Centralized Medical Application - CMA

1. PRODUCT AND PROJECT DESCRIPTION

1.1 System Features

1. Software Registration

Functional Requirements:

1.1 Every time a user clicks "Register" on the homepage, the registration procedure must start.
1.2 In order to register, the user must give some personal information (Name, NID number, Date of Birth, Location, Cellphone number, Gender, Blood Group and Mail address) using the Sign-Up form.
1.3 Additionally, the user must create a secure password and re-enter it to validate password in the form.
1.4 Once the user has completed the required Manual Registration information, he/she needs to click 'Register' to initiate registration validation and completion.

Priority Level: High
Precondition: The user must accurately enter all required information and choose a secure password.
Cross-reference: 2.4, 4.1,4.2, 4.3, 4.4

2. Doctor Appointment
Functional Requirements:

2.1 The system will provide doctor recommendation to the user based on their disease prediction.
2.2 Additionally, a user can manually search for doctors by name.
2.3 The user will then be able to view the doctor's name, as well as their degree, specialty, and appointment time.
2.4 The user may book any doctor by clicking the 'Book' button next to the doctor's name.
2.5 Here, the user may also find out about various hospitals and their doctors.

Priority Level: High
Precondition: To book an appointment, the user must log in with their valid email and password.
Cross-reference: 1.1, 1.2, 1.3, 1.4, 3.4, 4.1,4.2, 4.3, 4.4

3. Disease Prediction
Functional Requirements:

3.1 User inputs such as blood pressure and pulse are required for disease prediction.
3.2 The user must check the box near the disease symptoms in the checkbox.
3.3 The user is required to provide information for the 'Duration' and 'Disease State' columns for any symptoms that have been checked in the checkbox.
3.4 Last, the user needs to click ‘Submit’ for disease prediction and after that he/she will be suggested

doctors according to disease prediction.

Priority Level: High
Precondition: The user must accurately enter all required information.
Cross-reference: 2.3, 2.4, 2.5

4. Custom Exercise Guide to Patients
Functional Requirements:

4.1 In this option, the doctor may recommend exercises to the patient.
4.2 The doctor can provide the required documents or videos for the patient.
4.3 The patients are able to download or view the documents or videos.
4.4 Additionally, the user is able to communicate with the doctor in real time through live chat, and the doctor is able to monitor the patient's progress.
Priority Level: High
Precondition: The user must log in with their valid email and password and must have doctor's consultation subscription.
Cross-reference: 1.1, 1.2, 1.3, 1.4, 2.3, 2.4, 2.5

1.2 System Quality Attributes

QA 1- Availability: The system must be 99% available between 8.00 a.m. and 8:00 p.m. local time, and 97% available during the rest hours.

Priority Level: High
Precondition: The users must have enough internet connection.
Cross-reference: N/A

QA 2- Testability: Software should be able to detect when a system is at risk of failing. The maximum cyclomatic complexity should not be more than 15.

Priority Level: High
Precondition: N/A
Cross-reference: QA1**,** QA-4, QA-5

QA 3- Portability: The system shall run on the web-based platform. The user may access the system using a web browser on any device.

Priority Level: Medium
Precondition: N/A
Cross-reference: QA-2, QA-4, QA-5

QA 4 – Maintainability: It shouldn't take more than two hours for a maintenance programmer to make changes to an existing form. The maintenance programmers must be able to resolve any system issue in under three hours of manual effort in order to successfully fix the issue.
Priority Level: High
Precondition: The system should detect any errors.

Cross-reference: QA-1, QA-2, QA-5

QA 5–Flexibility: This system is going to be simple and straightforward to use. If anything has to be added or updated, a maintenance programmer may work on the software and produce a new version, including code modifications and testing, in less than 3-4 hours of effort.
Priority Level: High
Precondition: System should identify an error.
Cross-reference: QA-2, QA-3

1.3 Project Requirements

Time: It is estimated that it will take four months to finish the whole project.

Budget: In order to develop this system, we will need approximately 2.5 lakhs BDT as overall budget.

Human Resources: For the development of this system, we need a group of nine persons: one administrator, four software engineers, one software taster, one domain expert, and two members from the management team.

Internet Resources: A connection with a broadband speed of minimum 1 Mbps is required for the system to operate successfully.

Device Resources: Laptop, Desktop, Smartphone, Tablet.

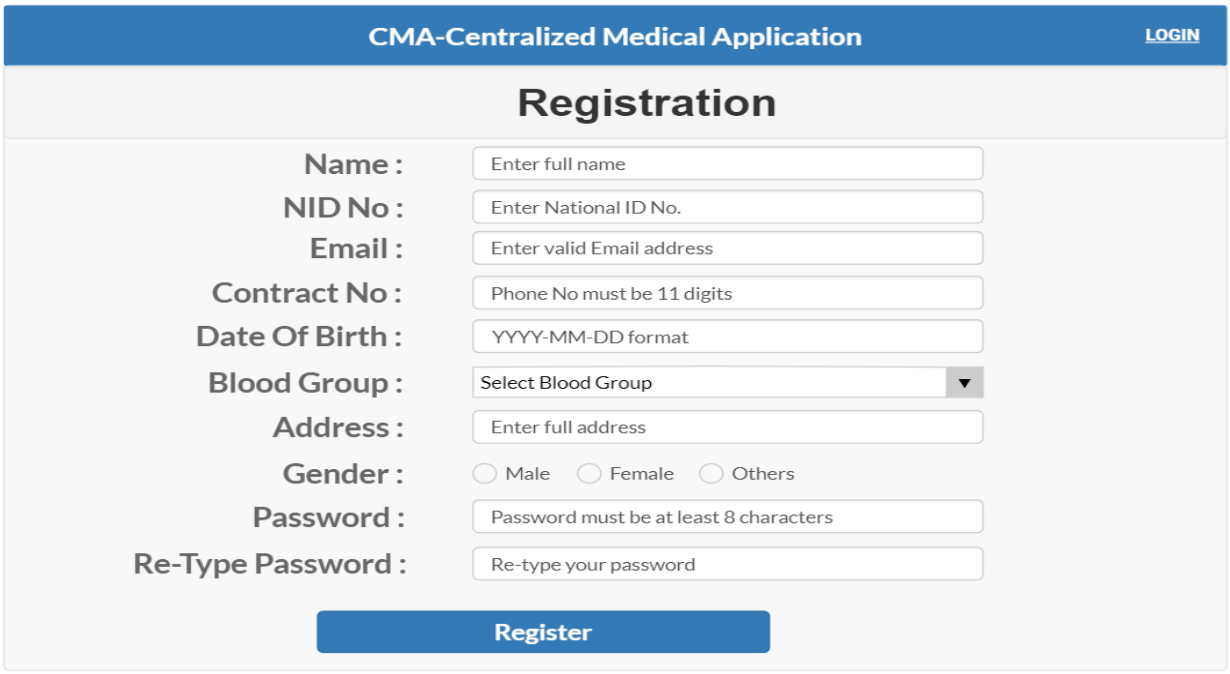
Software Resources: HTML, CSS, Oracle Database, PHP, JavaScript.

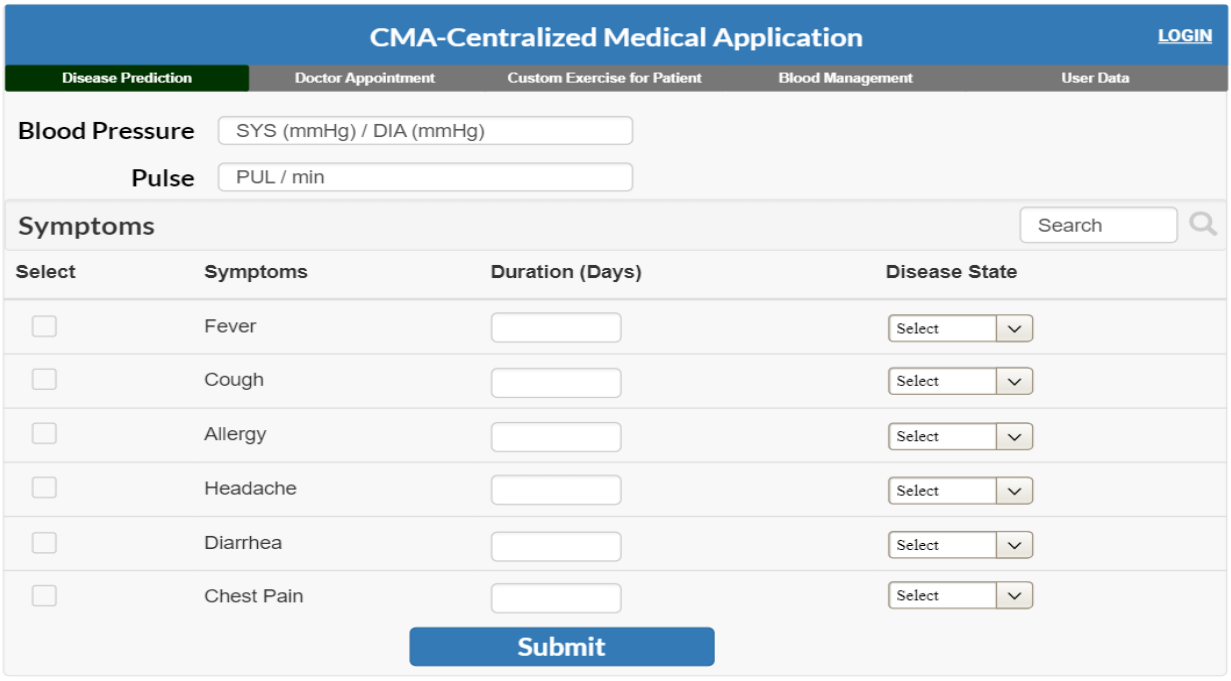
User Interface Design: Pencil Desktop Application.

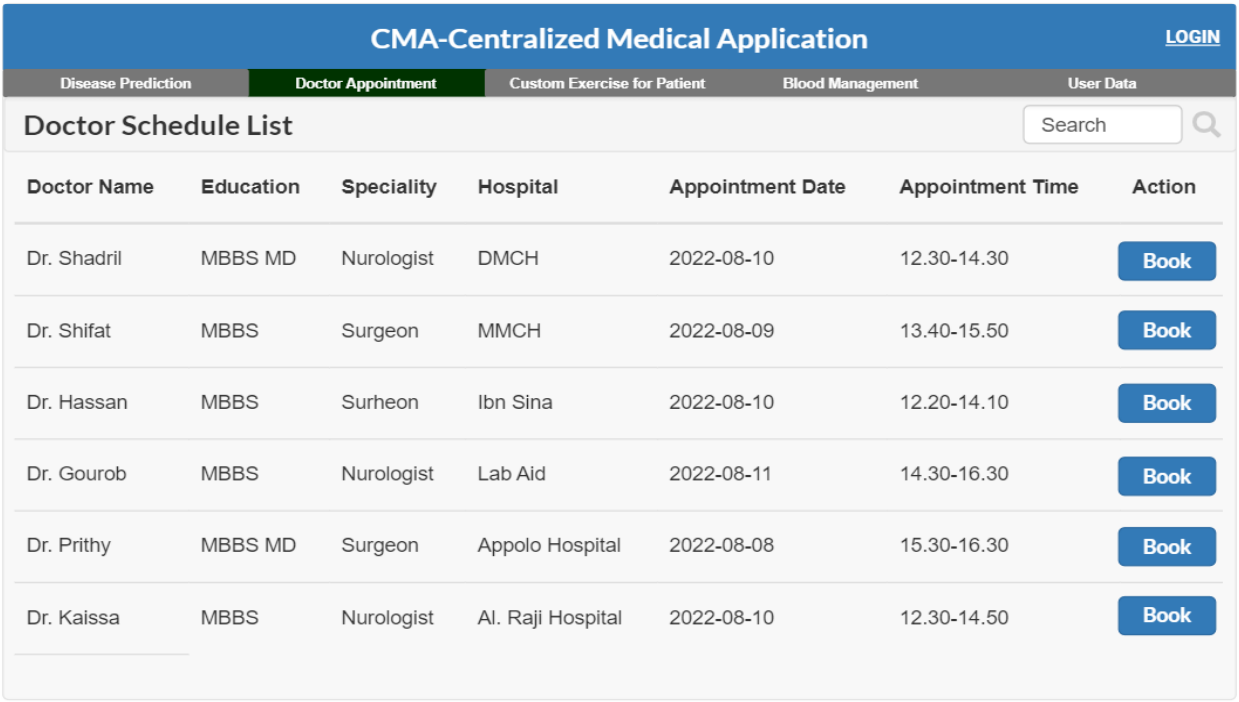
Environment: Adaptive Environment.

2. SYSTEM DESIGN SPECIFICATION

2.1 UI/UX Design






CMA-Centralized Medical Application
LOGIN
Disease Prediction
Doctor Appointment
Custom Exercise for Patient
Blood Management
User Data
Doctor Schedule List
Search
Doctor Name
Education
Speciality
Hospital
Appointment Date
Appointment Time
Action
Dr. Shadril
MBBS MD
Nurologist
DMCH
2022-08-10
12.30-14.30
Book
Dr. Shifat
MBBS
Surgeon
MMCH
2022-08-09
13.40-15.50
Book
Dr. Hassan
MBBS
Surheon
Ibn Sina
2022-08-10
12.20-14.10
Book
Dr. Gourob
MBBS
Nurologist
Lab Aid
2022-08-11
14.30-16.30
Book
Dr. Prithy
MBBS MD
Surgeon
Appolo Hospital
2022-08-08
15.30-16.30
Book
Dr. Kaissa
MBBS
Nurologist
Al. Raji Hospital
2022-08-10
12.30-14.50
Book


CMH-Centralized Medical Hospital
LOGOUT
Disease Prediction
Doctor Appointment
Custom Exercise for Patient
Blood Management
User Data
Payment
Card
Mobile Banking
Online Banking
VISA
mastercard
AMERICAN EXPRESS
DBBL NEXUS
UnionPay 银联
Q cash
Pay 1000.00 BDT

3. SYSTEM TEST PLAN

Project Name: Centralized Medical Application - CMA		Test Designed by: Abu Shaleh Md. Kaium		
Test Case ID: FR_2		Test Designed date: 06-Aug-22		
Test Priority: Medium		Test Executed by:		
Module Name: Doctor Appointment		Test Execution date:		
Test Title: Verify Doctor Appointment				
Description: Test web Doctor Appointment				
Precondition: The user needs to log in to the system.				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Go to website and click on doctor appointment. 2. Click on search option. 3. Type a doctor's name or select from suggested doctors list. 4. Check doctors name, specialty, appointment date, hospital name, available time. 5. Click on book option.	**For search option-** Doctor's name: Dr. Shadril Specialty : Neurologist Action: **Click on Book**	Go to payment option successfully.		

Post Condition: This user's time slot will be reserved on database.

Project Name: Centralized Medical Application - CMA		Test Designed by: Abu Shaleh Md. Kaium		
Test Case ID: NFR_1		Test Designed date: 06-Aug-22		
Test Priority: High		Test Executed by:		
Module Name: Maintainability		Test Execution date:		
Test Title: Verify the responsiveness of System to solve problem within 3 hours				
Description: Test if system can solve the problem within 3 hours.				
Precondition: User must Login with valid username and password.				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1.Go to the application and login. 2.Click on Doctor's appointment. 3. click on Book for taking appointment of a doctor.	**For search option-** Doctor's name: Dr. Shadril Speciality : Nurologist Action: **Click on Book**	Doctor's appoinment problem should be solved within 2 hours or less.		
Postcondition: N/A				

3.1 Risk Analysis

Risks	Category	Probability	Impact	RMMM
Size estimate may be significantly low	PS	50%	3	
Delivery deadline will be tightened	BU	60%	2	
Lack of Tools	DE	30%	3	
Staff inexperienced	ST	50%	3	
Less reuse than planned	PS	30%	3	
Technology will not meet expectations	TE	20%	4	
Change of requirements	PS	65%	1	

Impact values:

1- Catastrophic
2- Critical
3- Marginal
4-Negligible

Project Name: Centralized Medical Application- CMA		Test Designed by: Abu Shaleh Md. Kaium		
Test Case ID: NFR_2		Test Designed date: 06-Apr-2022		
Test Priority: High		Test Executed by:		
Module Name: Availability		Test Execution date:		
Test Title: Verify the availability of the system				
Description: Test the availability of the system between 8:00 a.m. to 8:00 p.m.				
Precondition: User must login to the system				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Go to the website and click on disease prediction. 2. Use the system from 8:00 a.m. to 8:00 p.m. For 10000 times with automated software.	Blood pressure:120/80mmHg Pulse: 70 Symptoms: Fever Duration: 7 Disease state: Medium (Use different data on every test)	The system must be 99% available between 8.00 a.m. and 8:00 p.m. local time		