash". In both case the users must fill up some form to initiate the payment process. At the end the payment will be confirmed by the admin on checking Transaction ID of the payment and upon that the account will be made premium by the admin side.

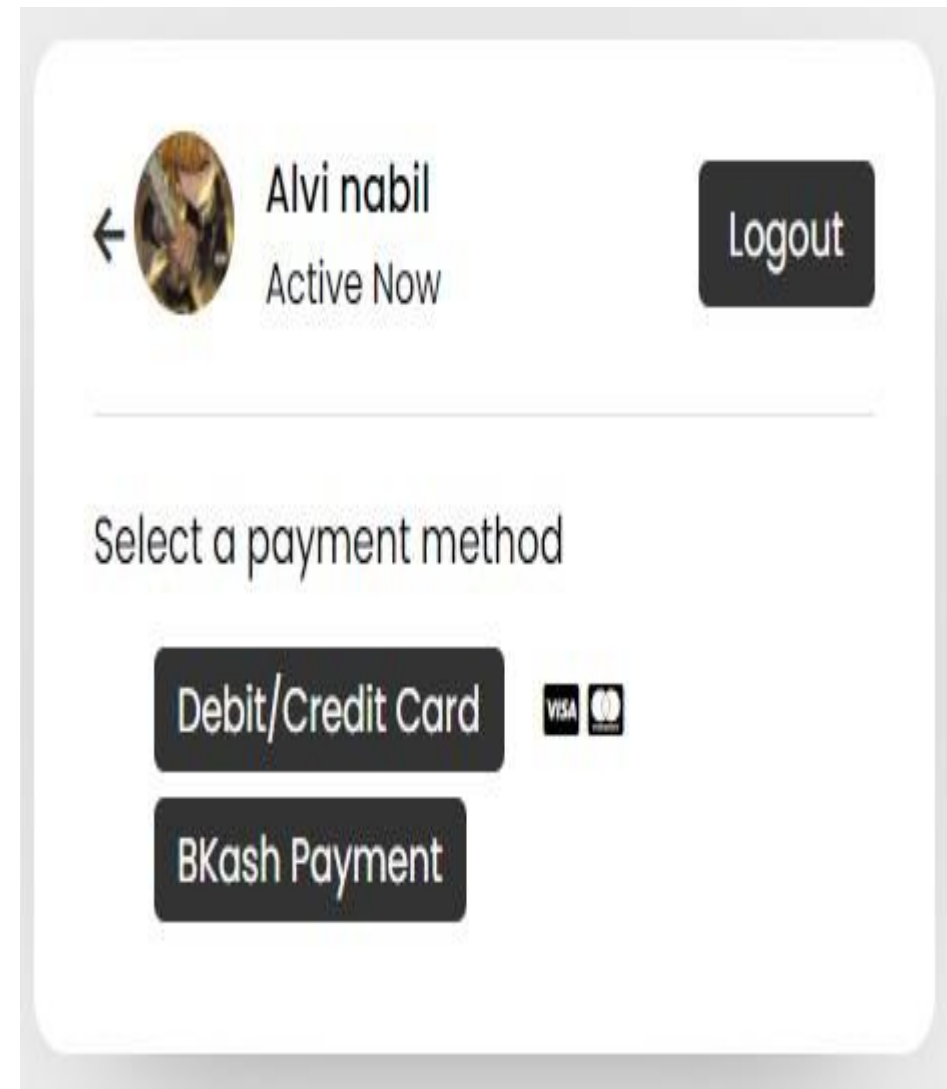
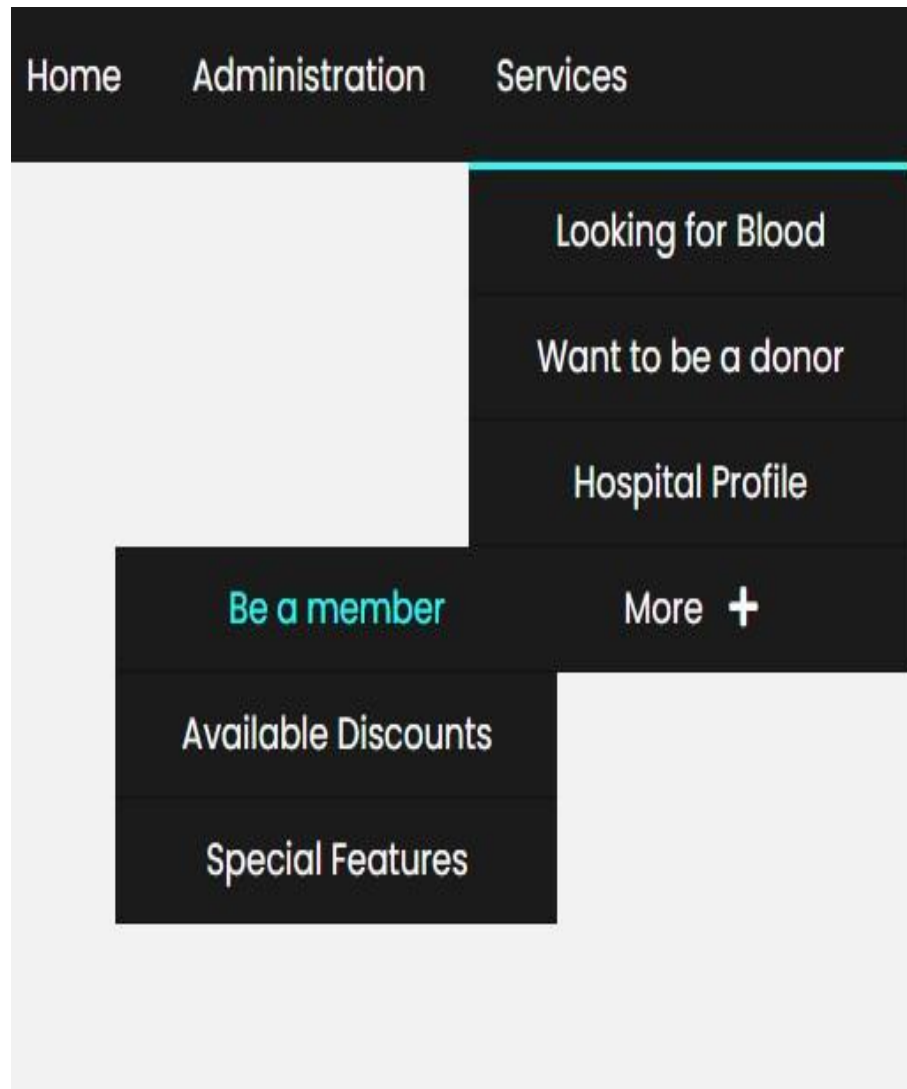



Figure 13 : Membership subscription and Payment Method

Payment Details for 1 Year Subscription

Card Number



Expiry Date

CV Code

Total Amount 20,000 TAKA

PAY

Payment Details for 1 Year Subscription

Enter the transaction Number

Confirm

Figure 14 : Card Information and form for Inserting Transaction Number

Hospital Module :

- ❑ **Admin Panel** : A hospital authority can register using necessary information of hospital like(Hospital name, Number of seats, Number of ICU, Number of Doctors and address). Then he will also be able to use the billing method.
- ❑ **Services** : Visitors can find the hospital name with address and phone number and will be able to check if there is any seat or ICU available or not . They can also check doctor information and their duty time.
- ❑ **Diseases Records** : Visitors/Users will be able to see the patient's records for which diseases they were admitted to the hospital and see death records of that disease.

Hospital Registration

Hospital Name <input type="text" value="Enter Hospital name"/>	ICU Quantity <input type="text" value="Enter ICU Quantity"/>
Bed Quantity <input type="text" value="Enter Bed Quantity"/>	Total Doctor <input type="text" value="Enter Doctor Quantity"/>
Hospital Address <input type="text" value="Enter Hospital Address"/>	Phone Number <input type="text" value="Enter Hospital Phone Number"/>
Fill Up ICU Quantity <input type="text" value="Enter Fill Up ICU quantity"/>	Fill Up Bed Quantity <input type="text" value="Enter Fill Up Bed Quantity"/>
Hospital Password <input type="password" value="Enter Password"/>	

Register

Hospital Login

Phone Number <input type="text" value="Phone Number"/>	Hospital Password <input type="password" value="Enter Password"/>
--	---

Login

Figure 15 : Hospital Registration and Login

Hospital Details

ICU Quantity	Bed Quantity
<input type="text" value="32"/>	<input type="text" value="170"/>
Total Doctor	Fill Up ICU Quantity
<input type="text" value="220"/>	<input type="text" value="13"/>
Fill Up Bed Quantity	
<input type="text" value="49"/>	

[Update](#)

[Bill Section](#)
[Patient Infromation](#)
[Doctor Infromation](#)
[Expenses Infromation](#)
[Expenses Update Infromation](#)

Patient Details

Hospital Name	Patient Name
<input type="text" value="Dhaka Medical College"/>	<input type="text" value="Enter Patient name"/>
Age	Bed Number
<input type="text" value="Enter Age"/>	<input type="text" value="Enter Bed Number"/>
Consultant Doctor	Patient History
<input type="text" value="Enter Doctor Name"/>	<input type="text" value="Enter Patient History"/>
Phone Number	Admitted date
<input type="text" value="Phone Number"/>	<input type="text" value="06/22/2021"/>
Release Date	Date of death
<input type="text" value="mm/dd/yyyy"/>	<input type="text" value="mm/dd/yyyy"/>
Reason of Death	
<input type="text" value="Enter Reason of Death"/>	

[Save](#)

Figure 16 : Hospital Details and Patient Details for Admin

Doctor Details

Hospital Name	Doctor Name
<input type="text" value="Dhaka Medical College"/>	<input type="text" value="Enter Doctor name"/>
Designation	Fields of work
<input type="text" value="Doctor Designation"/>	<input type="text" value="Doctor Fields of Work"/>
Working Time	
<input type="text" value="Working Time"/>	

Expenses Details

Hospital Name	Bed/ICU
<input type="text" value="Dhaka Medical College"/>	<input type="text" value="Bed/ICU"/>
Floor	Total Bed
<input type="text" value="Enter Floor No"/>	<input type="text" value="Enter Bed Quantity"/>
Fill Up Bed Quantity	Cost Per Day
<input type="text" value="Enter Fill Up Bed quant"/>	<input type="text" value="Enter Cost of Per Day"/>
Facilities	
<input type="text" value="Enter The Facilites"/>	

Figure 17 : Doctor Details and Expenses Details for Admin

DoctorTalks											
Hospital Name	ICU Quantity	Bed Quantity	Doctor Quantity	Fill Up ICU	Fill Up Bed	Available ICU	Available Bed	Hospital Address	Statically Data	Seat Details	Doctor Info
Apollo Hospital	50	200	40	10	180	40	20	Dhaka	Apollo Hospital	Apollo Hospital	Doctor Info
Bangladesh Eye Hospital	10	60	20	5	40	5	20	Dhaka	Bangladesh Eye Hospital	Bangladesh Eye Hospital	Doctor Info
LabAid Hospital	60	220	30	30	200	30	20	Dhaka	LabAid Hospital	LabAid Hospital	Doctor Info
Pabna Mental Hospital	25	120	15	15	100	10	20	Pabna	Pabna Mental Hospital	Pabna Mental Hospital	Doctor Info
Bangladesh Institute of Child Health	20	160	10	30	130	10	30	Dhaka	Bangladesh Institute of Child Health	Bangladesh Institute of Child Health	Doctor Info
National Institute of ENT	10	150	8	25	125	15	25	Gazipur	National Institute of ENT	National Institute of ENT	Doctor Info
BIRDEM	30	180	25	20	150	10	30	Agargaoan , Dhaka	BIRDEM	BIRDEM	Doctor Info
Dhaka Shishu Hospita	20	170	15	35	150	15	20	Dhaka	Dhaka Shishu Hospita	Dhaka Shishu Hospita	Doctor Info
National Institute Of Cancer Research And Hospita	20	130	10	20	115	0	15	Rangpur	National Institute Of Cancer Research And Hospita	National Institute Of Cancer Research And Hospita	Doctor Info
Sheikh Rasel Gastroliver Institute & Hospita	30	100	20	25	80	5	20	Barishal	Sheikh Rasel Gastroliver Institute & Hospita	Sheikh Rasel Gastroliver Institute & Hospita	Doctor Info
Square Hospital	40	150	30	35	130	5	20	Dhaka	Square Hospital	Square Hospital	Doctor Info

Figure 18 : Hospital Details for visitors

Doctor Name	Designation	Fields of Work	Working Time
Himel	MBBS	General	8pm to 10pm

Figure 19 : Hospital Doctor Details

Equipment	Floor No	Total Bed	Fill Bed No	Cost	Facilites
Bed	1	20	19	1200	Non Ac Bed
Bed	2	20	10	1500	AC Bed

Equipment	Floor No	Total ICU	Fill ICU No	Cost	Facilites
ICU	1	10	5	3000	AC Bed
ICU	3	20	12	5000	AC Bed

Figure 20 : Hospital Equipment vacancy details

Diseases name	Recorded history
Allergies & Asthma	1
Cancer	1
COVID-19 & Infectious Diseases	1
Heart Attack	1
Liver Disease	1
Lupu	1
Type 1 Diabetes	1

Diseases name	Number of Death patients
Heart Attack	1

Figure 21 : Diseases and Death Records

Bill Module :

- ❑ Using this section a hospital authority will be able to make bill document for patient and also can print the receipt.

Operation Name	
Taka	
Quantity	
Add	

Operation Name	Taka	Quantity	Bill	Total
----------------	------	----------	------	-------

Print

Figure 22 : Bill Details and Print Receipt

Advantages :

- ❑ By using this application , people can find any doctor easily and get an appointment.
- ❑ Sometimes it is very difficult to find a doctor phone number for his appointment , this application can be a better option for this.
- ❑ Sometimes it is very difficult to find a blood donor in critical situation , this application helps to find a donor.
- ❑ They can quickly chat with doctor for initial treatment.
- ❑ They can find a suitable hospital for a certain type of diseases based on the record that have been kept.
- ❑ Premium users can have special discounts and access more features like half yearly whole body check-up, three times dentist appointment free.

Future Plan :

- ❑ Making the system more responsive and user friendly as well as secure using a high-level framework like Django or Laravel.
- ❑ Analyze the Blood donor information to make it more accessible to the people in need.
- ❑ As we are collecting data about disease and the hospital the patient chooses for treatment we can use this data to make a prediction what the general people think about a hospital on certain disease treatment.
- ❑ Analyze the data about death rate on certain type of disease.
- ❑ Analyze the expenses details of certain hospital to others to give a prediction about pricing for the people.

Disadvantages :

- ❑ As a new web application it has very little amount of data .
- ❑ As more patient , doctor and hospital register in our system , the more better our web application will be.
- ❑ For our country as internet is not available in rural areas so people in rural area will find it difficult to access this web-application.

Conclusion :

The system was created with the goal of making the healthcare system more accessible to individuals of all socioeconomic classes to alleviate people's misery and corruption. As many important aspects of our problem had been overlooked at the beginning. With proper development this system could help a large number of people.

References :

1. https://www.w3schools.com/html/html_intro.asp
2. <https://www.php.net/docs.php>
3. <https://devdocs.io/javascript/>

Thank You