Title: Healthcare Website

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Introduction

This project aims to create a user-friendly and informative online platform that serves as a hub for a wide range of healthcare-related resources, services, and information. The website will cater to individuals seeking medical advice, health education, appointment scheduling, and a community for sharing experiences and insights. The primary objective of this project is to bridge the gap between healthcare providers, medical information, and the general public. By offering a user-centric website, we intend to empower users with the tools they need to make informed decisions about their health and well-being. Our website will be a one-stop destination for reliable medical information, trusted healthcare professionals, and interactive features that foster engagement and community interaction.

Background and Product context

The goal of this project is to develop a user-friendly and educational web platform that acts as a central location for a variety of resources, services, and data pertaining to healthcare. People looking for medical advice, health information, appointment scheduling, and a community for exchanging experiences and thoughts will all be catered to by the website. This project's main goal is to close the knowledge gap between the general population and medical professionals. We want to give consumers the resources they need to make knowledgeable decisions about their health and well-being by providing a user-focused website. Our website will serve as a one-stop shop for trustworthy medical information, dependable healthcare providers, and engaging interactive features that encourage participation and community connection.

User can find professional according to their problem in our website. User have to visits the healthcare website through her desktop computer or mobile device. The website's homepage prominently displays options for various services, including "Find a Professional." This is the process of accessing the website. The "Find a Professional" option is selected by the user. She is prompted by the website to enter some basic data, including her location, preferred specialization (neurologist), and any particular needs she might have. The website shows a list of neurologists in her region along with their profiles based on the user's interests. A doctor's name, photo, specialty, number of years of experience, patient reviews, accepted insurances, clinic address, and available appointment times are just a few of the information included in each profile. To find out more, a user clicks on a neurologist's profile. She discovers in-depth details regarding the doctor's history, schooling, certifications, areas of competence, and patient testimonials. Additionally, she notices a link leading to the doctor's personal website or social media account for more research.

User can get telemedicine and Virtual Consultations on the Healthcare Website. Using his laptop, the user browses the healthcare website. On the homepage, he sees a variety of options, including "Telemedicine and Virtual Consultations." The "Telemedicine and Virtual Consultations" option is selected by the user. The website gives a brief description of the service and its advantages and assures users that the virtual consultations are professional and

discreet. The website presents user with a list of healthcare professionals available for virtual consultations. User filters the results based on his symptoms and selects a board-certified allergist. The "Telemedicine and Virtual Consultations" option is selected by the user. The website gives a brief description of the service and its advantages and assures users that the virtual consultations are professional and discreet. The user looks at the allergist's profile, which contains information on their qualifications, background, and capacity to conduct online consultations. He chooses a practical time window from the list and continues to schedule the virtual session.

Appointment Booking on the Healthcare Website. The user uses his smartphone to browse the healthcare website. The "Appointment Booking" option, which is prominently featured on the homepage, is selected by him. The user is then taken to a calendar showing the chiropractor's availability after choosing a chiropractor. He may quickly examine the available timeslots for the upcoming weeks, along with the associated dates, times, and appointment lengths. User selects a date and time that works for her schedule. He clicks on the available time slot to proceed with booking the appointment. If user doesn't have an account on the website, he is prompted to create one or log in. He enters her basic personal details, including name, contact information, and any relevant medical history or notes about his condition. User checks the specifics, such as the time, date, and location of the chiropractor's office, before confirming the appointment. If applicable, he might also see a projected price. Depending on how the user is configured, he may have the choice of paying for the appointment either online or in person at the clinic.

Calendar Integration on the Healthcare Website. User logs in to the healthcare website on his computer or smartphone. He navigates to his profile dashboard, where he can access the "Calendar" feature. The calendar displays all upcoming and past appointments for user and his family members. Color-coded labels distinguish between different types of appointments, such as doctor visits, and wellness check-ups. The "Add Appointment" button on the calendar's UI is clicked by the user. He chooses the relative for whom he wishes to make an appointment, then enters the pertinent information, such as the type of appointment, the name of the healthcare practitioner, the date, the time, and the place. The user can quickly plan or cancel appointments from the calendar interface as needed. He selects the appointment, decides on the new time and day, and then approves the modifications. The system asks him for a reason if he needs to cancel. The user marks the appointment on the calendar as "completed" after attending it. The system stores the appointment details for his future use and reference.

Functional Features

- User Login
  Customers can search for their desired doctor from list, consult with the authority, make appointment and complete transaction in order to verify their appointment.
- Administrator Login
  Admin can overview appointment, chat with the customers, change/edit everything including user information and appointments, create new blogs.

- Blogs
  Health beneficial articles from different sources, to motivate the customers.
- Doctors Live Search
  Users are presented with a search input field where they can begin typing their search query, such as a doctor's name, medical specialty, location, or any other relevant criteria.
- Appointment
  Users are presented with an appointment booking form where they can select the type of healthcare provider they want to see, choose a preferred date and time, and specify the reason for the appointment.
- Payment using Stripe
  Allowing patients to not only schedule appointments with healthcare providers but also make payments associated with these appointments. This feature ensures a seamless and secure financial transaction process related to medical services.
- Chatting for inquiry
  Enables real-time communication between healthcare providers and their patients. This feature can support text-based communication, allowing patients to seek medical advice, ask questions, and receive medical guidance.

User Story

Use case name: Find a Professional

Actor(s): User, Admin

Purpose: It is a live search option to search doctor.

Overview: Find a professional doctor's advice to treat the patient.

Cross-reference: Make an appointment, Text Consultancy

Typical course of events:

Actor Action	System Response
1. Logged in user selects the option of which department doctor to receive treatment from.	1. System opens the drop-down box and shows the list of departments available from the database.
2. User chooses a doctor from that department.	2. System checks the doctors assigned to the select department from the database and displays the options.
3. After choosing the doctor, the user saves the choice.	3. System gets the options selected and sets them into the database under that user's details.

Use case name: Make an Appointment

Actor(s): User, Admin

Purpose: Setup a meeting between the patient and doctor.

Overview: Option to set an appoint for physical met-up.

Cross-reference: Text Consultancy, Find a Professional, Calendar

Typical course of events:

Actor Action	System Response
1. Logged in user selects the button of make an appointment.	1. System takes the user to the section of appointment.
2. User fixes a date to consult with the doctor.	2. System checks the doctor's schedule from the database, indicates the availability date of the doctor and saves the date into the database.
3. User selects the option whether to consult with the selected doctor virtually or physically.	3. System opens the option for the user and entries the selected option into the database.

Use case name: Text Consultancy

Actor(s): User, Admin

Purpose: Talk and get an opinion of the doctor though a text message.

Overview: Set a way to consult the doctor within the application without having to go the hospital saving time and energy of travel.

Cross-reference: Make an appointment, Find a Professional

Typical course of events:

Actor Action	System Response
1. Logged in user selects the option of which department doctor to receive treatment from.	1. System opens the drop-down box and shows the list of departments available from the database.
2. User chooses whether to consult with the doctor virtually or physically	2. System opens the option for the user and entries the selected option into the database.
3. User determines the option of payment type in order to proceed with a text message.	3. System pulls up the options of payment and shows the fees of the doctor from the database.

Solution Description

Architecture:

The healthcare system is designed as a comprehensive web-based platform that facilitates efficient patient management, medical records storage, appointment scheduling, and communication between patients and healthcare providers. The architecture consists of three main components: the front-end interface, the back-end server, and the database.

Front-End Plan:

The front-end of the healthcare system is developed using HTML, CSS, and JavaScript to provide a user-friendly and responsive interface. It includes the following components:

1. User Authentication: Users, including patients and medical professionals, can register and log in securely to access the system.

2. Dashboard: Upon login, patients are presented with a personalized dashboard displaying their medical records, upcoming appointments, and alerts.

3. Appointment Scheduling: Patients can request appointments based on the availability of medical professionals. Real-time calendar integration helps users select suitable dates and times.

4. Medical Records: Patients can view their medical history, test results, prescriptions, and treatment plans. Medical professionals can update records securely.

5. Communication: Integrated messaging allows patients and medical professionals to communicate securely, facilitating follow-ups and clarifications.

6. Responsive Design: The front-end is optimized for various devices, ensuring seamless access on desktops, tablets, and smartphones.

Back-End Development:

The back-end of the healthcare system is built using server-side scripting languages, APIs, and databases. It includes the following functionalities:

1. User Management: Handles user registration, authentication, and authorization, ensuring secure access to patient and medical professional accounts.

2. Appointment Management: Manages appointment requests, availability, and scheduling, notifying both parties of changes and confirmations.

3. Database Integration: Stores and retrieves medical records, appointments, user profiles, and communication logs securely in a relational database.

4. Secure Communication: Implements encryption protocols to ensure privacy and security of sensitive patient information and communication.

5. Performance Optimization: Optimizes the back-end for efficient data retrieval and processing, ensuring fast response times and scalability.

Other Comments:

Security and Compliance: The system adheres to industry standards and regulations, to ensure patient data privacy and compliance.

1. Testing and Quality Assurance: Unit testing, integration testing, and security testing, is conducted to identify and address potential issues.

2. Scalability: The system is designed to handle a growing number of users, appointments, and records without compromising performance.

3. Future Enhancements: Potential future enhancements could include integration with telemedicine services, AI-driven diagnosis support, and patient education resources.

4. User Training and Support: Comprehensive user guides and support resources are provided to help patients and medical professionals navigate and utilize the system effectively.

Overall, the healthcare system's architecture, front-end design, back-end development, and other considerations create a robust and user-centric platform that streamlines patient care, enhances communication, and ensures the secure management of medical information.

Development Plan

Development methodology will adopt agile methodology. Each cycle will complete in exactly 2 weeks (10 working days). At the end of each cycle, developing team will release a working software version. The platform planner team, UX designer team and the developer team will meet, run the software, test and provide their feedbacks vice versa. In the next cycle, each team updates their development plan within acceptable range of change.

Phase 1

Duration: Total 6 weeks for development and 1 week for final deployment. This phase shall develop a minimum viable product (MVP) with basic and initial UX. However, this phase will lay foundation for middleware to support Service-Oriented Architecture (SOA).

Deliverables:

At the end of this phase, people will receive a fully deployed functional website with acceptable performance and user experience. Basic hosting choice will be governed by emphasis on performance and minimal latency. It will satisfy use cases as described in the use case section.

Phase 2

Phase 2 will comprise of optimization and performance targets as detailed in the solution description. This phase is optimized website performance and user experience. Implementing additional features and enhancements based on user feedback will be included.

Deliverables:

Optimized performance tuned site. Comprehensive Performance Testing Reports and Deployed Website with Improved Performance and Features will be included.

Phase N

Phase 1 and Phase 2 will help decide goals and expectation from the next phases. By following this development plan, we aim to create a healthcare website that not only meets the initial requirements but also offers an optimized and high-performance user experience, continuously improving and adapting to user needs.

Hardware/ Hosting Plan

The healthcare system website will be hosted on a reliable and scalable cloud infrastructure. The chosen cloud provider offers high availability, automatic scaling, and data redundancy. The website's front-end assets, including HTML, CSS, and JavaScript.

The healthcare system website's hardware and hosting plan is designed to ensure reliable performance, security, and scalability. The plan leverages cloud-based infrastructure for optimal resource utilization and accessibility.

Hardware and Hosting Configuration:

The healthcare system is hosted on a reputable cloud service provider. The hosting configuration includes:

1. Web Servers: Utilizes load-balanced web servers to distribute incoming traffic and prevent server overload. This ensures consistent availability and responsiveness even during peak usage.

2. Database Servers: Employs dedicated database servers, optimized for performance and data integrity. A relational database management system like MySQL is used to securely store and manage medical records, appointments, and user data.

Scalability and Redundancy:

The hosting plan emphasizes scalability and redundancy to accommodate growth and minimize downtime:

1. Auto-Scaling: Implements auto-scaling to automatically adjust the number of web and database servers based on traffic spikes or demand fluctuations. This ensures seamless performance during sudden increases in users.

2. Load Balancing: Utilizes load balancers to distribute incoming traffic across multiple servers, optimizing resource utilization and enhancing fault tolerance.

3. Data Backups: Implements regular automated backups of the database to prevent data loss. Backups are stored in geographically redundant locations for disaster recovery purposes.

Security and Compliance:

The hardware and hosting plan prioritizes security and compliance with industry standards:

1. Firewalls and Security Groups: Implements firewalls and security groups to control incoming and outgoing traffic, protecting against unauthorized access and potential threats.

2. SSL/TLS Encryption: Enforces SSL/TLS encryption to secure data transmission between users and the website, safeguarding sensitive patient information.

Monitoring and Maintenance:

The hosting environment is continuously monitored for performance and security:

Monitoring Tools: Utilizes monitoring tools to track server health, resource utilization, and response times. Alerts are configured to promptly address any anomalies.

Regular Updates: Ensures that the operating system, web server software, and database systems are regularly updated with the latest security patches and improvements.

In conclusion, the healthcare system's hardware and hosting plan leverages cloud-based infrastructure, scalability, security measures, and compliance considerations to provide a robust, high-performance, and secure platform for seamless patient management and communication.

Collaboration Plan

The Collaboration Plan for the healthcare system is given below:

Table: Collaboration plan

Tasks	Schedule	Healthcare Company	Development Team
Host dev-site and develop	ongoing basis	y	
Build and release	every Thursday	y	
Run Build Verification Tests (BVT)	every Sunday	y	
Functional testing and reporting on JIRA	every Sunday	y	y
Full testing for QA check (Black box)	every alternate	y	y
Summary and discussion	every alternate	y	y
provide feedback on UI and functionality	as per need	y	y
use case testing	as per need	y	y
User data population (job, hr employer, candidates etc.)	as per need		y

Project Plan

Table: Project plan

SL	Deliverable	1	2	3	4	5	Man-week
1	Front end development*	- - - - -					2.5
2	Resource Organize	- - -					1.5
3	Back end development 1		- - -				1.5
4	Back end development 2			- - - -			2.0
5	Deployment and final release				- -		1.0
	Total duration	**1.5**	**2.5**	**2.5**	**1.5**	**0.5**	**8.5**

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Special Instruction

In order to get better output of our website, things to follow:

1. To use the features of admin, it is required that the operator must log in with username: admin, email: admin@admin.com, password: admin and phone:
2. To get the best and optimum experience of chatting system, it is suggested that first log in as admin and then go to chat, in homepage.
3. Upon getting on the chat page, copy the link in the address bar of the browser, and paste it on another browser.
4. Now, on the previous browser login with admin, it is not mandatory but doing this provide best experience.
5. Then on the latter browser login with any username and phone number.
6. There are no restrictions in other features of the website.