

A Synopsis on

Dexter- The College FAQ ChatBot

Submitted in partial fulfillment of the requirements
of the degree of

Bachelor of Engineering

in

Information Technology

by

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2019-2020

CERTIFICATE

This is to certify that the project Synopsis entitled “***Dexter - The FAQ Chatbot***” Submitted by “***Ajinkya Huddar (15104047)***” “***Chintan Suchak (16104069)***” “***Chaitanya Bysani (16104045)***” for the partial fulfillment of the requirement for award of a degree ***Bachelor of Engineering in Information Technology***.to the University of Mumbai, is a bonafide work carried out during academic year 2019-2020

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Abstract

:Chatbot is a new and upcoming technology which has great demand in various industries. The main goal of a chatbot is to create a human like conversation between a human and a machine, so as to reduce the work stress. Chatbot can be implemented in any industry easily, unlike any other product where the products needs to be developed and tested before switching platform. In colleges, especially during the time of admission, reception gets crowded and people have to wait to get their queries solved. If any person wants to know about the college, then he/she has to travel all the way to the college. Al though every college has its own website, not everybody is able to find the answer to their query. Colleges are not working on weekends, so if someone wants to visit or call reception to get their query answered they will have to wait until any working weekday. To solve these problems, we will create a AI chatbot. This chatbot will be embedded on the college website and will be able to answer any college-related query easily. Chatbot will be able to answer multiple persons at the same time, people don't have to visit the college to get their query solved and it will be available 24/7.

Introduction

A chatter bot is a computer program which conducts a conversation via auditory or textual methods. Such programs are often created to convincingly simulate how a human would behave as a conversational partner, thereby passing the Turing test. Chatbots are mainly used in dialog systems for various practical purposes including customer services or information acquisition. The chatbot is a technology which is growing really fast. Chatbots are being used increasingly in many other sectors, such as banking, messaging apps as well as in the medical sector. In this project, we will be developing one such chatbot which will help solve any queries which are associated with college FAQs. Whenever a student takes admission in a new college or wants to take admission in a new college, they might have lots of queries in their mind. Students might be reluctant to ask about the query to any faculty or reception and might end up with assuming the wrong answer or it might be the case where a student is not able to takeout time from his/her busy schedule. So to solve all these difficulties, we have proposed an AI Chatbot. This chatbot will be working on Artificial Intelligence. Artificial Intelligence is a technology which provides human-like intelligence to a machine. This chatbot will be using this technology to create an answer for even those queries whose answers are not available in the database.

Objectives

- To reduces the work stress of reception.
- To make navigation through the college website easier for students
- To provide answers regarding “What do I do know?” questions.
- To improve Query Handling System since chatbot is available 24 x 7.
- To help new student get familiar with the new Environment.

- To help students give a brief idea about college so that they can decide whether they should visit the college or not.

Literature Review

In literature[1] - The authors have described about how the number of individuals looking for well being data from the web increments drastically. A few elements impact individuals to utilize the web for scanning for well being data. Confided in restorative data, for example, infections, side effects, and treatment is important for individuals to deal with some broad sickness or being utilized as a bit of choice help data before visiting a specialist. In this work, the therapeutic guide framework called "MedBot" was created by utilizing Dialog flow controlled by Google's machine learning. The learning base for correspondence comprise of 16 symptoms. The chatbot can be executed in Instant Messaging (IM) application, or online for example, Facebook, Hangout, and Line by utilizing the given API's. In this work, Line is utilized as the test framework for examination. The target of this work is to expand the administration capacity and decline the activity cost of medical consultancy administration by utilizing the chatbot. The down side to this chatbot was, there was no implementation of the neural network making it a chatbot which will only answer those questions which are fed in the chatbot's database. This restricted the knowledge base of the chatbot to the minimum value and to increase the knowledge base values had to be fed in the database manually.

In literature[2]- The author describes about a chatbot whose exploration displays a strategy for creating chatbots to serve their clients. All in all, these chatbots are utilized for responding to inquiries in numerous organizations, giving client data, giving train plans, making a difference client reservations, menial helpers; fill in as call focuses to serve ten million clients naturally. A profound learning based conversational man-made brain power procedure was utilized as apparatuses for learning discussion among machine and client. Additionally, the means required are the procedure utilized related to the convolution neural system strategy by utilizing Tensorflow preparing to improve the precision of these chatbots. From the exploratory out comes, utilizing profound learning for chatbots learning, the precision is superior to the customary model. This article has not used cloud for their databases to rage which takes a little longer to fetch data. Hence the speed off etching is slow.

In literature[3]- The author describes how the quantity of web-based business clients has expanded quickly. In 2017, the number of computerized purchasers was over 1.66 billion individuals world wide up from 1.32 billion in 2014. The paper also gives information about on line shops which regularly require administrations, for example, live talk for clients support. In any case, such live talk needs administrators to hold on to visit with clients. Then again, if shops give online clients that administrators work for just certain hours, at that point clients, need to sit tight for a response for quite a while. As the quantity of clients has expanded by about 10 percent every year, the interest for the client the administration additionally increments. Great online client administrations will prompt higher consumer loyalty and developing benefit. To tackle the problem of solving queries related to e-commerce, authors came up with an idea of converting online client support methodologies to a robotized chatbot to reply to clients' inquiries consequently. The chatbot will deal with client issue reports and answers about sim-

ilar answers for a similar sort of issues. One of the ideal and effective online client support methodologies are to give a robotized chatbot to reply to clients' inquiries consequently. The chatbot will deal with client issue reports and answers about similar answers for a similar sort of issues. This article researched how to structure and build up a chatbot to reply FAQs in a particular space. Specifically, they utilized a profound learning AI model that was fit for gaining from a enormous information and further more utilized LSTM for managing a arrangement in language. The AI model will order expressions of inquiries with each class having their answers. The downside to this article was, the chatbot developed was retrieval-based chatbot, which means it will not be able to answer anything outside its database.

Problem Definition

The main reason behind choosing this topic as the project was that many students were facing issues regarding the updates of revaluation examinations or results, about any important notice and events going on in the college. It becomes really difficult for students who stay far away from the college and they just have to come to college for inquiry purpose. Even reception becomes complete chaos during the time of admission, many students and parents visit the college reception to get their queries solved. The receptionist will only be able to handle 2 to 3 person at a time and others will have to wait for their turn. This will also cause tiredness for receptionist. To overcome this problems, we are making the graphical user interface inquiry chatbot which gives 24*7 updates regarding any ongoing events or notice. The main motive is to design a chatbot which will simulate a conversation with any user and provide them suitable answers regarding any college-related queries.

Proposed System Architecture/Working

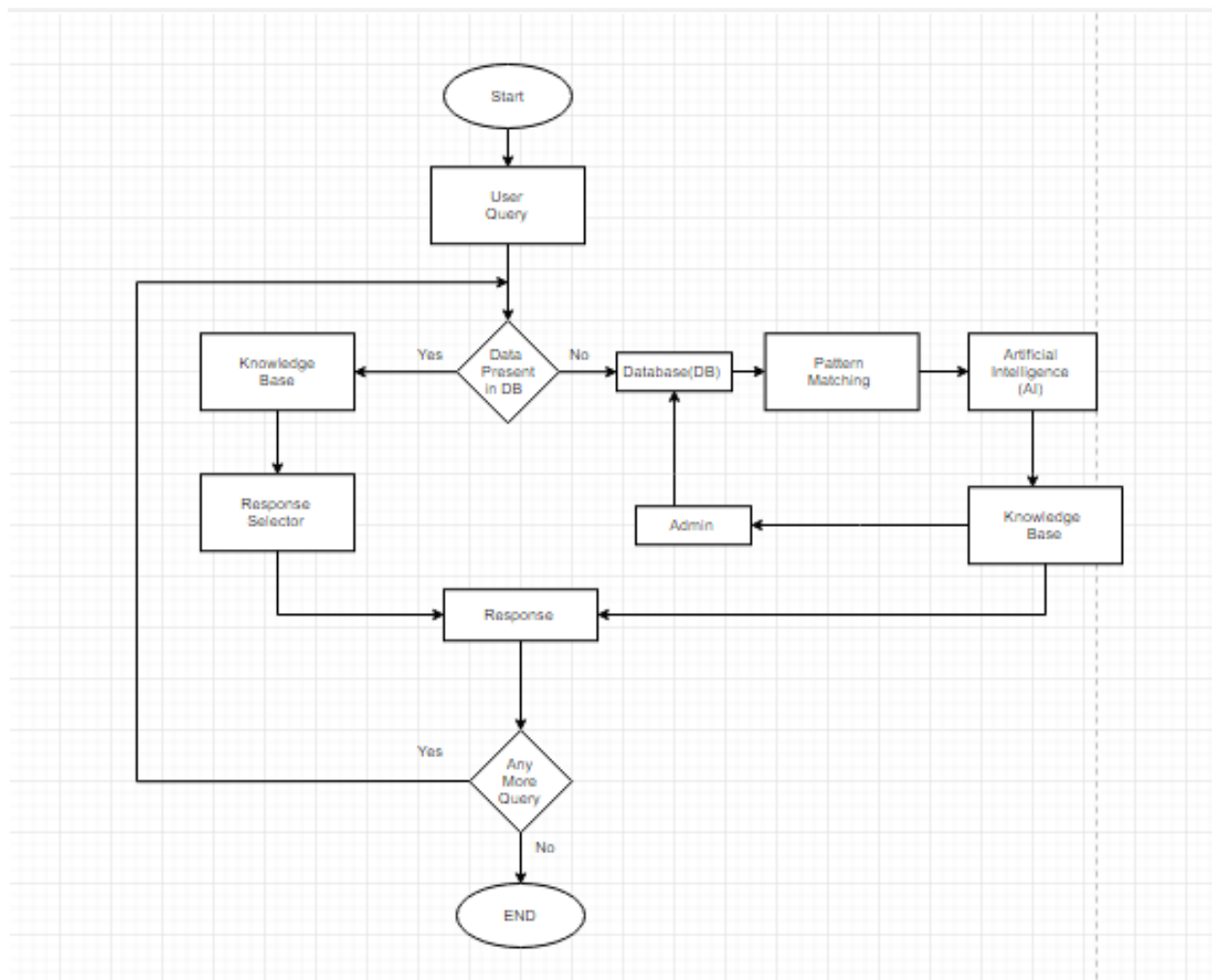
Architecture of Chatbot

The chatbot to be developed will be a web-based chatbot. This chatbot will provide answers to all the questions whose answers are predefined in the database. The database will be created in the cloud so that whenever we want to make any modifications in our database, we can do it without any difficulty. The chatbot will have Artificial Intelligence which will allow it to produce answers for even those question whose answers are not defined. Artificial Intelligence will be provided with the help of machine learning. Machine Learning will be done in Python language. The chatbot will be Generative model because of which it will be able to generate new responses from scratch. It will be done by using RNN (Recurrent Neural Network) and LSTM (Long Short Term Memory). We will use Rasa Stack for the development of our chatbot. Rasa Stack is an open source development tool which provides a platform for developing a chatbot. The chatbot will have an appealing GUI which will draw interest in the user to use the chatbot.

Working of the Chatbot

User will first ask their query to chatbot, Chatbot will check if the answer to that query is available in database or not. If the answer to the query is available, it will provide respective answer. If the answer is not present, it will perform pattern matching and artificial intelligence

to build an answer and will send an alert to admin to add this query to the database After that it will provide the response and ask if the user has any more query If not the chatbot closes.



Design and Implementation

Detailed Explanation -

Stories.md file -

Rasa stories are a form of training data used to train the Rasa's dialogue management models. A story is a representation of a conversation between a user and an AI assistant, converted into a specific format where user inputs are expressed as corresponding intents (and entities where necessary) while the responses of an assistant are expressed as corresponding action names. A training example for the Rasa Core dialogue system is called a story.

Data.md file -

This is the file where we save our training data for extracting the user intent. Intents are intentions i.e what a user wants to accomplish. The lines starting with double hash define the

names of your intents, which are groups of messages with the same meaning. Rasa's job will be to predict the correct intent when your users send new, unseen messages to your assistant.

Domain.yml -

The domain is the world of our chatbot. It contains everything the chatbot should know, including: All the actions it is capable of doing, the intents it should understand, the template of all the utterances it should tell the user, and much more.

```
Open ▾ stories.md
~/Documents/Chatbot/data

- utter_toldt_branch

## say affiliate
* affiliate
  - utter_affiliate

## say facilities
* facilities
  - utter_facilities

## interactive_story_1
* greet
  - utter_greet
* affiliate
  - utter_affiliate
* seats_in_comp
  - utter_seats_in_extc
* seats_in_extc
  - utter_seats_in_extc
* seats_in_it
  - utter_seats_in_it
* seats_in_comp["seats": "it extc comps mech civil"]
  - utter_seats_in_comp
* seats_in_it
  - utter_seats_in_it
* seats_in_comp
  - utter_seats_in_comp
* seats_in_extc
  - utter_seats_in_extc
* seats_in_mech
  - utter_seats_in_mech
* seats_in_civil
  - utter_seats_in_civil
* affiliate
  - utter_affiliate
* facilities
  - utter_facilities
```

```
Open ▾ nlu.md
~/Documents/Chatbot/data

## intent:affiliate
- MU Affiliated ?
- Is this college MU affiliated ?
- ap shah mu affiliated ?
- is this college mu affiliated ?
- this clg affl with mu ?
- affiliate
- affiliated

## intent:affirm
- yes
- indeed
- of course
- that sounds good
- correct
- perfect

## intent:branch_civil
- Civil
- civil

## intent:branch_comp
- Computer Science
- cs

## intent:branch_extc
- EXTC
- extc

## intent:branch_it
- Information Technology
- IT
```



```
domain.yml
~/Documents/Chatbot

Intents:
- affiliate
- seats_in_comp
- facilities
- seats_in_mech
- seats_in_it
- seats_in_extc
- greet
- seats_in_civil
- goodbye
- affirm
- deny
- mood_great
- mood_unhappy
- branch_it
- branch_comp
- branch_extc
- branch_mech
- branch_civil
- total_branch
entities:
- seats
templates:
  utter_affiliate:
    - text: Yes, AP Shah Institute of Technology is Mumbai University (MU) Affiliated.
  utter_cheer_up:
    - image: https://i.imgur.com/nGF1K8f.jpg
    - text: 'Here is something to cheer you up:'
  utter_did_that_help:
    - text: Did that help you?
  utter_facilities:
    - image: https://www.apsit.edu.in/sites/default/files/inline-images/Facilities%20provided.jpg
    - text: 'Our Institute Provides : '
  utter_goodbye:
    - text: Bye,see you later
  utter_greet:
    - text: Hey there My name is Dexter, How can i assist you today ?
```

Summary

The work presented in this report is related to Machine Learning Chatbot.

- Artificial Intelligence
- RNN (Recurrent Neural Networks)
- LSTM (Long Short Term Memory)

A Student bot project is built using artificial algorithms that analyzes user's queries and understand user's message. This System is a web application which provides answer to the query of the student. Students just have to query through the bot which is used for chatting. Students can chat using any format there is no specific format the user has to follow. The System uses built in artificial intelligence to answer the query. The answers are appropriate what the user queries.

References

- [1] Nudtaporn Rosruen and Taweesak Samanchuen “Chatbot Utilization for Medical Consultant System”, The 2018 Technology Innovation Management and Engineering Science International Conference(TIMES-iCON2018)
- [2] SathitPrasomphan, “Improvement of Chatbot in Trading System for SMEs by Using Deep Neural Network”,2019IEEE4th International Conference on Cloud Computing and Big Data Analytics.
- [3] Panitan Muangkammuen,Narong Intiruk, Kanda Runapongsa Saikaew, “Automated Thai-FAQ Chatbot using RNN-LSTM”,

1 Publication

Paper entitled “**Dexter- The College FAQ ChatBot**” is presented at “**IEEE**” by “**Ajinkya Huddar**” “**Chintan Suchak**” and “**Chaitanya Bysani**”.