DIALOG CHATBOT

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Artificial Intelligence

Submitted by

T.Sudheer kumar 11903962

Course Code: INT 404

Under the Guidance of

Mr. Sagar Pande

UID : 23754

School of Computer Science and Engineering

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Overview of Project:

Dialog flow is one of the hottest computer-human interaction platforms on the market. It offers all the services and complexities of natural language processing and machine learning, but uses a straightforward interface that allows you to start developing Assistant, Alexa, and Cortana integrated applications today.

Humans are constantly fascinated with auto-operating AI-driven gadgets. The latest trend that is catching the eye of the majority of the tech industry is chatbots. And with so much research and advancement in the field, the programming is winding up more human-like, on top of being automated. The blend of immediate response reaction and consistent connectivity makes them an engaging change to the web applications trend.

A chatbot is a computer program that simulates human conversation through voice commands or text chats or both. Chatbot, short for chatterbot, is an Artificial Intelligence (AI) feature that can be embedded and used through any major messaging applications. There are a number of synonyms for chatbot, including "talkbot," "bot," "IM bot," "interactive agent" or "artificial conversation entity."

How Chatbots Works:

A chatbot that functions through machine learning has an artificial neural network inspired by the neural nodes of the human brain. The bot is programmed to self-learn as it is introduced to new dialogues and words. In effect, as a chatbot receives new voice or textual dialogues, the number of inquiries that it can reply and the accuracy of each response it gives increases. Facebook has a machine learning chatbot

that creates a platform for companies to interact with their consumers through the Facebook Messenger application.

Introduction:

Aim:

The purpose of this project is to showcase the power of chatbots and how they can be an alternative to using an application or even a website. The chatbots should be easy to use, respond in a timely fashion and be all round user friendly. The bots should make the users interaction as easy and fast as possible to ensure that the users time is not wasted and that they get what they want without any difficulty or misunderstanding from the bot. The conversation should flow and always keep the user in control of the conversation. Users should come away from their experience with the chatbot and think that it was a fun, easy to use and straightforward interaction that would encourage them to come back without any hesitation. With messaging platforms being the most used type of application in the world, businesses will be looking to take advantage of this and start to develop their own chatbots to work along with their social media pages. For example, a person calling a restaurant to see what time they open at or what is the special today, the customer can simply message the page on Facebook and the bot will respond accordingly. This frees up time for real employees to do other work and allows the chatbot to handle the simple tasks. Since users will already have a messaging app installed on their mobile device, there is no need to download a separate application to use the chatbot. This can turn a lot of users away as nowadays there is an plethora of applications available and most users will be fed up of having to download an application that they may only use once or twice.

Objective

An AI chatbot is trained to operate more or less on its own, using a process known as Natural Language Processing, or NLP, combined with artificial intelligence and the annotation of human data. AI chatbots get smarter over time.

Scope:

Probable trends of Chatbot. A field that provides a wide scope for development of chatbots is the consumer tech. Most people are well aware and familiar with the working of the chatbots, especially in the field of business and software development done by a custom software development company.

Use:

A chatbot is an automated program that interacts with customers like a human would and cost little to nothing to engage with. Chatbots attend to customers at all times of the day and week and are not limited by time or a physical location. This makes its implementation appealing to a lot of businesses that may not have the manpower or financial resources to keep employees working around the clock.

RELATED WORK:

About TensorFlow :

Currently, the most famous deep learning library in the world is Google's TensorFlow. Google product uses machine learning in all of its products to improve the search engine, translation, image captioning or recommendations.

TensorFlow Architecture

Tensorflow architecture works in three parts:

- Preprocessing the data
- Build the model
- Train and estimate the model

It is called Tensorflow because it takes input as a multi-dimensional array, also known as **tensors**. You can construct a sort of **flowchart** of operations (called a Graph) that you want to perform on that input. The input goes in at one end, and then it flows through this system of multiple operations and comes out the other end as output.

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Why is TensorFlow popular?

TensorFlow is the best library of all because it is built to be accessible for everyone. Tensorflow library incorporates different API to built at scale deep learning architecture like CNN or RNN. TensorFlow is based on graph computation; it allows the developer to visualize the construction of the neural network with Tensorboad. This tool is helpful to debug the program. Finally, Tensorflow is built to be deployed at scale. It runs on CPU and GPU.

Tensorflow attracts the largest popularity on GitHub compare to the other deep learning framework.

Create Tensorflow pipeline

In the example before, we manually add three values for X_1 and X_2. Now we will see how to load data to Tensorflow.

Step 1) Create the data

First of all, let's use numpy library to generate two random values.

```
import numpy as np
x_input = np.random.sample((1,2))
print(x_input)
```

[[0.8835775 0.23766977]]

Step 2: Create the placeholder

Like in the previous example, we create a placeholder with the name X. We need to specify the shape of the tensor explicitly. In case, we will load an array with only two values. We can write the shape as shape=[1,2]

```
# using a placeholder
```

```
x = tf.placeholder(tf.float32, shape=[1,2], name = 'X')
```

Step 3: Define the dataset method

next, we need to define the Dataset where we can populate the value of the placeholder x. We need to use the method tf.data.Dataset.from_tensor_slices

```
dataset = tf.data.Dataset.from_tensor_slices(x)
```

Step 4: Create the pipeline

In step four, we need to initialize the pipeline where the data will flow. We need to create an iterator with make_initializable_iterator. We name it iterator. Then we need to call this iterator to feed the next batch of data, get_next. We name this step get_next. Note that in our example, there is only one batch of data with only two values.

```
iterator = dataset.make_initializable_iterator()
get_next = iterator.get_nex
```

What is NLP (Natural Language Processing)?

NLP is a subfield of computer science and artificial intelligence concerned with interactions between computers and human (natural) languages. It is used to apply machine learning algorithms to text and speech**.**

For example, we can use NLP to create systems like speech recognition**,** document summarization**,** machine translation**,** spam detection**,** named entity recognition**,** question answering, autocomplete, predictive typing and so on.

Nowadays, most of us have smartphones that have speech recognition. These smartphones use NLP to understand what is said. Also, many people use laptops which operating system has a built-in speech recognition.

Python Tkinter Introduction

Tkinter is the well-known framework for Python GUI Development. Tkinter allows developers to build graphical user interfaces in Python that look great, and run on all major operating systems. When you install the latest version of Python, you are also getting Tkinter included by default with that installation. This means it is as easy as adding a few import statements to the top of your code to begin leveraging the power that Tkinter offers. Another nice feature of Tkinter is that it includes themed GUI elements that maintain a consistent look and feel with those different operating systems. Let's see if we can get a few simple programs built with Tkinter now.

```
from tkinter import *

root = Tk()
Label(root, text='Welcome to Tkinter :-)').pack()
root.mainloop()
```

Conclusion:

For many applications, the chatbot is connected to the database. The database is utilized to sustain the chatbot and provide appropriate responses to every user. NLP can translate human language into data information with a blend of text and patterns that can be useful to discover applicable responses.
There are NLP applications, programming interfaces, and services that are utilized to develop chatbots. And make it possible for all sort of businesses – small, medium or large-scale industries. The primary point here is that smart bots can help increase the customer base by enhancing the customer support services, thereby helping to increase sales.

Reference:

- : www.data-flair.training , project-worlds.in.

Advantages

- User does not have to go personally to college office for the enquiry.
- This application enables the students to be updated with college cultural activities.
- This application saves time for the student as well as teaching and non-teaching staffs.

Disadvantages

- It requires active internet connection else error may occur.--