



Chatbot and recommendation systems

THE MOVIEBOT

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Introduction

Chatbots have gained increasing importance over the last couple of years. This handy tool has been used in various fields and industries to communicate with a user in order to solve a specific problem, recommend solutions or even book appointments.

During the chatbot and recommendation course of this semester, we have seen various ways to create chatbots and put them on different servers (Facebook developer, skype, slack etc.). In addition, we have looked into different ways to use a system that is able to recommend the user based on the extracted information from the user.

The goal of the final assignment of this course is to create a chatbot with a built-in recommendation system. The chatbot has to be able to interact with the user while extracting his/her intentions and entities and act upon it accordingly. In addition, the chatbot will be able to give a suitable recommendation based on the information given by the user.

The MovieBot

For the sake of this assignment a particular chatbot has been created with the name Moviebot. The Moviebot can be used by everyone but specifically targets people that watch movies on streaming services such as Netflix and Amazon Prime.

This chatbot communicates with users that need specific information about a movie or already watched a movie and needs a similar movie recommendation. A person could think of this chatbot as your personal Netflix coach. Based on the movie you watched, the bot could recommend you a similar movie.

The database has been made available on Kaggle and is retrievable on this link:

https://www.kaggle.com/rounakbanik/the-movies-dataset?select=movies_metadata.csv

System Design

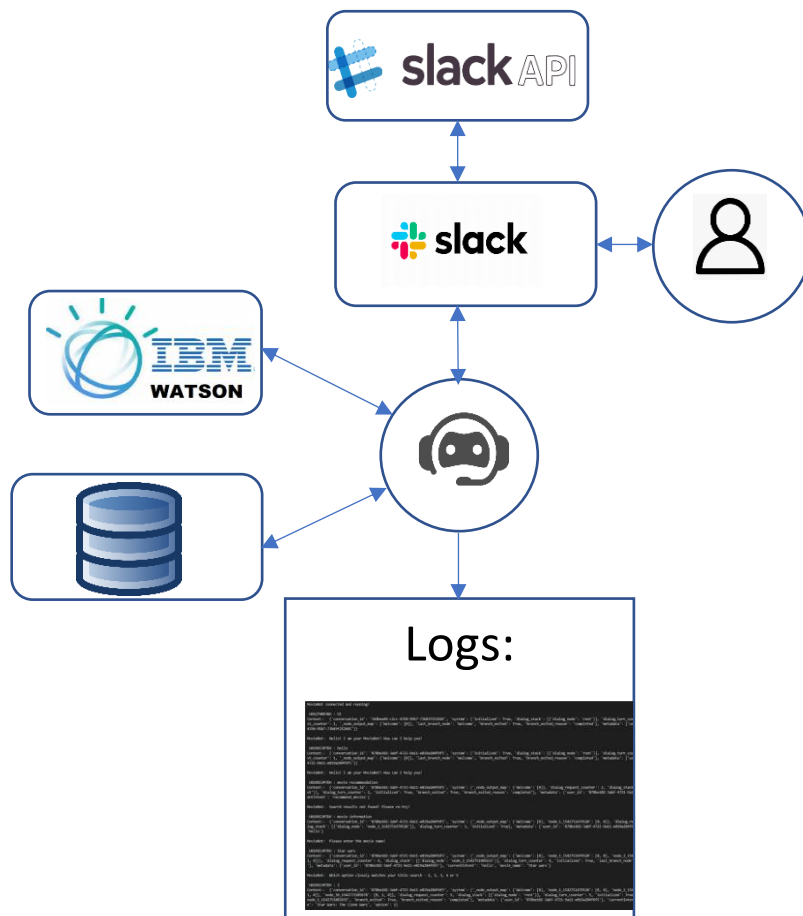


Figure 1: Chatbot diagram

The created chatbot uses the Slack application program interface (API). Slack is a platform that allows to share, discuss and access projects. Slack API provides a domain that is then hosted on the Slack platform. This allows the individual to access the platform and communicate with the chatbot at any given time from any device. In order to allow for a smooth processing of NLP solutions IBM Watson assistant is used. The steps for this process can be found in the Readme file on GitHub.

As shown in **Fout! Verwijzingsbron niet gevonden.**, the user communicates with the chatbot while using the @Moviebot call sign on the slack platform. Slack then communicates it to the chatbot. The chatbot then communicates the information to the IBM Watson cloud where the .json file is stored with all the entities and intentions. These intentions are extracted and communicated with the chatbot that will finally extract the needed information from the database. Last but not least the chatbot, communicates the findings back to the slack platform.

Communication template

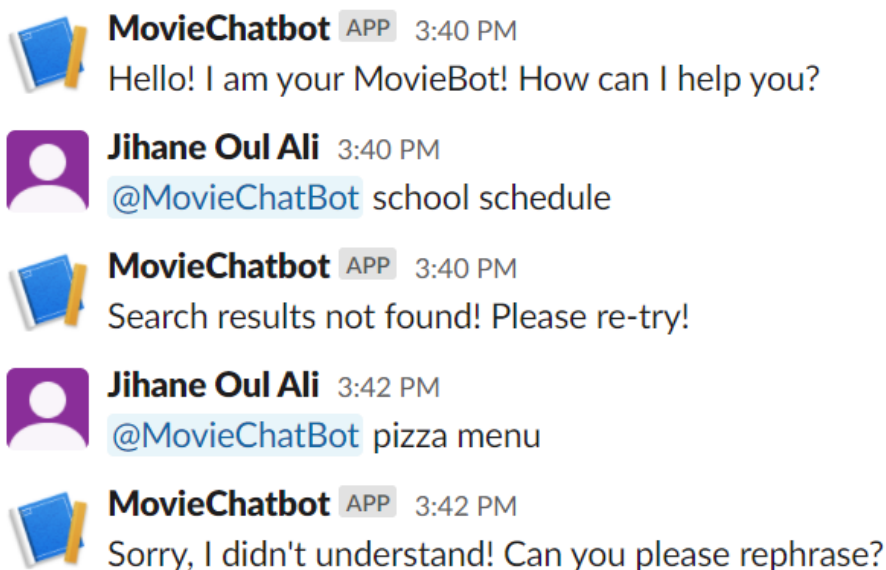
The communication with the chatbot has been made as user-friendly as possible. However, due to the time constraint, the chatbot does require a certain user language in order to “understand” the intention. Note that in order to communicate with the chatbot on the Slack platform, the bot has to be called for at each message. This is done by adding @Moviebot at the beginning of each message.

The communication with the bot is set up as follows:

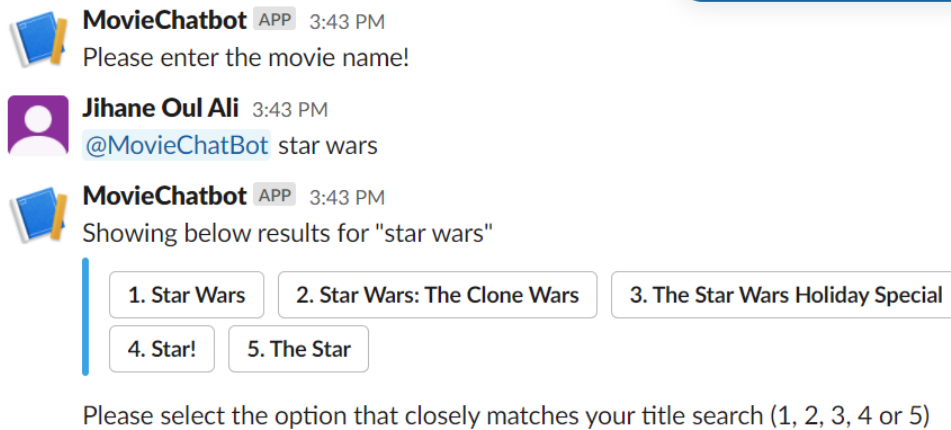
1. Greetings: greeting the bot with hi,hello etc will result in the bot presenting itself with the following message: Hello! I am your MovieBot! How can I help you?
2. Ask for information: Once the bot asks how it can help you the user is expected to use phrases such as “information on movies” ,
3. Movie name: The bot then asks which movie the user wants information on.
4. Available information of the movie: Once the chatbot extracted all the information available on the movie, it asks the user which information he or she wants to know by giving some options
5. Communicate information needed based on options given.
6. Information communicated to user: the bot replies with the asked information. If the user wants to know something else the step 5 can be repeated.
7. Goodbye’s: if the user replies with a bye or thank you, the bot will consider the task finished and say Bye Bye! (or another fun goodbye)

Special cases

Case 1: If the user at step 2 does not ask for any information about movies or anything similar the bot will respond as follows:



Case 2: if the user types a movie name or a part of the name the bot will ask for clarification and give the user choices to choose from.



The screenshot shows a chat conversation. The bot, 'MovieChatbot', asks the user to enter a movie name. The user, 'Jihane Oul Ali', responds with 'star wars'. The bot then displays five search results in a list: 1. Star Wars, 2. Star Wars: The Clone Wars, 3. The Star Wars Holiday Special, 4. Star!, and 5. The Star. Below the list, the bot asks the user to select an option that closely matches their title search (1, 2, 3, 4 or 5).

MovieChatbot APP 3:43 PM
Please enter the movie name!

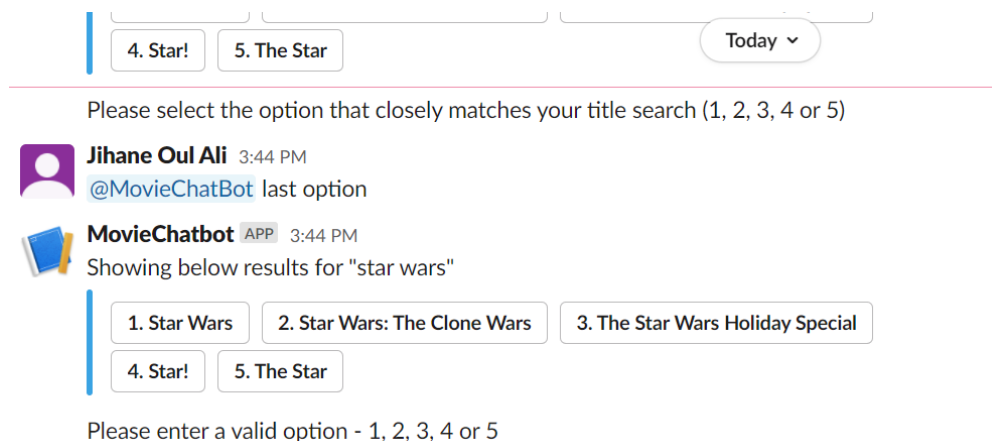
Jihane Oul Ali 3:43 PM
@MovieChatBot star wars

MovieChatbot APP 3:43 PM
Showing below results for "star wars"

- 1. Star Wars
- 2. Star Wars: The Clone Wars
- 3. The Star Wars Holiday Special
- 4. Star!
- 5. The Star

Please select the option that closely matches your title search (1, 2, 3, 4 or 5)

If the user replies with anything that is not 1,2,3,4,or 5 the bot won't understand the intention and ask again.



The screenshot shows a chat conversation. The bot, 'MovieChatbot', asks the user to enter a movie name. The user, 'Jihane Oul Ali', responds with 'last option'. The bot then displays five search results in a list: 1. Star Wars, 2. Star Wars: The Clone Wars, 3. The Star Wars Holiday Special, 4. Star!, and 5. The Star. Below the list, the bot asks the user to select an option that closely matches their title search (1, 2, 3, 4 or 5).

Jihane Oul Ali 3:44 PM
@MovieChatBot last option

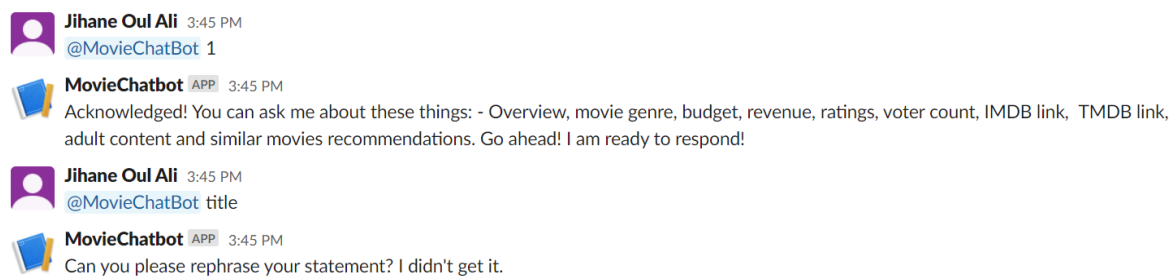
MovieChatbot APP 3:44 PM
Showing below results for "star wars"

- 1. Star Wars
- 2. Star Wars: The Clone Wars
- 3. The Star Wars Holiday Special
- 4. Star!
- 5. The Star

Please enter a valid option - 1, 2, 3, 4 or 5

Case 3:

Same as in case 2, if the user replies in step 5 with something not cited in the list of option the bot won't understand and will ask the user to rephrase:



The screenshot shows a chat conversation. The user, 'Jihane Oul Ali', responds with '1'. The bot, 'MovieChatbot', acknowledges the response and lists the things the user can ask about: Overview, movie genre, budget, revenue, ratings, voter count, IMDB link, TMDB link, adult content and similar movies recommendations. The user then responds with 'title'. The bot asks the user to rephrase their statement as it didn't get it.

Jihane Oul Ali 3:45 PM
@MovieChatBot 1

MovieChatbot APP 3:45 PM
Acknowledged! You can ask me about these things: - Overview, movie genre, budget, revenue, ratings, voter count, IMDB link, TMDB link, adult content and similar movies recommendations. Go ahead! I am ready to respond!

Jihane Oul Ali 3:45 PM
@MovieChatBot title

MovieChatbot APP 3:45 PM
Can you please rephrase your statement? I didn't get it.

Case 4:

If all went well but the user would like to ask for information about another movie the user has to ask the bot to start again :

