

README

The Expedition Bot is an advanced travel planner designed to provide personalized travel solutions. It integrates a variety of technologies and APIs, delivering a bespoke experience for users in planning their travels.

Functions

1. User Interaction and Intent Recognition:

- The bot is capable of understanding and responding to user queries in natural language.
- It identifies the user's intent, whether they are seeking flight information, hotel bookings, or suggestions for activities at a destination.

2. Customized Travel Plan Generation:

- Based on user preferences and inputs, the bot generates detailed travel plans.
- It suggests daily itineraries, including places to visit, activities to do, and local attractions, tailored to the user's interests.

3. Accommodation Recommendations:

- The bot offers hotel recommendations by processing user inputs like location, budget, and dates.
- It ranks hotels based on factors like price, location, and user reviews, providing a curated list of the best options.

4. Flight Information and Booking Assistance:

- The bot assists users in finding flights by collecting details such as departure city, destination, and travel dates.
- It presents a list of available flights, sorted by price, duration, and airline, and includes direct links for booking.

5. Dynamic PDF Content Processing:

- The bot can extract and utilize information from PDF travel guides.
- It identifies key places and activities mentioned in the guide, enriching the user's travel plan with expert suggestions.

6. Conversational Memory and Context Management:

- The bot maintains a conversational context, remembering past user interactions to provide coherent and relevant responses.
- It adapts its suggestions based on the evolving preferences and requests of the user.

7. Web Scraping for Real-Time Data:

- Utilizes web scraping techniques to gather the latest information on flights, hotels, and activities from various online sources.
- Ensures the user receives the most up-to-date and accurate information.

8. Interactive User Interface:

- The bot's interface is designed for ease of use, with clear, conversational prompts and a friendly UI.
- It allows users to seamlessly navigate through different options and retrieve the information they need.

9. Seamless Integration with External APIs:

- Integrates with travel APIs for real-time data on flights, hotels, and activities.
- Ensures comprehensive and diverse travel options are presented to the user.

10. Customizable and Scalable:

- The bot's modular design allows for easy updates and integration of new features.
- Can be scaled to include more destinations, languages, or personalized recommendations.

The Expedition Bot is more than just a travel planner; it's a smart companion designed to make travel planning an effortless, enjoyable, and personalized experience. With its advanced functionalities, the bot stands out as a cutting-edge tool in the realm of digital travel assistance.

Set Up

Requirements

To ensure the proper functioning of the application, the following libraries and packages need to be installed. This section outlines the necessary components and their installation steps.

1. Language Processing and Machine Learning Libraries

- `spacy`: Natural Language Processing library.

```
1 | pip install spacy
2 | python -m spacy download en_core_web_sm
```

- `pandas`: Data manipulation and analysis.

```
1 | pip install pandas
```

- `numpy`: Support for large, multi-dimensional arrays and matrices.

```
1 | pip install numpy
```

- `transformers`: State-of-the-art Natural Language Processing for TensorFlow 2.0 and PyTorch.

```
1 | pip install transformers
```

2. Web Scraping and PDF Processing

- `selenium`: Tool for web scraping.

```
1 | pip install selenium
```

- `bs4` (BeautifulSoup): Library for pulling data out of HTML and XML files.

```
1 | pip install beautifulsoup4
```

- `PyPDF2`: PDF file reader/writer.

```
1 | pip install PyPDF2
```

- `regex`:

```
1 | pip install regex
```

3. Streamlit for Web App

- `streamlit`: Framework for creating web applications.

```
1 | pip install streamlit
```

4. Langchain and Related Libraries

- `langchain`: Framework for building conversational applications.

```
1 | pip install langchain
```

5. Database Management

- `mysql.connector`: MySQL driver for Python.

```
1 | pip install mysql-connector-python
```

6. Others

- `dotenv`: Loads environment variables from a `.env` file.

```
1 | pip install python-dotenv
```

- `webdriver-manager`: Provides a way to manage WebDriver instances.

```
1 | pip install webdriver-manager
```

- `openai`: OpenAI's API client library.

```
1 | pip install openai
```

7. Create a `.env` file in the root directory of the project and add the following environment variables:

```
1 | OPENAI_API_KEY= # Your OpenAI API key
```

Ensure all these requirements are properly installed to facilitate smooth execution and optimal performance of the application.

How to run

```
1 | streamlit run main.py
```

Solve Possible Bugs

1. Resolve Library Conflicts:

- Command: `export KMP_DUPLICATE_LIB_OK=TRUE`
- Use: Fixes issues with duplicate libraries, especially in multi-threading environments like MKL.

2. Update Transformers Library:

- Command: `pip install --upgrade transformers`
- Use: Ensures you have the latest features and bug fixes for NLP models.

3. Install and Configure spaCy:

- Commands:
 - `pip install spacy`
 - `python -m spacy download en_core_web_sm`
- Use: Installs spaCy for NLP tasks and downloads its English language model for basic processing.

Testing Procedure for Expedition Bot

This document outlines the testing procedure for the Expedition Bot, a comprehensive travel assistance application. Follow these steps to explore the bot's capabilities and ensure it meets the specified requirements.

Getting Started

1. **Home Page Entry:** Begin by navigating to the Expedition Bot's homepage. Here, users have two primary options to engage with the bot.

Case 1: Direct Interaction

2. Flight Information Inquiry:

- Without providing any travel details upfront, interact with the bot. For example, ask about flight tickets: "Can you provide me with some flight tickets from Los Angeles to New York?"
- The bot should recognize the intent and prompt for specific details, like origin, destination, and dates.

3. Entering Specific Flight Details:

- Based on the bot's response, provide detailed information. Example query: "Can you give me the best flights from LAX to JFK? I am planning to travel from 2024-01-01 to 2024-01-08."
- Wait for the bot to process and display results, including the top 5 economical flight options. Note the details like airline, departure, and return times.

4. Booking Flights:

- Finally, use the "Book Your Flight" link to navigate to the Kayak website and confirm the booking details.

The screenshot shows a web browser window titled "Expedition Bot: Plan Your Next Adventure". The URL is "localhost:8501". The page has a green header with the text "Welcome Adventurer! 🌟". On the left, there is a sidebar with file upload options ("Drag and drop file here", "Limit 200MB per file", "Browse files", "Delete Current Document(s)", "Submit"). Below the sidebar is an "About" section stating "This project is developed by team @N.A.H.". The main content area has a title "Chat with Expedition Bot Now!" with a profile icon. A conversation log follows:

- Bot: How may I assist you with your documents?
- User: Can you provide me with some flight tickets from Los Angeles to New York?
- Bot: It looks like you want to check flight information. Please provide origin, destination and date. Example: Can you give me the best flights from LAX to JFK? I am planning to travel from 2023-12-01 to 2023-12-03.
- User: Can you give me the best flights from LAX to JFK? I am planning to travel from 2024-01-01 to 2024-01-08.
- Bot: Here are the top 5 cheapest flights from LAX to JFK:
 - #1 Price: \$580
 - Departure Airline: JetBlue, Time: 7:30 am → 3:43 pm
 - Return Airline: JetBlue, Time: 3:59 pm → 7:22 pm

At the bottom, there is a text input field with placeholder text "Ask questions about your trip:" and a green "Ask" button.

The screenshot shows a web-based travel bot interface. On the left, a sidebar titled "Welcome Adventurer! 🎉" includes options to upload a single or multiple PDFs, and a file upload area with a "Browse files" button. Below this are "Delete Current Document(s)" and "Submit" buttons. An "About" section notes the project is developed by team @N.A.H. The main content area displays flight search results:

- #3 Price: \$580**
 - Return Airline: JetBlue, Time: 5:12 pm → 8:35 pm
- #4 Price: \$601**
 - Departure Airline: JetBlue, Time: 7:30 am → 3:43 pm
 - Return Airline: JetBlue, Time: 8:45 pm → 12:26 am
- #5 Price: \$631**
 - Departure Airline: JetBlue, Time: 7:30 am → 3:43 pm
 - Return Airline: JetBlue, Time: 11:00 am → 2:20 pm

A "Book Your Flight" button is present. To the right, a chat window shows a message "Question received!" and a "Clear Chat History" button. A text input field at the bottom says "Ask questions about your trip:" with a send arrow icon.

Hotel Information Inquiry

5. Basic Hotel Inquiry:

- Ask the bot for hotel information: "Can you provide any information about hotels?"
- The bot should prompt for more specific details.

6. Entering Hotel Stay Details:

- Provide details like location and stay duration. For example: "Can you give me hotels to stay in New York? Check in is on 2024-01-01 and check out is 2024-01-04."
- Review the results, noting price, location, and ratings.

7. Changing Dates:

- Modify the inquiry to check price fluctuations for different dates. For instance: "Can you give me hotels to stay in New York? Check in is on 2024-01-07 and check out is 2024-01-11."
- Observe the changes in options and pricing.

8. Booking Hotels:

- Click "Book Your Stay" to proceed to the Booking.com website for reservations.

The screenshot shows a web application titled "Expedition Bot: Plan Your Next Adventure". The left sidebar is green and contains:

- Welcome Adventurer! 🎉
- A message: "Do you have a travel guide? You can upload one to ask! Choose how you'd like to upload PDFs:" with two options: "Upload a single PDF" (selected) and "Upload multiple PDFs".
- A file upload area with a placeholder "Drag and drop file here" and a limit of "Limit 200MB per file". It includes "Browse files" and "Delete Current Document(s)" buttons.
- A "Submit" button.
- An "About" section mentioning "This project is developed by team @N.A.H."

The main content area has a white background and displays a conversation with the bot:

- Bot: "Can you provide any information about hotels?"
- User: "It looks like you want to check hotel information. Please provide the city, check-in and check-out dates. Example: Can you give me hotels to stay in New York? Check in is on 2023-12-01 and check out is 2023-12-07."
- Bot: "Can you give me hotels to stay in New York? Check in is on 2024-01-01 and check out is 2024-01-04."
- Bot: "Here are the top 5 hotels for your 3-night stay in New_York (based on price and reviews):"
- #1 The Historic Blue Angel Hotel Lexington Ave, Ascend Hotel Collection**
 - Price: \$314 per night
 - Location: Midtown East, New York
 - Rating: 8.6/10
- #2 The Historic Mayfair Hotel Times Square, Ascend Hotel Collection**

At the bottom right is a red button with the text "Ask questions about your trip: >".

Additional Features

9. Travel Guide PDF Upload:

- Test the PDF upload feature by submitting a travel guide.
- Inquire about recommendations, like "Can you give me a list of things to do in Boston?" "Can you give me a list of things to do in New York?"
- Assess the bot's ability to provide relevant activities and extract images from the PDF.

Expedition Bot: Plan Your Next Adventure! [+ New Tab](#)

localhost:8501

Deploy ⋮

Welcome Adventurer! 🎉

Do you have a travel guide? You can upload one to ask! Choose how you'd like to upload PDFs:

Upload a single PDF
 Upload multiple PDFs

Please submit your travel guide for asking! 💬

Drag and drop file here
Limit 200MB per file

Browse files

Free Travel Guide to Easter... [X](#)
72.7MB

Delete Current Document(s)

Submit

About

This project is developed by team @N.A.H.

Can you give me a list of things to do in Boston?

Question received!

Handling user input with uploaded PDFs...

Sure! Here are some things to do in Boston:

- Watch a Red Sox baseball game at Fenway Park.
- Visit the Skywalk Observatory at the Prudential Center for panoramic views of Boston.
- Explore the art galleries and antique shops in the city.
- Check out the restaurants and cafes in the area.
- Visit the Copley Square, a popular gathering spot with beautiful architecture.
- Walk along the Freedom Trail, a 4-kilometer route that takes you to 16 historic sites related to the American Revolution.
- Visit the USS Constitution and the Paul Revere House, two important historic landmarks.
- Take a stroll through the Public Garden, a beautiful park in the city.
- Explore the Boston Tea Party Ships & Museum to learn about the city's role in the American Revolution.
- Enjoy a sunset on the Boston waterfront.

These are just a few suggestions, but there are many more things to do in Boston depending on your interests!

Ask questions about your trip: ➤

Expedition Bot: Plan Your Next Adventure! [+ New Tab](#)

localhost:8501

Deploy ⋮

Welcome Adventurer! 🎉

Do you have a travel guide? You can upload one to ask! Choose how you'd like to upload PDFs:

Upload a single PDF
 Upload multiple PDFs

Please submit your travel guide for asking! 💬

Drag and drop file here
Limit 200MB per file

Browse files

Free Travel Guide to Easter... [X](#)
72.7MB

Delete Current Document(s)

Submit

About

This project is developed by team @N.A.H.

revolutionary!

10. Enjoy a sunset on the Boston waterfront.

These are just a few suggestions, but there are many more things to do in Boston depending on your interests!



Clear Chat History

Ask questions about your trip: ➤

Expedition Bot: Plan Your Next Adventure! | localhost:8501

Welcome Adventurer! 🎉

Do you have a travel guide? You can upload one to ask! Choose how you'd like to upload PDFs:

- Upload a single PDF
- Upload multiple PDFs

Please submit your travel guide for asking! ⓘ

Drag and drop file here
Limit 200MB per file

Browse files

Free Travel Guide to Easter... X
72.7MB

Delete Current Document(s)

Submit

About

This project is developed by team @N.A.H.

Some things to do in New York City include visiting iconic landmarks such as the Empire State Building, St. Patrick's Cathedral, and the New York Public Library. Shopping at flagship stores like Macy's and Saks Fifth Avenue on Fifth Avenue is also recommended. The Museum of Modern Art (MoMA) is a must-visit for art enthusiasts. Central Park is a popular destination with playgrounds, a carousel, a zoo, and beautiful landscapes. Times Square is known for its vibrant atmosphere, neon signs, and bustling crowds.



Ask questions about your trip: ➤

10. Clear Chat History

Expedition Bot: Plan Your Next Adventure! | localhost:8501

Welcome Adventurer! 🎉

Do you have a travel guide? You can upload one to ask! Choose how you'd like to upload PDFs:

- Upload a single PDF
- Upload multiple PDFs

Please submit your travel guide for asking! ⓘ

Drag and drop file here
Limit 200MB per file

Browse files

Delete Current Document(s)

Submit

About

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Chat with Expedition Bot Now!

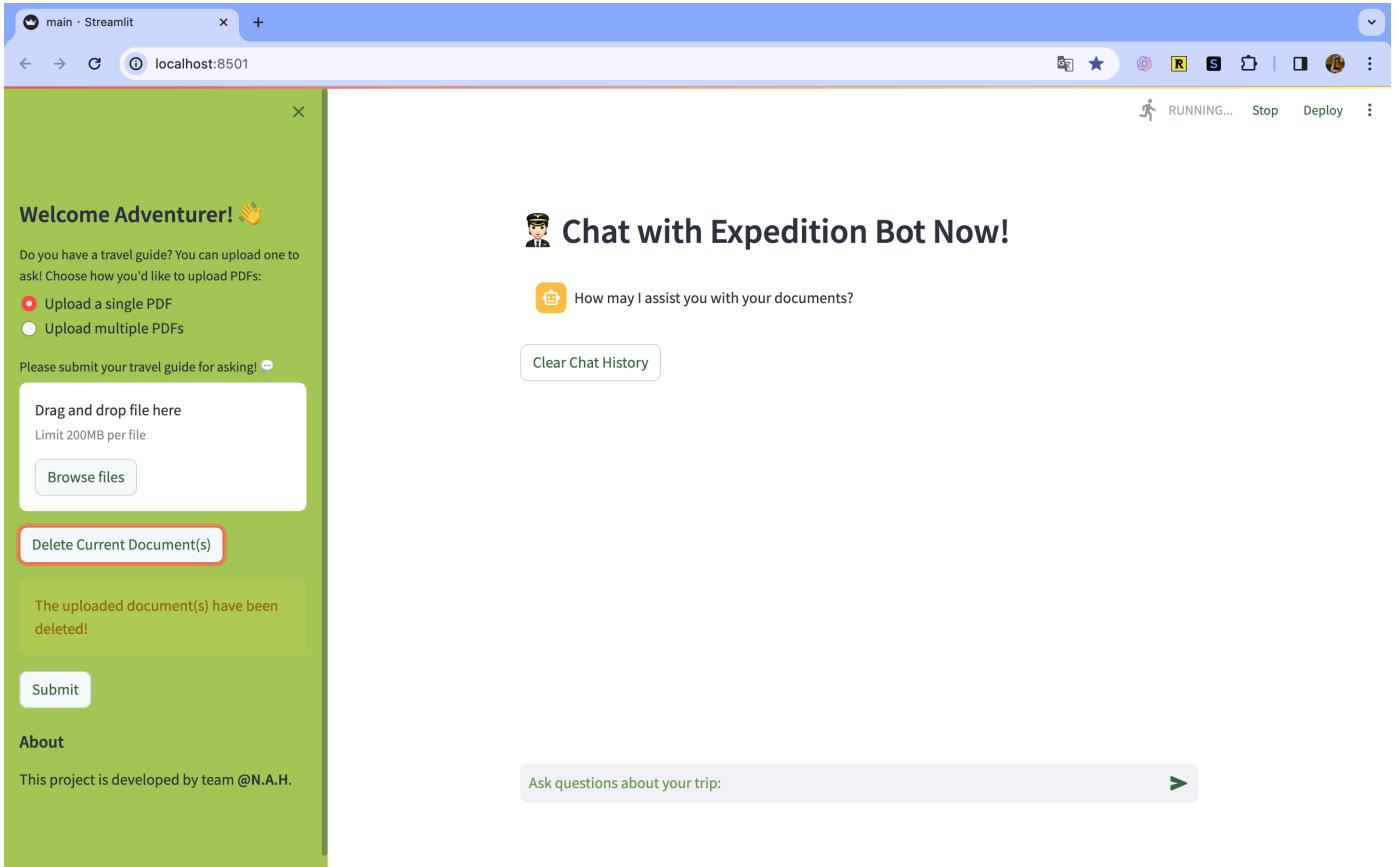
How may I assist you with your documents?

Clear Chat History

Chat history has been cleared.

Ask questions about your trip: ➤

11. Delete Current Document(s)



Case 2: Pre-Interaction Information Provision

12. Returning to Home Page:

- After testing the direct interaction features, return to the homepage to explore the second scenario.

13. Entering Travel Preferences:

- Before interacting with the bot, provide specific travel information. Example: "I would like to stay in a hotel next to Times Square one night."

14. Receiving Customized Travel Plans:

- Wait for the Expedition Bot to generate a comprehensive travel plan based on the provided information.

15. Further Inquiries:

- Continue to inquire about flights and hotels as in Case 1, utilizing the pre-entered information for a streamlined experience.

Welcome to Expedition Bot - +

localhost:8501

Deploy :

Let's start with when and where you want to explore.

Your dream destination is just a few clicks away!

Choose your potential Departure Date ⓘ

Choose your potential Return Date ⓘ

Estimated Duration of Trip ⓘ

- 1-3 days
- 4-7 days
- 1-2 weeks
- 2-3 weeks
- More than 3 weeks

Preferred Time of Departure and Return 😊

Morning x
Afternoon x

Where would you like to travel? 🌎

Who's joining you on this amazing journey?

Select who will share these memorable moments with you.

Who will you be traveling with? (Select all that apply) 💫

Friends x

What's the flavor of your adventure?

Choose the experiences that make your heart race.

Purpose of the Trip (Select all that apply) 🌍

Leisure x
Relaxation x
Cultural Experi... x

Preferences for Activities (Select all that apply) 💃

Sightseeing x
Historical Tours x

Let's find you the perfect place to stay.

Cozy, luxurious, or unique – what's your style?

Accommodation Preferences (Select all that apply) 🏨

Hotel (Specify st...) x
Location Prefer... x

Almost there! A few last details to tailor your experience.

Your preferences matter. Let's make this trip fit your budget and needs.

The screenshot shows a web browser window titled "Expedition Bot: Plan Your Next Adventure". The URL is "localhost:8501". The page has a green header with the title and a sidebar on the left containing file upload and submission options. The main content area features a "Chat with Expedition Bot Now!" section with a bot icon and a message about generating a travel itinerary. It includes two sections, "Day 1" and "Day 2", each listing a series of travel activities and locations.

Welcome Adventurer! 🎉

Do you have a travel guide? You can upload one to ask! Choose how you'd like to upload PDFs:

Upload a single PDF
 Upload multiple PDFs

Please submit your travel guide for asking! ⓘ

Drag and drop file here
Limit 200MB per file

Browse files

Delete Current Document(s)

Submit

About

This project is developed by team @N.A.H.

Chat with Expedition Bot Now!

Based on your input, here is a possible travel itinerary for your reference:

Day 1

- Departure: Morning
- Accommodation: Hotel 4-star, next to Times Square
- Breakfast: Magnolia Bakery, 200 W 49th St, New York, NY 10019
- Activity: Central Park - Spend the morning exploring the sights and sounds of Central Park. Take a walk around the lake, admire the Belvedere Castle, and take some photos in the iconic Strawberry Fields.
- Lunch: Shake Shack, 691 8th Ave, New York, NY 10036
- Activity: Metropolitan Museum of Art - Spend the afternoon exploring the world-renowned Metropolitan Museum of Art. Get lost in its vast collection of artwork and artifacts from across the world.
- Dinner: Lobster Place, 75 9th Ave, New York, NY 10011
- Evening Activity: Broadway Show - Catch a show on Broadway and enjoy a night of world-class entertainment.

Day 2

- Breakfast: The Smith, 956 2nd Ave, New York, NY 10022

Ask questions about your trip: ➤

Code Structure

The application "Expedition Bot - Your Custom Travel Planner" is structured into several key Python files, each serving a distinct role in the functionality of the chatbot and its user interface. Below is an overview of each file and its purpose:

1. `chatbot.py`:

- Contains the core logic of the travel planning chatbot.
- Implements functions for creating conversational chains, determining user intent, generating travel plan prompts, querying the chatbot model, and managing chat history.
- Utilizes various modules and APIs for dynamic user interaction and response generation.

2. `config.py`:

- Responsible for initializing the bot's configuration.
- Loads environment variables crucial for the application's functionality, ensuring that all necessary configurations are set up from the start.

3. `htmlTemplates.py`:

- Contains CSS styles and HTML templates for the chatbot interface.
- Includes templates for both bot and user messages within the chat interface, enhancing the visual aspect of the chatbot.

4. `main.py`:

- The main executable file for the application.

- Orchestrates the overall operation of the bot, handling user input, form data processing, and rendering of the chat interface.

5. `pdf_processing.py`:

- Specializes in processing PDF files.
- Features functions for extracting images and text from PDF documents, which are essential for generating tailored travel plans and responses.

6. `responses.py`:

- Dedicated to formatting and generating responses about travel options.
- Contains functions for sorting and presenting flight and hotel information in a user-friendly markdown format.

7. `scrapers.py`:

- Implements the functionality for scraping travel-related information from external websites.
- Utilizes libraries like Selenium and BeautifulSoup for extracting and organizing hotel and flight data from Booking.com and Kayak.

8. `utils.py`:

- A utility module containing various helper functions.
- Includes smaller, miscellaneous tasks like data formatting and processing that support the main functionality of the application.

Each file in this structure plays a vital role in the overall functioning of the Expedition Bot, making it a comprehensive and user-friendly travel planning assistant. The modular design allows for easy maintenance, scalability, and clear separation of concerns, ensuring efficient operation and user experience.