Chatbot for Student Information

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----------**ABSTRACT**----------
Chatbots are computer programs designed to simulate conversation with human users, using auditory or textual methods. It is aimed at resembling a human being in the interaction style thus convincing the user that they are chatting with a human. In this paper we focus our attention on the integration of Intelligent Conversational Agents or Chatbots. This paper aims at solving the user queries regarding an university with the help of a chatbot.It solves the doubts of the users by understanding it using NLP and provide most accurate answers. This chatbot makes use of ANN algorithm to analyse arrive at comparative and intelligent answers.

I. INTRODUCTION

A chatbot could be a service, steam-powered by rules and generally computing , that you simply move with via a talkinterface. The service might be any variety of things, starting frompractical to fun, and itmay board any major chat product (Facebook traveller, Slack, Telegram, Text Messages ,etc). There exists 2 major styles of chatbots. These are literally classified on the premise of development and practicality.

II. CHATBOT THAT FUNCTIONS BASED ON RULES

This bot is very very limited. If the wrong thing is said, it doesn't know what is meant. This bot is only as smart as it is programmed to be.It can only predefined set of questions provided the questions should be asked in the same format.

III. CHATBOT THAT FUNCTIONS USING MACHINE LEARNING:

This bot has an artificial brain which stimulates artificial intelligence. Its not necessary to be ridiculously specific when talking to it. It understands language, not justcommands. It is programmed to think like a human brain. So it is capable of answering alarge number of questions. It does not work on the basis of a predefined question-answer set. Instead it works on the data to provide the answers for the queries.

IV. EXISTING SYSTEM

The two main chatbot systems available with their applications are discussed here. The ELIZA chatbot system is discussed first followed by other system called ALICE.

V. ELIZA

ELIZA is often described as a therapist chatbot.The truth is that the healer ELIZA 'skill' was only one of the many scripts designed by Weizenbaum.It does remain the most well-known, though.This script, DOCTOR, follows simple Rogerian psychotherapy rules to impersonate a real-life therapist.To Weizenbaum's surprise, many people who got to interact with ELIZA attributed human feelings to the machine.Some even got connected to that and refused to believe it absolutely was a machine (including, comically, his own assistant).Finally, ELIZA is regarded as one of the first computer programme scapable of passing the Turing Test.This larva incessantly gets smarter because it learnsfrom conversations it's with individuals.
Elizasimulated communication by employing a 'pattern matching' and substitution methodology.The DOCTOR script that powers ELIZA. It is comparatively straightforward.It assigns a price to every word of a sentence a user inputs and uses the worth to reorder the words within thevariety of an issue.The value of the word is determined by its importance within the sentence. ELIZA was capable of engaging in discourse, but ELIZA could not converse with true understanding.Bots use pattern matching to classify the text and turn out an appropriate response for the users.A standard structure of those patterns is "Artificial Intelligence Markup Language" (AIML).A simple example for pattern matching is given below:

```
<?xml version ="1.0" encoding ="UTF-8"?>

<aimlversion="1.0.1"encoding="UTF-8"?>

<category>

<pattern> HELLO ELIZA</pattern>


<template>

        Hello User

</template>


</category>

</aiml>
```

Here, if the user enters **Hello Eliza** then bot will respond back as **Hello.**

VI. ALICE

Chatbot ALICE's name stands for Artificial Linguistic internet computer Entity. It is a natural language process (NLP) chatbot designed to have interaction in an exceedingly spoken communication by reacting to human input and responding as naturally as attainable. ALICE makes exceptional use of linguistic deflections by victimisation obscure however not monotonous sentences. It is a tongue process chatterbot—a program that engages during a spoken communication with an individual's by applying some heuristical pattern matching rules to the human's input, and in its on-line kind it additionally depends on a hidden person.The program makes use of an XML Schema called AIML for specifying the heuristic conversation rules on the basis of which the bot functions. The main drawback of this chatbot is that it is not meant for any specific purpose and is generalised.

VII. PROPOSED SYSTEM

The proposed system has been designed to solve the purpose of answering the students' and parents' query regarding the colleges of an university. It also aims at overcoming the demerits of the existing chatbots. With the help of this chatbot the users can get complete details of all the colleges under a particular university. Therefore the user need not go to the individual colleges' websites to seek answers. Instead a single bot can provide all details. The added advantage is that it is also capable of answering comparative questions. And so one can get all their doubts clarified and can even choose which is the best college according to their expectations. This chatbot employs NLP and so one need not be very conscious in their question format. Also machine learning is simulated to make the bot think and analyse like human and answer complicated questions.

VIII. METHODOLOGY

First the user enters his question. The question is then subjected to Natural Language Processing.
The first step is preprocessing. The following may be a list of a number of the foremost normally researched tasks in language process.

8.1. Grammar induction

Generate a formal grammar that describes a language's syntax.

8.2. Lemmatization

The task of removing inflectional endings only and to return the base dictionary form of a word which is also known as a lemma.

8.3. Morphological segmentation

Itseparate words into individual morphemes and determine the category of morphemes.

8.4. Part-of-speech tagging

Given a sentence, determine the part of speech for each word.

8.5. Parsing

Determinethe break down tree (grammatical analysis) of a given sentence.

8.6. Sentence breaking

Given a piece of text, notice the sentence boundaries.

8.7. Stemming

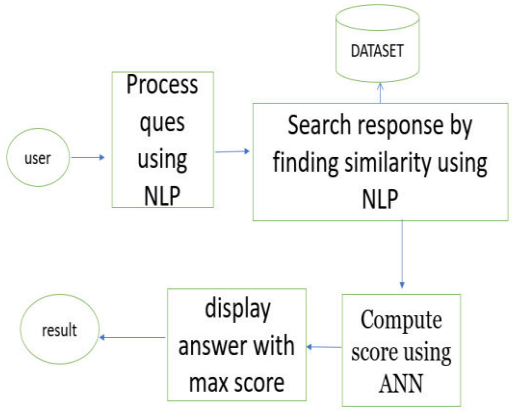
Stemming is that the method of reducing inflected (or generally derived) words to their word stem, base or root form.

8.8. Sentiment analysis

Extract subjective data typically from a collection of documents.And finally as a result of NLP the question is split into tokens and they are returned as output.

- The second step is involved with searching the response from the dataset. Using the tokens got from NLP the dataset is searched for questions containing the tokens.
- Next step is the computation of scoreusing Artificial Neural Network.The identified questions from the dataset are converted into vectors. Naïve Bayes classifier computes the score and decides which question provides the most relevant answers to the users' query.
- Finally the question with the maximumscore is selected and answer for that question is displayed as output to the user.
- The additional feature is that if the bot does not contain the relevant answer, then it notifies the admin about that particular question and the mail id from the user is got to notify them about the answers.

IX. ARCHITECTURE



X. IMPLEMENTATION

The above proposed system is implemented using Anaconda Navigator. Applications like Spyder, JupyterLab are available as default applications in Anaconda Navigator. Anaconda Navigator is a desktop

graphical user interface that allows users to launch application and manage conda packages, environments. This chatbot is designed as web application which let users to get answer for the frequently asked questions. Web frameworks like django framework is used to create this as web based application. Registration details of users are stored in PostgreSQL. The details which are stored in PostgreSQL are for admin side references and it can be accessed only by admins. FAQ of three colleges are collected and maintained as dataset . Machine learning algorithms are coded in python language.

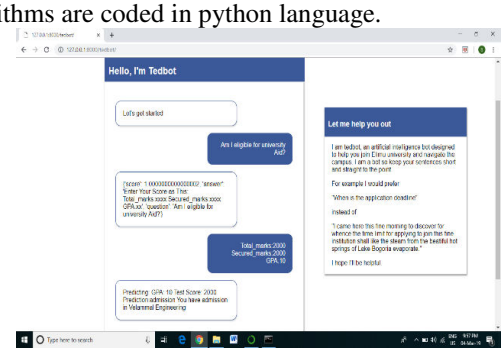


Fig: chat screen

XI. CONCLUSION

The primary purpose of this chatbot is to answer FAQ of three colleges under an university. This purpose is fully attained through this web based chatbot which answers to users query regarding three colleges under an university. FAQ of three colleges are analysed and maintained as dataset. System uses these trained data and finds the best match to user query using NLP. Information like total marks, gpa of students in their higher secondary are also analysed and stored as dataset. Along with this dataset system uses ANN algorithm to classify and predict the chances of admission in a particular college.

XII. FUTURE WORK

Currently this chatbot has been devoloped to answer questions of three colleges of an university. This may extended to many other colleges in future. Enhancements like voice based chat, group chat would also be done in future to make this application more user friendly. More appealing and understandable responses would also be provided in future using graphs, images etc.

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