# CONCEPTUAL PLAN

## Introduction and Objectives

**Purpose of the Chatbot**: The Blue Horizon Hotel aims to enhance customer experience through digital innovation. Our chatbot is designed to streamline room booking, offering guests a quick, user-friendly interface.

**Technological Trend:** The move towards AI-driven customer service solutions reflects the broader trend in the hospitality industry towards automation and personalised service delivery. Our chatbot is a step forward in aligning with these digital transformation goals, offering a seamless interface for guests to interact with the hotel's services.

**Target Audience:** The chatbot is intended for potential guests seeking a convenient way to book rooms, inquire about services, and obtain hotel information.

## Sustainability of Ideas:

Positives: Automating the booking process with a chatbot can significantly reduce the workload on human staff, allowing them to focus on providing high-quality, personalised service to guests during their stay. Additionally, a chatbot can capture and analyse interaction data to offer insights into customer preferences and trends, enabling the hotel to tailor its services more effectively.

Negatives: Challenges include ensuring the chatbot can handle complex queries with the same nuance as a human, maintaining the privacy and security of guest data, and making the chatbot accessible and user-friendly for all guests, including those less comfortable with technology.

## User Requirements and Expectations

User Needs: The hotel industry can benefit from the direct application of chatbots. Increasing the percentage of online bookings impacts sales growth, confirming the economic value of the hotel chatbot. Guests expect a hassle-free booking experience with prompt and accurate responses. The chatbot must be intuitive, providing clear guidance and support throughout the booking process.

Functional Requirements: The chatbot will handle room bookings, respond to queries about room types and hotel amenities, and offer options for additional services like breakfast, payment methods, and the nearest tourist sites.

## Chatbot Design

Conversation Flow: The chatbot will initiate the conversation by greeting the user and then sequentially ask for the guest's name, desired booking dates, and number of guests. Optional queries about payment methods and breakfast preferences will follow. Additional functionalities include offering room upgrades, providing hotel policy information, and handling special requests.

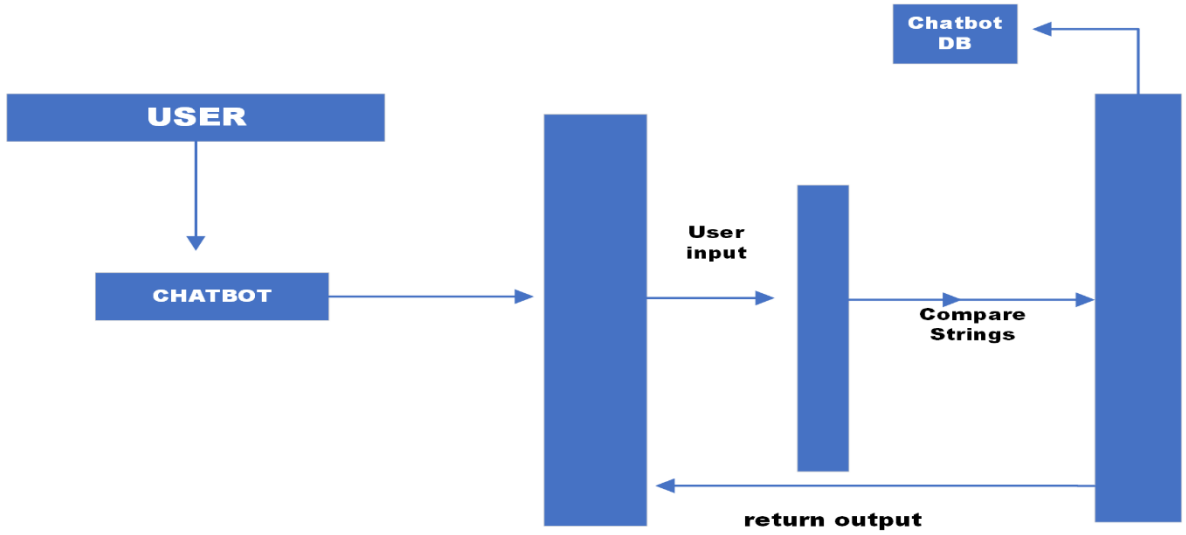


Fig. 1: Sequence Diagram Representing Design of the Chatbot.

## Flamework and tools

Programming Language: We chose Python for its simplicity and robust library ecosystem, making it ideal for rapid development and deployment.

Web Framework: Flask, a lightweight framework, is chosen to create a web-based chat interface. It facilitates easy integration and scalability.

Data Handling: Session management in Flask will maintain the conversation state, ensuring a seamless user experience.

Python was chosen for its simplicity and the vast ecosystem of libraries for AI, machine learning, and NLP, making it an ideal choice for developing sophisticated chatbot functionalities. Flask complements Python as a lightweight, easy-to-use web framework, allowing for quick deployment and scalability of web applications. Together, these tools provide a robust foundation for developing a chatbot that is both powerful and flexible, capable of meeting the diverse needs of hotel guests.

Component Interaction and Data Flow

User Input Processing: The chatbot will interpret user inputs using pre-defined logic and provide appropriate responses and follow-up questions.

Data Storage: User responses will be temporarily stored in server-side sessions for the duration of the conversation, ensuring data consistency and security.

Error Handling: The chatbot will include mechanisms to handle unexpected inputs, guide users to the conversation flow and assist as needed.