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[Artificial Intelligence Based Project]

**Project Name:** Health-care Chatbot

**Project No. :** 01

**Section:** K18SP

**Github Link:** https://github.com/nayan-me-dev/A.I-project.git

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I respect and thank Miss Manu Bali , for providing me an opportunity to do the project work and giving me all support and guidance, through her lectures.

I would also appreciate all the internet content on AI and deep learning that helped me to get a better idea of the question and lead a path to provide solution for the given problem. In the end I will be adding some links which I think might be of great help in strengthening your concepts of Artificial Intelligence.

-The Team

**What Is Chatbot ?**

A chatbot is a software application used to conduct an on-line chat [conversation](https://en.wikipedia.org/wiki/Conversation) via text or text-to-speech, in lieu of providing direct contact with a live human agent. Designed to convincingly simulate the way a human would behave as a conversational partner. Well that’s what the Wikipedia says but what I understood while making this project is that it is the machine which responds to the people by understanding their problem with the best possible answer.

Chatbots are typically used in digital systems for various purposes including customer service, request routing, or for information gathering. While some chatbot applications use extensive word-classification processes, Natural Language processors, and sophisticated [AI](https://en.wikipedia.org/wiki/Artificial_intelligence), others simply scan for general keywords and generate responses using common phrases obtained from an associated library or database.

Chatbots are clearly the talk of the day because of their extensive use in every field.

**Advantages :**

1. Keeping Up with the Trends: Being Present on Messaging Platforms. ...
2. Improved Customer Service. ...
3. Increased Customer Engagement. ...
4. Monitoring Consumer Data & Gaining Insights. ...
5. Better Lead Generation, Qualification and Nurturing. ...
6. Easier Approach to Global Markets. ...
7. Cost Savings.

**Chatbots are divided into 2 main categories :**

1. **Static Chatbots :** These type of chatbots are easy to build and doesn’t need much of AI and deep learning knowledge. They are purely based on datasets a solution is previously feeded for any question that bot might encounter. They are user friendly and very easy to build as the companies provide predefined libraries to use them.

1. **Dynamic Chatbot :** Dynamic Chatbot require a good understanding of Ai and deep learning as it requires bot to run the test cases and apply the best solution possible for any given question. Some code work is needed to get these chatbots working.

**Some Guiding Terms**

1. **numpy** – this is the predefined package given by python to handle arrays and problems which require storing information in structured way.
2. **nltk** – it is a predefined library that deals with AI it is given by python with the name natural language toolkit.
3. **tensorflow –** TensorFlow is a Python library for fast numerical computing created and released by Google. It is a foundation library that can be used to create Deep Learning models directly or by using wrapper libraries that simplify the process built on top of TensorFlow.
4. **json Data –** it is the dataset which is created by taking all the root words and writing probable solutions for them.
5. **Stemming -** Stemming a word is attempting to find the root of the word. For example, the word "thats" stem might be "that".
6. **Tokenize –** it is to convert larger sentences into smaller words. A chatbot might require to cut short all the useless talking and getting to the specific problem at hand.
7. **Discord-** it’s the predefined package that deals with bot used in discord .

**Project Code with explaination**

**‘’’all the necessary libraries are imported and the json file is loaded into the model’’’**

import nltk

from nltk.stem.lancaster import LancasterStemmer

stemmer = LancasterStemmer()

import numpy

import tflearn

import tensorflow

import random

import json

import pickle

with open("intents.json") as file:

data = json.load(file)

**#try and except to overcome jsondecode error and the arrays to extract data from the json file**

try:

with open("data.pickle", "rb") as f:

words, labels, training, output = pickle.load(f)

except:

words = []

labels = []

docs\_x = []

docs\_y = []

for intent in data["intents"]:

for pattern in intent["patterns"]:

wrds = nltk.word\_tokenize(pattern)

words.extend(wrds)

docs\_x.append(wrds)

docs\_y.append(intent["tag"])

if intent["tag"] not in labels:

labels.append(intent["tag"])

**‘’’Words stemming to get the root word from the input’’’**

words = [stemmer.stem(w.lower()) for w in words if w != "?"]

words = sorted(list(set(words)))

labels = sorted(labels)

‘’’as the Machine learning require numerical data, so we have converted the sentences into the bag of words. We represent each sentence with a list of length of amount of words in our model vocabulary. Each position in list is a 1 that is the word exist in our sentence if 0 then the word is not in the sentence.’’’

training = []

output = []

out\_empty = [0 for \_ in range(len(labels))]

for x, doc in enumerate(docs\_x):

bag = []

wrds = [stemmer.stem(w.lower()) for w in doc]

for w in words:

if w in wrds:

bag.append(1)

else:

bag.append(0)

output\_row = out\_empty[:]

output\_row[labels.index(docs\_y[x])] = 1

training.append(bag)

output.append(output\_row)

training = numpy.array(training)

output = numpy.array(output)

with open("data.pickle", "wb") as f:

pickle.dump((words, labels, training, output), f)

**#making a model by using the libraries**

tensorflow.reset\_default\_graph()

net = tflearn.input\_data(shape=[None, len(training[0])])

net = tflearn.fully\_connected(net, 8)

net = tflearn.fully\_connected(net, 8)

net = tflearn.fully\_connected(net, len(output[0]), activation="softmax")

net = tflearn.regression(net)

model = tflearn.DNN(net)

**#training and saving the model**

try:

model.load("model.tflearn")

except:

model.fit(training, output, n\_epoch=1000, batch\_size=8, show\_metric=True)

model.save("model.tflearn")

**‘’’input is taken converted into bag of words which is passed as an argument and prediction of**

**Answer is taken from the model and most probable answer is printed out’’’**

def bag\_of\_words(s, words):

bag = [0 for \_ in range(len(words))]

s\_words = nltk.word\_tokenize(s)

s\_words = [stemmer.stem(word.lower()) for word in s\_words]

for se in s\_words:

for i, w in enumerate(words):

if w == se:

bag[i] = 1

return numpy.array(bag)

def chat():

print("Start talking with the bot (type quit to stop)!")

while True:

inp = input("You: ")

if inp.lower() == "quit":

break

results = model.predict([bag\_of\_words(inp, words)])

results\_index = numpy.argmax(results)

tag = labels[results\_index]

for tg in data["intents"]:

if tg['tag'] == tag:

responses = tg['responses']

print(random.choice(responses))

chat()

**Real-time working bot in discord :**

import discord

from discord.ext import commands

TOKEN = ‘XXXXXXXXXXXXXXXXXXXXXXXXXX’ // privacy concerns

description = '''I am ur health bot'''

bot = commands.Bot(command\_prefix='!', description=description)

@bot.event

async def on\_ready():

await bot.change\_presence(activity=discord.Game(name="custom status"))

print('Logged in as')

print(bot.user.name)

print(bot.user.id)

print('------')

@bot.command()

async def hello(ctx):

await ctx.send("I AM UR PERSONAL HEALTH CARE BOT - BAYMAX ")

@bot.command()

async def covid\_19(ctx):

await ctx.send("its a virus stay in home")

@bot.command()

async def fever(ctx):

await ctx.send("its a condition where ur body's temp. behaves abnormally")

@bot.command()

async def covid19\_symptoms(ctx):

await ctx.send("cold,fever,cough,respiratory problems are symptoms")

@bot.command()

async def doctor\_contact(ctx):

await ctx.send("http://www.doctorsdirectoryindia.com/")

@bot.command()

async def cold(ctx):

await ctx.send("The common cold is a self-limited contagious disease that can be caused by a number of different types of viruses. The common cold is medically referred to as a viral upper respiratory tract infection. Symptoms of the common cold may include cough, sore throat, low-grade fever, nasal congestion, runny nose, and sneezing")

@bot.command()

async def cold\_cure(ctx):

await ctx.send("https://www.mayoclinic.org/diseases-conditions/common-cold/in-depth/cold-remedies/art-20046403")

@bot.command()

async def cough(ctx):

await ctx.send("Chronic cough is a cough that persists over time. Chronic cough is not a disease in itself, but rather a symptom of an underlying condition.")

@bot.command()

async def cough\_cure(ctx):

await ctx.send("https://www.medicalnewstoday.com/articles/322394")

@bot.command()

async def heart\_attack(ctx):

await ctx.send("A heart attack is the death of a segment of heart muscle caused by a loss of blood supply. The blood is usually cut off when an artery supplying the heart muscle is blocked by a blood clot. If some of the heart muscle dies, a person experiences chest pain and electrical instability of the heart muscle tissue")

@bot.command()

async def heart\_attack\_prevention(ctx):

await ctx.send("https://medlineplus.gov/howtopreventheartdisease.html")

@bot.command()

async def heart\_attack\_precautions(ctx):

await ctx.send("https://www.mayoclinic.org/diseases-conditions/heart-disease/in-depth/heart-disease-prevention/art-20046502")

@bot.command()

async def flu(ctx):

await ctx.send("Influenza, commonly known as the flu, is an infectious disease caused by an influenza virus. Symptoms can be mild to severe. The most common symptoms include: high fever, runny nose, sore throat, muscle and joint pain, headache, coughing, and feeling tired.")

@bot.command()

async def flu\_symptoms(ctx):

await ctx.send("https://www.cdc.gov/flu/symptoms/symptoms.htm")

@bot.command()

async def malaria(ctx):

await ctx.send("Malaria is a mosquito-borne infectious disease that affects humans and other animals. Malaria causes symptoms that typically include fever, tiredness, vomiting, and headaches")

@bot.command()

async def malaria\_symptoms(ctx):

await ctx.send("https://www.who.int/news-room/fact-sheets/detail/malaria")

@bot.command()

async def malaria\_prevention(ctx):

await ctx.send("http://www.malaria.com/overview/malaria-prevention-control")

@bot.command()

async def malaria\_cure(ctx):

await ctx.send("https://www.who.int/malaria/areas/treatment/en/")

@bot.command()

async def kidney\_stone(ctx):

await ctx.send("https://www.kidneyfund.org/kidney-disease/kidney-problems/kidney-stones/")

@bot.command()

async def kidney\_stone\_cure(ctx):

await ctx.send("https://www.mayoclinic.org/diseases-conditions/kidney-stones/diagnosis-treatment/drc-20355759")

@bot.command()

async def stomach\_ache(ctx):

await ctx.send("The most common cause of localized pain is stomach ulcers (open sores on the inner lining of the stomach). Cramp-like pain may be associated with diarrhea, constipation, bloating, or flatulence. ... Colicky pain is a symptom of more severe conditions, such as gallstones or kidney stones.")

@bot.command()

async def stomach\_ache\_cure(ctx):

await ctx.send("https://www.healthline.com/health/digestive-health/natural-upset-stomach-remedies")

@bot.command()

async def diabetes(ctx):

await ctx.send("Diabetes is a disease that occurs when your blood glucose, also called blood sugar, is too high. Blood glucose is your main source of energy and comes from the food you eat. Insulin, a hormone made by the pancreas, helps glucose from food get into your cells to be used for energy.")

bot.run(TOKEN)

**Clicks of Project:**

**Discord bot(Real-time working Bot):**

A screenshot of a computer screen

Description automatically generated

A screenshot of a computer screen

Description automatically generated

A screenshot of a computer screen

Description automatically generated

**Scope of Use**

You can use this chatbot anywhere you want weather it is your insta wall, facebook messenger, discord QNA bot or even upload it to google cloud databases to provide its access to whole world.Chatbots are being made to ease the pain that the industries are facing today. The purpose of chat bots is to support and scale business teams in their relations with customers. It could live in any major chat applications like Facebook Messenger, Slack, Telegram, Text Messages, etc.

This chatbot is fully customisable and you can also change the surety you want with your answers by setting a mark of say give answer only when you are 70 % sure.

**REFERENCES**

<https://techwithtim.net/tutorials/ai-chatbot/part-1/>

[www.geeksofgeeks.com/machine](http://www.geeksofgeeks.com/machine)

[www.youtube.com](http://www.youtube.com)