

1.1 MEDICAL CHATBOT

1. Business Background

The healthcare industry is experiencing a digital transformation, and AI-driven solutions like chatbots have become a critical aspect of improving patient experience. Hospitals and clinics often deal with a large volume of appointment bookings, cancellations, and rescheduling requests, which can overwhelm administrative staff and result in inefficiencies.

With the rise of telemedicine and the need for more convenient patient services, we are introducing the medical chatbot that handles appointment scheduling and doctor assignment in timely. Our chatbot can integrate with hospital/clinic systems to manage availability, streamline the booking process, and help guide patients to the right healthcare professionals. Additionally, it offers patients an accessible, 24/7 platform to manage their appointments without the need for human intervention.

The chatbot will also help hospitals and clinics collect valuable data to optimize their services, understand patient behaviour, and reduce administrative overhead. It provides hospitals with a solution that reduces the risk of human error in scheduling, ensures appropriate doctor assignments, and can potentially integrate with other systems like electronic health records (EHR).

2. Business Objectives

Business Goals

The main goal of the medical chatbot is to make it easier for hospitals and clinics to make appointments by providing users with an easy-to-use, accessible, and efficient tool for making, changing, or cancelling appointments. Furthermore, by using user-provided symptoms to improve patient-doctor matching, the bot should minimize misunderstandings and maximize specialist-based physician assignment.

Enhance Patient Experience: Provide a user-friendly platform for scheduling, managing, and cancelling appointments in order to streamline and expedite the process.

Boost Hospital and Clinic Operational Efficiency: Automate scheduling appointments, lessen administrative work, and make sure doctors are assigned according to patient needs and availability.

Reduce No-Show Rates: Implement reminders and messages to patients about forthcoming appointments, helping to reduce missed appointments.

Maximize the Use of Physicians: Assign physicians automatically depending on

3. Business Success Criteria

User Adoption: Over time, a steady increase should be observed in the number of users

who choose to use the chatbot as their main appointment-booking tool.

Decreased Administrative Load: Calculate how much less time hospital and clinic employees spend handling reservations, rescheduling, and cancellations.

Appointment Attendance Rate: A notable drop in missed appointments as a result of efficient reminder messages.

Improved Physician Assignment: Precisely assigning patients to suitable specialists according to symptoms leads to increased patient and physician satisfaction.

Positive User Feedback: High user satisfaction ratings obtained from post-appointment questionnaires or feedback forms.

Data Compliance: Complete adherence to healthcare laws, guaranteeing no security lapses, and safeguarding patient data.

4. Business Requirements

User authentication and registration functional requirements:

It should be possible for users to sign up, verify their identity, and safely log into the chatbot system.

Basic user information including name, contact details, and preferred appointment times must be stored by the system.

Making an Appointment:

Users should be able to choose their preferred time, date, and doctor (if known) for appointments through the chatbot.

It ought to check the hospital's databases for open times and validate the reservation. After confirmation, the chatbot ought to give the user a reference or ticket number.

Symptom-Oriented Physician Assignment:

Using natural language processing (NLP) to evaluate user-entered symptoms, the chatbot should match the patient with the right specialist.

If the selected physician isn't available, recommend other physicians who are experts in the same subject.

Management of Appointments (Reschedule and Cancelling)

Users must be able to change or cancel their bookings via the chatbot.

With the reference number, users ought to be able to check the status of their appointment.

Reminding Appointments:

Users should receive automated appointment reminders from the chatbot via push notifications, email, or SMS.

According to user preferences, reminders must be able to be customized (e.g., 24 hours or 1 hour before the appointment).

Integration of Physicians and Hospitals:

In order to verify the real-time availability of doctors and time slots, the chatbot ought to be integrated with hospital systems through APIs.

To guarantee accurate assignment, access to doctor schedules, profiles, and specialties is required.

Data Storage and Logging:

For future reference and auditing, the history of appointments, user preferences, symptoms, and chatbot interactions will be securely recorded.

Performance:

Response times should be fast (less than 3 seconds for queries).

The chatbot should be optimized to ensure high performance, even with heavy traffic loads.

5. Business Constraints and Risks