

# Chatbot for Hotel Booking

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## Abstract

This project introduces an intelligent, Flask-based web application designed to facilitate hotel booking through natural language interaction. Leveraging rule-based Natural Language Processing (NLP) techniques, the chatbot interprets user queries to extract essential booking information such as destination, check-in and check-out dates, and number of guests.

The system employs the NLTK library to tokenize and analyze user input, enabling structured extraction of relevant booking parameters. Regular expressions are used to enhance precision in identifying numerical data such as dates and guest counts. The application processes the input and matches it against a mock dataset of predefined hotel listings to generate relevant recommendations.

A web interface built using Flask provides an accessible and interactive user experience. The chatbot simulates a conversation flow, accepting free-form text inputs and returning structured hotel options and a booking summary. This project illustrates the practical application of basic NLP and web technologies to build a user-centric travel assistant.

By combining lightweight language processing with a web-based chatbot interface, this system demonstrates how simple yet effective automation can improve the travel booking experience. The chatbot model can be further enhanced through integration with real-time APIs, more advanced NLP models, and multilingual support to handle a broader range of user intents and languages.