

Online Doctor Appointment Website Project Report

1. Title and Abstract

Title: Online Doctor Appointment Website

Abstract:

This project is a web-based platform designed to simplify the process of booking doctor appointments online. The application allows users to search for doctors by specialty, book appointments, and view upcoming consultations. Admins can manage doctor profiles, schedules, and appointments. Built with React for the frontend, Node.js and Express for the backend, and MongoDB for data storage, this platform offers an intuitive user interface and secure communication between users and healthcare providers.

2. Introduction

Objective:

The objective of this project is to create a seamless and efficient online platform for booking doctor appointments. The website will allow patients to find doctors based on their specialty, schedule appointments, and manage consultations. The admin panel will provide functionality for managing doctor profiles and appointments.

3. Literature Review

Existing Solutions:

Several online doctor appointment platforms, such as Practo, Zocdoc, and HealthTap, currently dominate the market. These platforms allow users to book doctor consultations, manage appointments, and provide patient reviews. This project will draw inspiration from these existing systems, focusing on ease of use, secure appointment scheduling, and the integration of a real-time booking system with a simple admin interface.

4. System Requirements

Hardware Requirements:

- Processor: Intel i3 or above
- RAM: 4GB minimum
- Storage: 500 MB for app data

Software Requirements:

- Frontend: React
- Backend: Node.js, Express
- Database: MongoDB
- Additional Tools: NPM, Postman (for API testing), GitHub (for version control)

5. Methodology

Modules:

1. User Module:

Handles patient registration, login, searching for doctors, and booking appointments.

2. Doctor Module:

Manages doctor profiles, availability, and patient appointments.

3. Admin Module:

Allows administrators to manage doctor profiles, view and approve or reject appointments, and handle patient data.

4. Appointment Management:

Allows users to book, reschedule, or cancel appointments and allows doctors to confirm or reject bookings.

Tools and Technologies Used:

- Frontend: React, React Router, Context API for state management
- Backend: Express.js with REST APIs, JWT for authentication
- Database: MongoDB for storing doctor profiles, appointments, and user data
- Payment Integration: Stripe for consultation fee payments (in test mode)

6. System Design

Architecture:

The application uses a client-server architecture. The frontend is built with React, handling user interactions and making API calls to the backend. The backend, built with Node.js and Express, handles business logic, user authentication, and database communication. MongoDB is used for data storage.

Database Schema:

- Users: `_id`, `username`, `email`, `password`, `role` (patient or admin)
- Doctors: `_id`, `name`, `specialty`, `experience`, `availability`, `bio`, `contact`
- Appointments: `_id`, `userId`, `doctorId`, `appointmentTime`, `status`, `paymentStatus`

Flowchart:

Illustrate the overall flow:

User Login → Search Doctors → View Doctor Profiles → Book Appointment → Admin Approves → Appointment Confirmation.

7. Implementation

Frontend Implementation:

The React frontend includes components for registration, login, doctor search, appointment booking, and viewing appointment status. React Router is used for routing between pages, and Axios is used to make API calls to the backend.

Backend Implementation:

Node.js and Express are used to create RESTful APIs for user authentication, doctor profile management, and appointment booking. MongoDB is used for storing and retrieving data, with Mongoose used for data validation.

Admin Panel Implementation:

The admin panel is a separate interface where admins can manage doctor profiles, approve or reject appointments, and view all user and appointment data.

8. Key Functionalities

User Features:

- Registration & Login: Users can register and log in using email and password. Patients can select the doctor and book appointments based on the availability.
- Search & Browse Doctors: Patients can search for doctors by specialty, location, and availability.
- Appointment Booking: Users can view available time slots and book appointments.
- Appointment Management: Users can view their upcoming appointments, cancel or reschedule them.

Admin Features:

- Doctor Profile Management: Admins can add, update, or delete doctor profiles.
- Appointment Management: Admins can view and approve/reject appointment requests based on doctor availability.

9. Testing

Testing Types:

- Unit Testing: Testing individual components like the login form, doctor profile page, and appointment booking form.
- Integration Testing: Testing the interaction between the frontend and backend, especially during appointment booking and profile management.
- User Acceptance Testing (UAT): Ensures that the final product meets user expectations, especially in terms of user experience during booking and managing appointments.

Testing Tools:

- Jest for frontend testing
- Postman for API testing
- Manual testing for UI validation

10. Results

Performance Metrics:

- The application handles user interactions efficiently, with response times under 200ms for most API calls.
- The website loads within 3 seconds for most users.

User Feedback:

- Initial test users found the platform intuitive and easy to use, particularly appreciating the simplicity of booking an appointment and the clear communication of appointment status.

11. Challenges and Solutions

- Challenge: Handling doctor availability and real-time scheduling.
 - Solution: Used a time-slot-based approach to ensure doctors' availability is always up to date and displayed accurately.

- Challenge: Implementing secure user authentication.
 - Solution: Implemented JWT authentication with password hashing for secure login.
- Challenge: Managing different time zones for doctor availability.
 - Solution: Used a time-zone conversion library to ensure accurate scheduling across different time zones.

12. Future Enhancements

- Implement real-time notifications for appointment status updates.
- Introduce video consultation functionality for remote appointments.
- Add user reviews and ratings for doctors.
- Implement AI-based doctor recommendations based on user symptoms.

13. Conclusion

This project demonstrates an efficient, user-friendly platform for booking doctor appointments online. Built using modern web technologies like React, Node.js, and MongoDB, the system provides a smooth user experience while ensuring secure and scalable backend operations. The application successfully integrates doctor management and appointment booking, offering a comprehensive solution for online healthcare services.

14. Project Setup for GitHub

Project Setup Instructions

Frontend:

1. Navigate to the frontend directory:

```
bash
```

```
cd frontend
```

2. Install dependencies:

```
bash
```

```
npm install
```

3. Start the frontend server:

```
bash
```

```
npm start
```

Backend:

1. Navigate to the backend directory:

```
bash
```

```
cd backend
```

2. Install dependencies:

```
bash
```

```
npm install
```

3. Start the backend server:

```
bash
```

```
npm run dev
```

Admin Panel:

1. Navigate to the admin directory:

```
bash
```

```
cd admin
```

2. Install dependencies:

```
bash
```

```
npm install
```

3. Start the admin panel:

```
bash
```

```
npm start
```

PROJECT OUTPUT:

Register

*

 Name

*

 Email

*

 Password

Already Registered?
Click Here to Login

Register

Login

Email

Pass

Downloaded from <http://ajph.org/> on November 10, 2014

[Not a User? Click Here to Register](#)

Logis

AppointDoc

vasa

[Home Page](#)

Dr. vasanth kuma

Specialization: Bra

Experience: 1

Fees Per Consultation: 1000

Timings: 04:00 - 13:00

Dr. VISHWAA kum

Specialization: brain

Experience:

Fees Per Consultation: 2500

Timings: 07:00 - 22:00

Dr. rai kuma

Specialization: Brain

Experience:

Fees Per Consultation: 250

Timings: 01:07 - 23:36

Dr. Vasanth kumar

Specialization: Brain

Experience:

Fees Per Consultation: 250

Timings: 02:00 - 20:00

AppointDoc

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Home

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Appointments

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Profile

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Logout

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vasa

Book an Appointment

Dr. vasanth kumar

Fees: 10000

Timings: 04:00 - 13:00

Select date

📅

Select time

🕒

Check Availability

Book Now

AppointDoc

🔔

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vasa

Book an Appointment

Dr. vasanth kumar

Fees: 10000

Timings: 04:00 - 13:00

20-11-2024

📅

10:00

🕒

Check Availability

Book Now

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Appointments Lists

ID	Date & Time	Status	Actions
67339d42bc1e37f8dd5b5495	27-11-2024 05:00	approved	
67339d6dbc1e37f8dd5b54a2	22-11-2024 06:12	approved	
6734297c1a11018284566668	24-11-2024 07:07	approved	
67342b3a1a1101828456668d	14-11-2024 05:00	approved	
673432c31a110182845666de	15-11-2024 06:05	approved	
673436841a110182845666fd	16-11-2024 07:06	pending	<div>Approve</div> <div>Reject</div>
67345fd693af192eff0c3310	20-11-2024 10:00	pending	<div>Approve</div> <div>Reject</div>

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Home

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Manage Profile

Personal Details :

* First Name

vasanth

* Last Name

kumar

* Phone No

8936606102

* Email

cpvasanthakumar2@gmail.com

Website

vasanth.com

* Address

NO:1 , Address st , address , 123 456

Professional Details :

* Specialization

Brain

* Experience

10

* Fees Per Consultation

10000

* Start Time

04:00

* End Time

13:00

Update


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All Doctors

Name	Status	Phone	Actions
vasanth kumar	approved	8936606102	<div>Reject</div>
VISHWAA kumar	approved	+611234569870	<div>Reject</div>
raj kumar	approved	+91 8960612345	<div>Reject</div>
Vasanth kumar	approved	8936606102	<div>Reject</div>

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Notifications

New

Read

Mark All Read

Your Doctor Account Request Has approved

Your appointment has been updated to approved