Movie Recommendation Chatbot

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https://github.com/MarcumDoug/Chatbot_Movie_Recommendation

Which Domain?

The domain being explored for this project is really two areas, a recommendation model and chatbot construction. Specifically, a chatbot will be constructed to gather information from a consumer, via a human like conversation, to make movie recommendations based on the collected information.

References

Ehiorobo, E. (January 15, 2021). How to Create and Intelligent Chatbot in Python Using spaCy NLP Library. Retrieved from https://www.digitalocean.com/community/tutorials/how-to-create-an-intelligent-chatbot-in-python-using-the-spacy-nlp-library.

A tutorial on constructing a conversational chatbot by utilizing spaCy and retrieving data from OpenWeatherAPI.

Martin, J. (February 23, 2017). Design Framework for Chatbots. Retrieved from https://chatbotsmagazine.com/design-framework-for-chatbots-aa27060c4ea3.

This article highlights the need for managing the user flow and how it impacts the design of the chatbot and user experience.

Maruti Techlabs (May 9, 2017) How to Develop a Chatbot From Scratch. Retrieved from https://chatbotsmagazine.com/how-to-develop-a-chatbot-from-scratch-62bed1adab8c.

A wonderful article providing guidance and insight into the tools and methods to building a chatbot from the ground up.

Moy, L. (December 12, 2020). Building a Netflix Recommendation SMS Bot with Python and Twilio Autopilot for Gift of Code. Retrieved from https://www.twilio.com/blog/netflix-bot-python-twilio-autopilot-giftofcode.

An interesting case study and coding example of building a chatbot utilizing Twilio and the Netflix public API.

Raj, S. *Building Chatbots with Python: Using Natural Language Processing and Machine Learning.* Apress. (2018).

This book is designed to walk one through the process of constructing a chatbot utilizing Python and other open-source tools.

Rehan, A. (November 24, 2020). 10 Best Chatbot Development Frameworks to Build Powerful Bots. Retrieved from https://geekflare.com/chatbot-development-frameworks/.

An overview of ten frameworks with an evaluation for each shared. Additionally, pros and cons of chatbots are laid out for discussion.

Sens, R. (May 23, 2016). Designing a Chatbot Conversation. Retrieved from https://www.behance.net/gallery/37453869/Designing-a-Chatbot-UX-Design-Process-Case-Study.

A soup to nuts case study on the design process of a chatbot.

Shawar, Bayan & Atwell, Eric. (2007). Chatbots: Are they Really Useful?. LDV Forum. 22. 29-49. Retrieved from https://www.researchgate.net/publication/220046725_Chatbots_Are_they_Really_Useful.

The paper investigates applications where chatbots could be useful such as education, information retrieval, business, and e-commerce. A range of chatbots with useful applications, including several based on the ALICE/AIML architecture, are presented in this paper.

Shevat, A. *Designing Bots: Creating Conversational Experiences*. O'Reilly Media. (2017).

This text is ideal for designers, product managers, and entrepreneurs, this book explores what works and what does not in real-world bot examples. It also provides practical design patterns for bot building.

Scott, K. (October 18, 2016). Popular Use Cases for Chatbots. Retrieved from https://chatbotsmagazine.com/popular-use-cases-for-chatbots-925ef8f2b48b.

An article looking at ideal use cases for bots, and when they can match or exceed equivalent app or web experiences.

Which Data?

For movie recommendation data, a collection of movie data obtained from IMDB will be used. The datasets include the following:

- The movies dataset includes 85,855 movies with attributes such as movie description, average rating, number of votes, genre, etc.
- The ratings dataset includes 85,855 rating details from demographic perspective.
- The names dataset includes 297,705 cast members with personal attributes such as birth details, death details, height, spouses, children, etc.
- The title principals dataset includes 835,513 cast members roles in movies with attributes such as IMDb title id, IMDb name id, order of importance in the movie, role, and characters played.

This data can be found via Kaggle. https://www.kaggle.com/stefanoleone992/imdb-extensive-dataset?select=IMDb+title_principals.csv

In terms of an intent dataset, it is still to be determined if a robust dataset such as ELI5 (Explain Like I'm Five) or Natural Questions (NQ) will be utilized, or if a simplified intent model will work best. This is still being reviewed.

Research Questions? Benefits? Why analyze this data?

Two main questions – Why are chatbots important in today's society? What is stopping or potentially blocking the expanded utilization of chatbots?

Approaching these two questions, I am hoping to illustrate how simple a chatbot can be constructed, and also how human like one can communicate with an end user. By using a softer subject matter, i.e. movie

recommendations, the conversational elements have more flexibility than say that of a chatbot designed for medical intake.

What Method?

For the datasets related to movie data, a full exploratory analysis will be conducted and well as any necessary data cleaning. This will ensure that recommendations are as accurate as possible, as well as aligned with the proper recommendations.

In terms of the chatbot construction itself, that is still being debated. With multiple options available, more research is being conducted in the most appropriate build. User acceptance testing will be conducted on the bot once completed.

Potential Issues?

Issues and challenges are difficult to foresee, but I am wanting to explore this area because natural language processing is a weak area in my portfolio. Additionally, by combining this with a recommendation system, problems could easily snowball and take me off course. This is why I am adhering to a strict schedule in order to avoid unnecessary time being spent on frivolous features.

Concluding Remarks

Tie it all together. Think of this section as your final report's abstract.

Chatbots are an excellent tool for communication being utilized by nearly every industry. It is estimated that chats can cut customer service costs by more than 30%, and that it is estimated that chatbots will help reduce business costs by approximately $8 billion by the year 2022. On any given day, we can expect to interact with a chatbot in some form. With all of this, why is there still resistance to their full utilization? Most surveys show that the average consumer would still prefer to have direct contact with a human instead of working through a chatbot. Is this related to poor chatbot design? This project will examine a number of common issues related to chatbot interaction and work to create a recommendation chatbot that avoids these pitfalls.