CREATE A CHATBOT IN PYTHON

**Objective:**

It depends on your project's context, such as whether you are building a customer service chatbot, a virtual assistant, a sales chatbot, or an educational bot. It's essential to define your objectives clearly to guide the development process and measure the chatbot's success.

**Problem Statement:**

The challenge is to create a chatbot in Python that provides exceptional customer service, answering user queries on a website or application. The objective is to deliver high-quality support to users, ensuring a positive user experience and customer satisfaction.

**Design Thinking Process:**

* Functionality:

The chatbot should be able to answer a wide range of customer questions, including common questions about products and services, as well as more complex questions about billing and account management.

* User Interface:

The chatbot should have a user-friendly interface that is easy to navigate and interact with. The chatbot should also be responsive and provide feedback to users in a timely manner.

* Natural Language Processing (NLP):

The chatbot should use NLP techniques to understand and process user input in a conversational manner.

* Responses:

The chatbot should provide accurate and helpful responses to user queries. The chatbot should also be able to personalize its responses based on the user's context and history.

* Integration:

The chatbot should be seamlessly integrated with the website or app. This will allow users to access the chatbot from anywhere on the website or app, and it will also allow the chatbot to access user data, such as order history and account information.

* Testing and improvement:

The chatbot should be continuously tested and refined based on user feedback. This will help to ensure that the chatbot is meeting the needs of users and providing them with an exceptional customer service experience.

**Phases of Development:**

* Data Collection
* Loading and Preparing the Dataset
* Adding some Common questions
* Decision Tree Classifier
* Visualization of Chatbot

Collection of Data:

We used the provided dataset from Kaggle: <https://www.kaggle.com/datasets/crowdflower/twitter-airline-sentiment>

Loading and Preparing the DataSet:

* Here I’m loading the given dataset using **pandas** dataframe.
* Utilizing read csv function for reading the dataset.

import numpy as np

import string

from nltk.corpus import stopwords

import pandas as pd

df = pd.read\_csv('../input/simple-dialogs-for-chatbot/dialogs.txt',sep='**\t**')

* Preprocessing the libraries
* Optimized the Datasets for Visualize the Chatbot
* Read the datasets from the provided dataset input

from sklearn.feature\_extraction.text import CountVectorizer

from sklearn.tree import DecisionTreeClassifier

from sklearn.feature\_extraction.text import TfidfTransformer,TfidfVectorizer

from sklearn.pipeline import Pipeline

Adding some Common questions:

* Let’s add the some common questions for check the chatbot
* The chatbot will give the answers for your questions what would you given in this.

**a = pd.Series(df.columns)**

**df**

**a = a.rename({0: df.columns[0],1: df.columns[1]})**

**b = {'Questions':'Hi','Answers':'hello'}**

**c = {'Questions':'Hello','Answers':'hi'}**

**d= {'Questions':'how are you','Answers':"i'm fine. how about yourself?"}**

**e= {'Questions':'how are you doing','Answers':"i'm fine. how about yourself?"}**

**df = df.append(a,ignore\_index=True)**

**df.columns=['Questions','Answers']**

**df = df.append([b,c,d,e],ignore\_index=True)**

**df**

**df = df.append(c,ignore\_index=True)**

**df = df.append(d,ignore\_index=True)**

**df = df.append(d,ignore\_index=True)**

**df**

**def cleaner(x):**

**return [a for a in (''.join([a for a in x if a not in string.punctuation])).lower().split()]**

Decision Tree Classifier:

* The chatbot will classifier the commend, as questions or answers by the Pipeline.

Pipe = Pipeline([

('bow',CountVectorizer(analyzer=cleaner)),

('tfidf',TfidfTransformer()),

('classifier',DecisionTreeClassifier())

])

Pipe.fit(df['Questions'],df['Answers'])

Visualize and Result of Chatbot:

* Now we can chat with our Chatbot
* It can answer you what ever you asking in the comment box.

Pipe.predict(['hi'])[0]

'hello'

Pipe.predict(['how are you'])[0]

"i'm fine. how about yourself?"

Pipe.predict(['great'])[0]

'i appreciate that.'

Pipe.predict(['What are you doing'])[0]

"i'm going to change the light bulb. it burnt out."

Innovation Techniques:

* Chatbot in Python involves a combination of techniques and approaches. Here are some innovation techniques and considerations to enhance your chatbot's capabilities:
  + Natural Language Processing (NLP)
  + Intent Recognition
  + Personalization
  + Knowledge Integration, etc.

Libraries used:

* Numpy
* Pandas
* Pipeline
* mpld3