AutoBuddy: A Car Shopping Search Chatbot

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Brief Overview

AutoBuddy is an AI-powered chatbot for personalized car shopping. It uses natural language processing and RAG to provide efficient search experiences based on user preferences, budget, and criteria.

Importance and Relevance:

The project addresses a significant market need for efficient car shopping tools, enhancing the buying experience and leveraging AI for consumer benefit.

Project Description

1 **User Interaction**

Chatbot interface for personalized car search queries.

2 **Advanced Search**
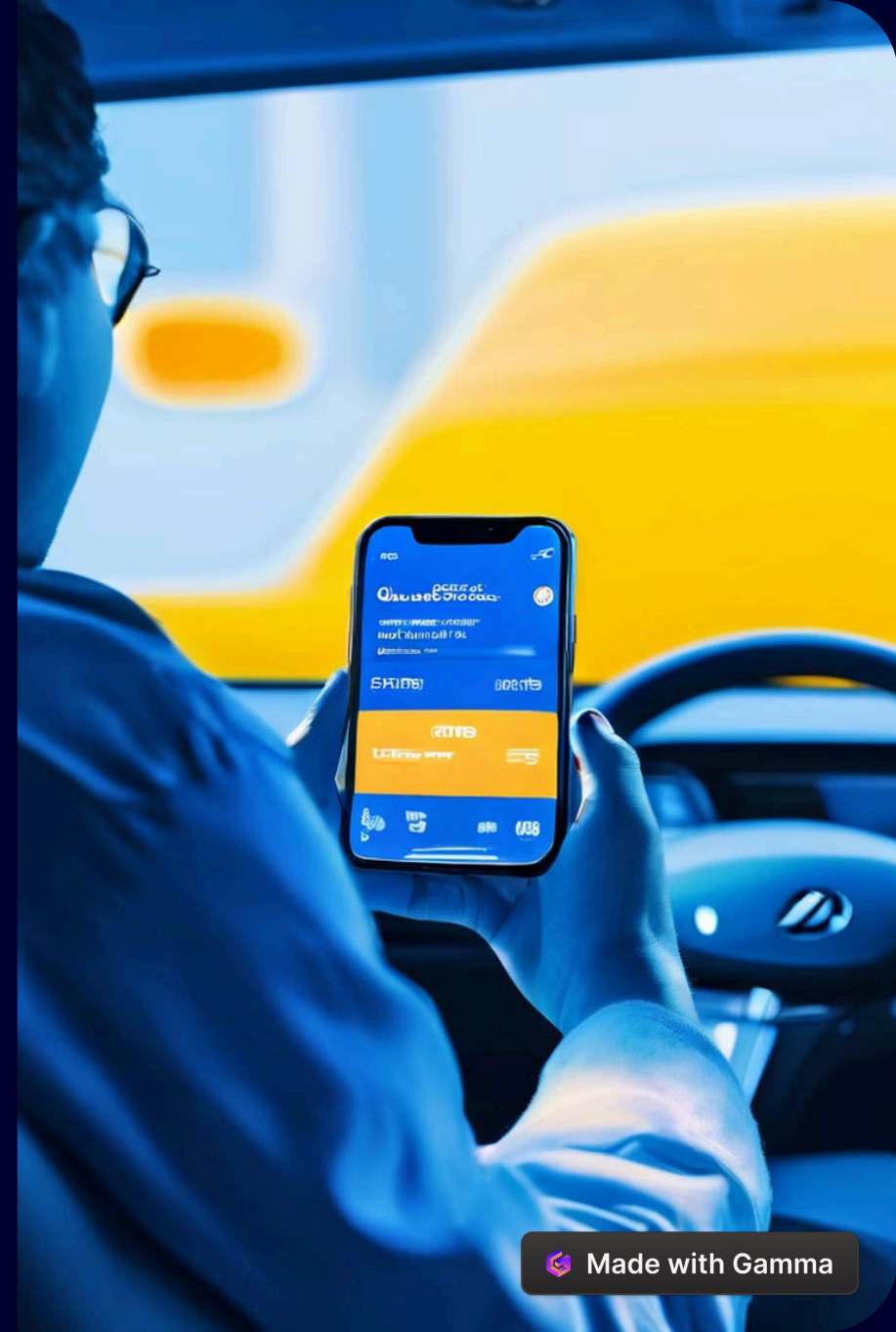
Filtering options to match user preferences.

3 **Dealer Integration**

Access to car listings and dealer information.

4 **Scheduling**

Test drive booking and notification features.

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Conversation Flow Example:

User: Hi, I'm looking for a new car.

AutoBuddy: Hi there! I'd love to help you find the perfect car. Do you have any specific preferences or requirements? For example, budget, car type, brand, fuel efficiency, or any specific features

User: I'm looking for an SUV under $30,000, preferably a hybrid.

AutoBuddy: Great choice! SUVs are versatile and hybrids are excellent for fuel efficiency. Let me find some options for you. Do you have any preferred brands or additional features in mind?

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Project Architecture

User Interface
Chatbot interface built with Streamlit for user interactions.

Backend
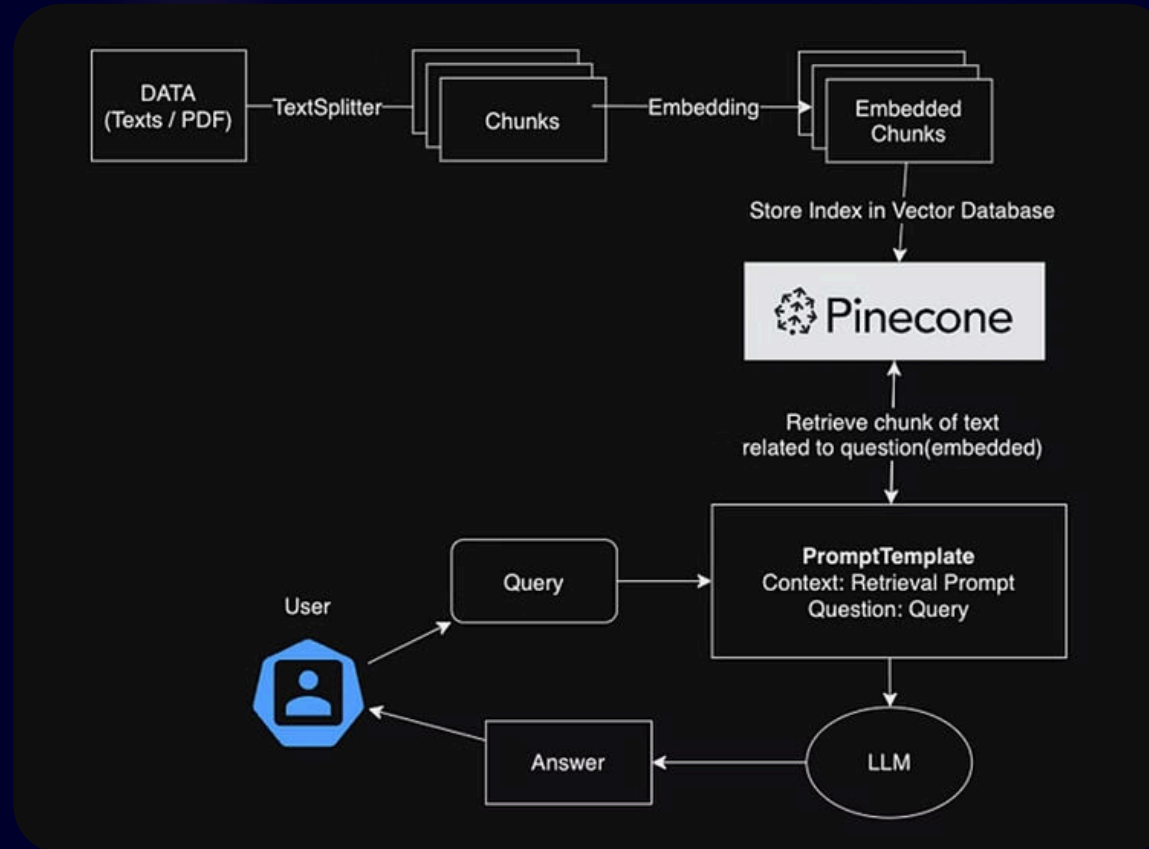LangChain and RAG for query processing and data retrieval.

Data Sources
Car listings and dealer info stored in Pinecone.

LLM
OpenAI API for natural language processing and response generation.

Project Architecture

Data Collection

Sources

Various online new car company and dealer inventories websites.

Content

Car specifications, prices, features, and dealer information.

Methods

Web scraping and API integration with databases.

RAG Pipeline Implementation

1

Query Understanding

NLP techniques parse user queries.

2

Document Retrieval

Pinecone retrieves relevant data snippets.

3

Response Generation

OpenAI API generates responses based on retrieved data.

4

Integration

LangChain combines outputs for final response.

Performance Metrics

Metric	Description	Calculation Method
Response Accuracy	Relevance of information	Manual evaluation
User Satisfaction	User feedback and ratings	Surveys and forms
Robustness	Handling of ambiguous, tricky inputs	Manual evaluation

Improving Metrics

1 **User Feedback**

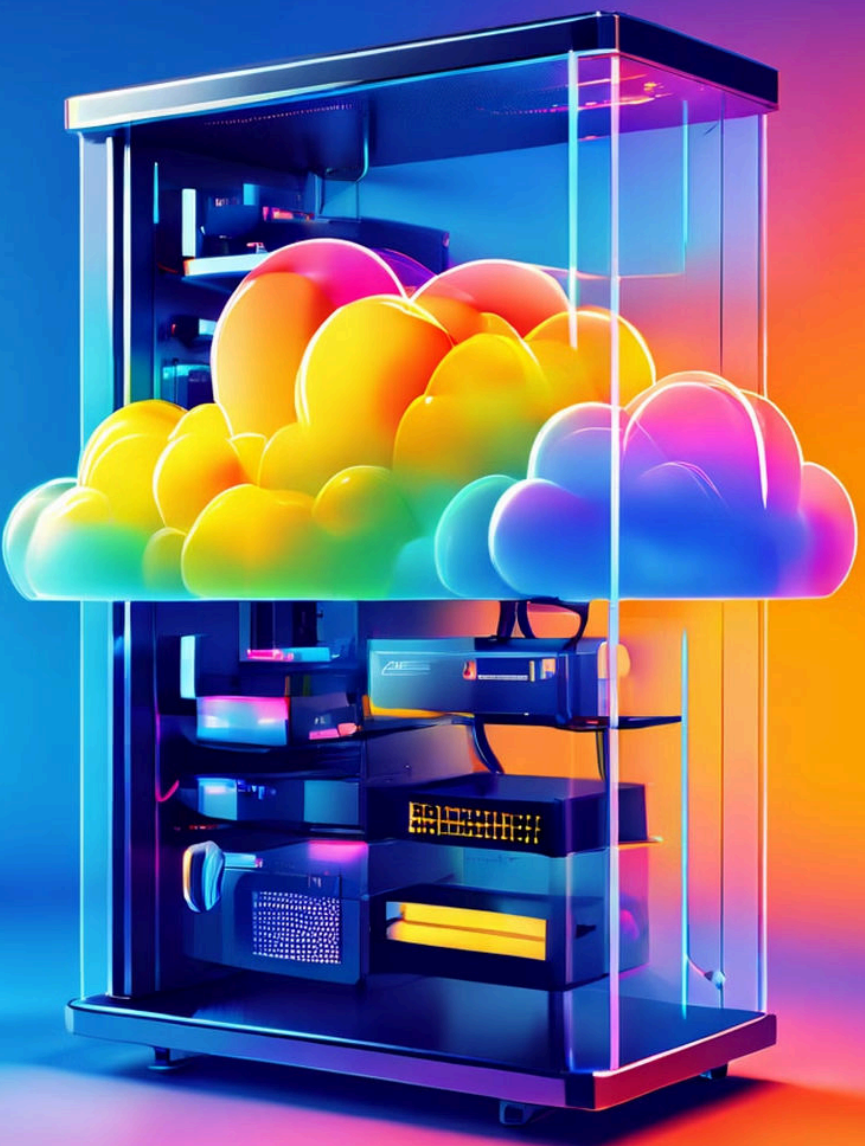Incorporate user input for continuous improvements.

2 **Data Enhancement**

Expand and refine data sources and database.

3 **Expected Impact**

Improved user experience, accuracy, and efficiency.

Deployment Plan

1 — **Development**

Finalize and test the chatbot application.

2 — **Containerization**

Create deployable image using Docker.

3 — **Hosting**

Deploy on AWS for scalability and reliability.

4 — **User Testing**

Conduct beta testing and gather feedback.

Future Work

Expansion

Integrate more car listing platforms and markets.

Partnerships

Develop exclusive deals with car dealerships.

AI Enhancement

Explore advanced AI for personalized experiences.

Made with Gamma

Ask Questions

Feel free to ask any questions you may have. We're here to provide helpful answers.

Engage in Discussion

Participate in the conversation and share your thoughts and experiences with the group.

Find Solutions

Together, we can explore ideas and find the best solutions to your questions or concerns.