Recruitment Website

Version Control

Author	Date	Version No.	Project Details
Dhairya Lunia	30-June-2022	1	Basic Chatbot that could respond a few limited question using keywords
Dhairya Lunia	30-June-2022	2	Basic Chatbot that would provide the users with certain option of responses
Dhairya Lunia	30-June-2022	3	3rd level AI Based chatbot Bag-of-Word (BoW) algorithm to find intent and Conditional Random Field (CRF) to find entities using RASA

Related documents

Title	Author
Requirement Document	Dhairya Lunia

Distribution List

Name	Email Address	Action (*)
Dhairya Lunia	dhairyaluniawork@gmail.com	
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(*) Action types: Approve, Inform and Review

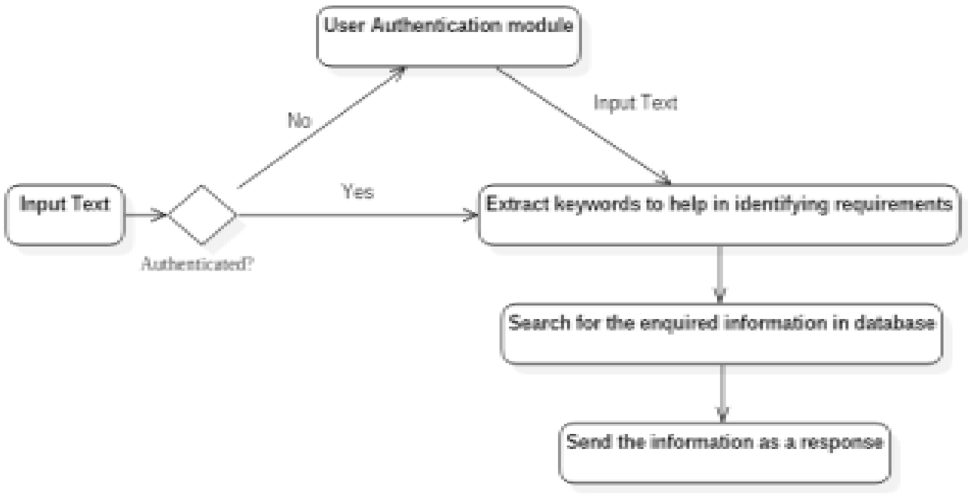
PROJECT DETAILS

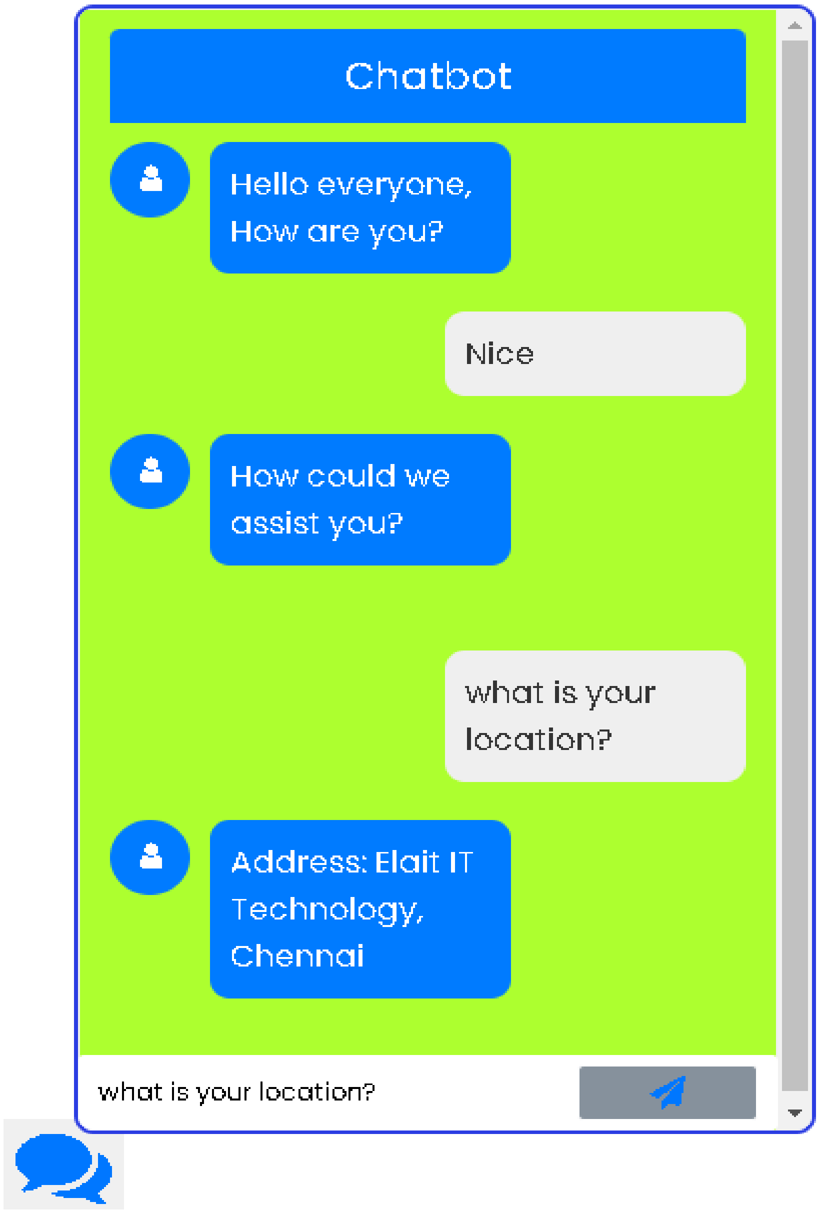
General Structure: A given web site will have a button which upon clicked could enable an IFRAME page(like a popup window) that would refer another HTML document containing the chatbot structure.

We can integrate the IFRAME in any website by just inserting the IFRAME code.

VERSION 1:

Keywords based bots classify text and produce a response based on the keywords they see. The chatbot only knows responses to questions that exist in their models. The bot cannot go beyond the patterns already implemented into its system based on the keywords.


User Authentication module
No
Input Text
Input Text
Yes
Authenticated?
Extract keywords to help in identifying requirements
Search for the enquired information in database
Send the information as a response



Chatbot

Hello everyone, How are you?

Nice

How could we assist you?

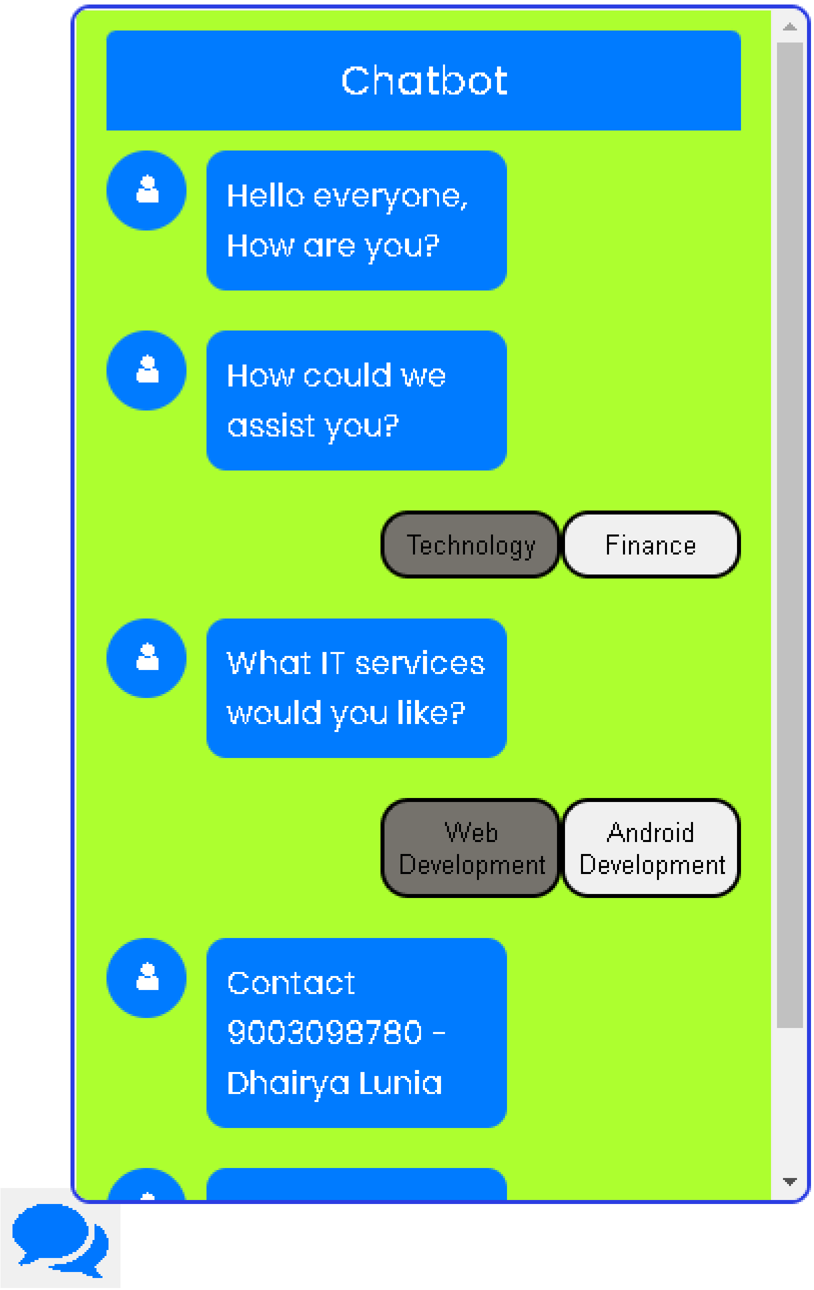
what is your location?

Address: Elait IT Technology, Chennai

what is your location?

VERSION 2:

In this version user is given the option of responses based on which the user could choose. Based on the choice of users, further responses or options are given to the user using functions in Javascript for particular options.



Chatbot

Hello everyone, How are you?

How could we assist you?

What IT services would you like?

Contact 9003098780 - Dhairya Lunia

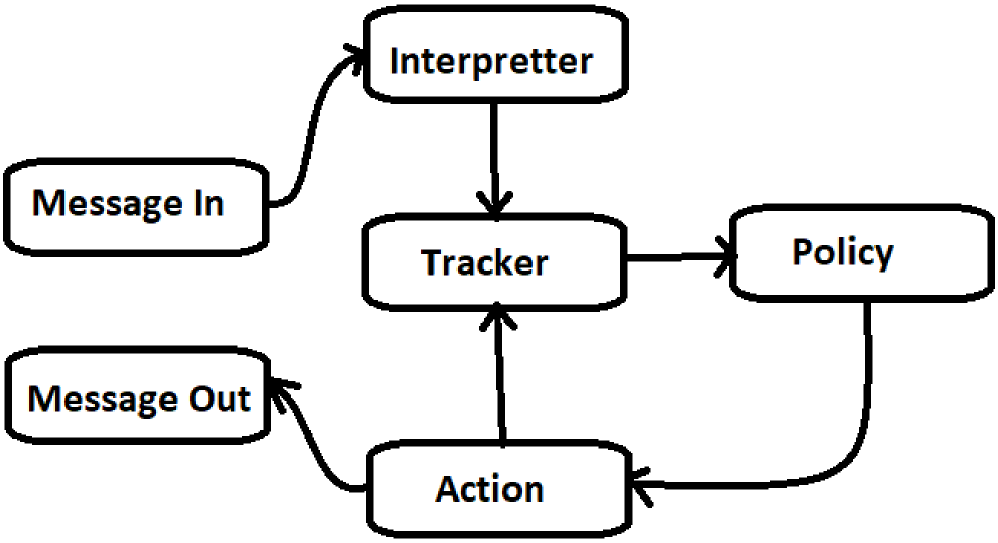
VERSION 3:

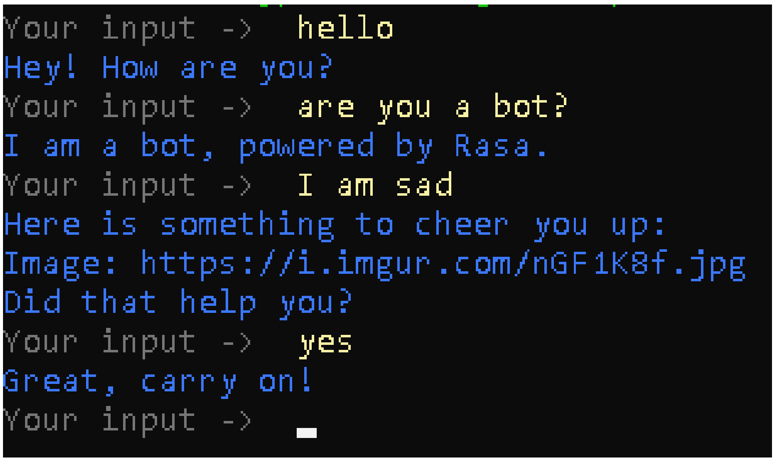
Rasa is an open-source framework to build text using Py. It's working at Level 3 of conversational AI, where the bot can understand the context. A level 3 conversational agent can handle things like the user changing their mind, handling context and even unexpected queries.

Using Bag of Words Algorithm, features from the text are extracted and responses are chosen from of bag of responses bases on the query.

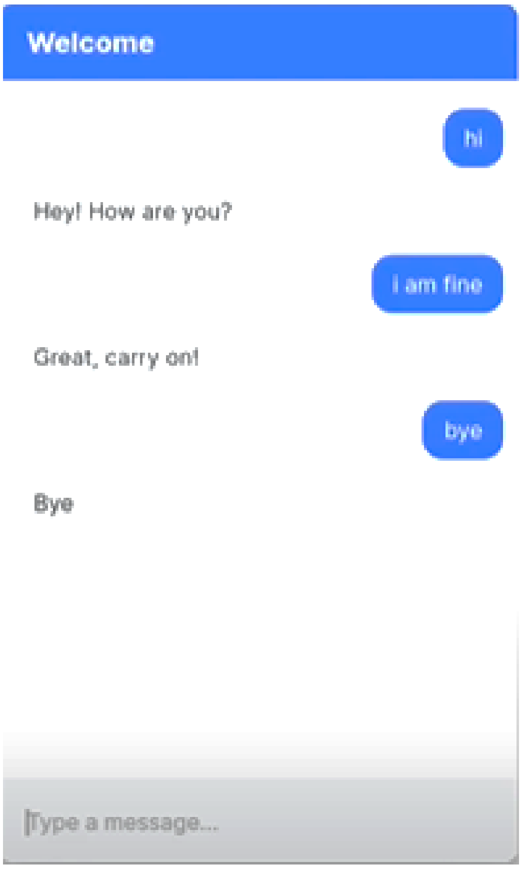
Whenever a person types and send a message to the RASA chatbot it will be received and passed to the Interpreter. It is this interpreter which identifies the intent of the message and extracts the entities out of it.

There is a Tracker present, which always tracks the state of the conversation between the user and the bot. Policy in the architecture tracks the current conversation state and decides which is the appropriate bot action. The selected action is also then tracked by the tracker and then sent to the user as the reply.





```
Your input ->  hello
Hey! How are you?
Your input ->  are you a bot?
I am a bot, powered by Rasa.
Your input ->  I am sad
Here is something to cheer you up:
Image: https://i.imgur.com/nGF1K8f.jpg
Did that help you?
Your input ->  yes
Great, carry on!
Your input ->
```



hi

Hey! How are you?

i am fine

Great, carry on!

bye

Bye

REQUIRMENT DOCUMENT

Introduction

- This document details the project plan for the development of “ChatBot.”

- It is intended for developers, designers, and testers working on “ChatBot”

Objectives

-To analyze users queries and understand users message.

-To provide an answer to the query of the user very effectively.

-To save the time of the user since s/he does not have to personally go to the college for inquiry.

-This system will help the users nd provide updates

-The system will reply using an effective GUI which implies that as if a real person is talking to the user

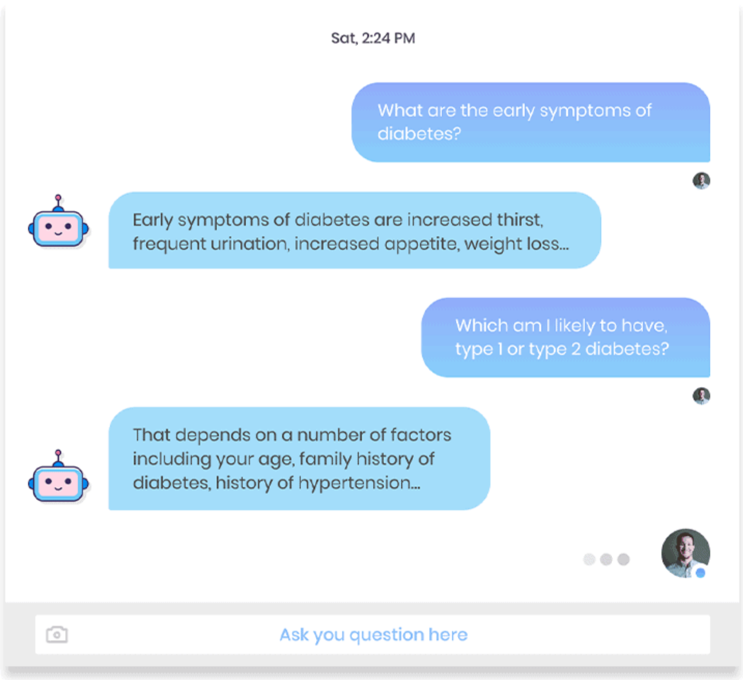
Functionality.

- Users should be able to input their queries into the ChatBot
- They would be able to get instant reply and a feedback based on their query
- The application should be able to store the inputs and get the relevant feedback from the database

Platform

- The application will be developed using HTML to enable the creation of a web-based application
- CSS and Javascript is used to design and add the functionalities
- These applications will be connected to a database to store and retrieve the chats.
- The algorithm for the ChatBot will be developed and bots will be trained and then tested.

Sample



Sat, 2:24 PM

What are the early symptoms of diabetes?

Early symptoms of diabetes are increased thirst, frequent urination, increased appetite, weight loss...

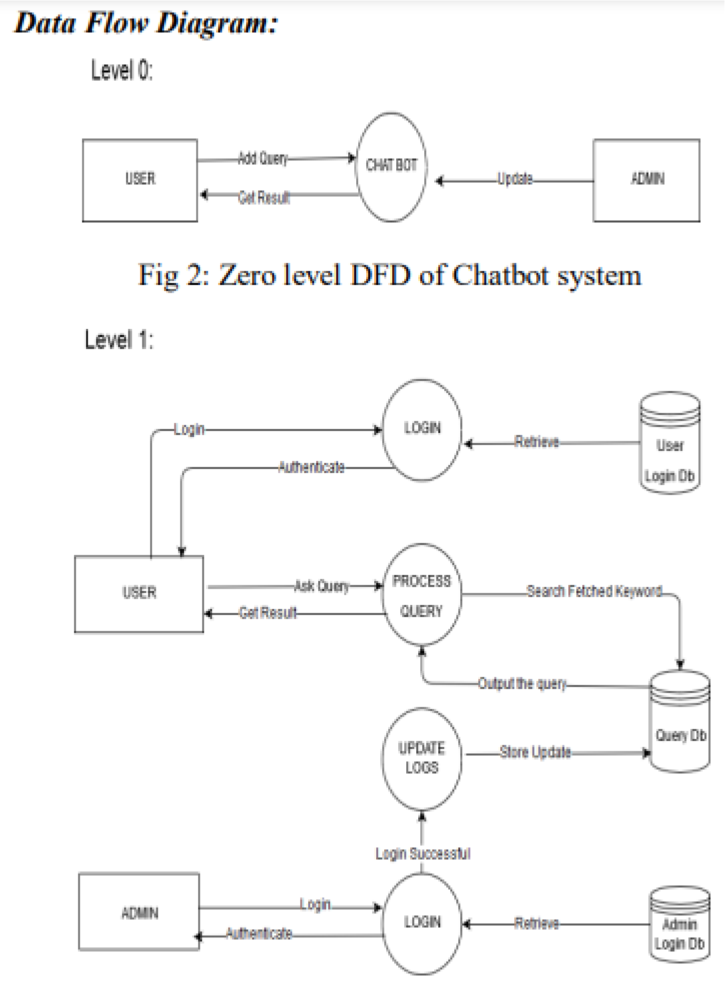
Which am I likely to have, type 1 or type 2 diabetes?

That depends on a number of factors including your age, family history of diabetes, history of hypertension...

***Steps* involved in building a Chatbot**

- Step 1: Identify the type of chatbot you are building
- Step 2: Select a channel
- Step 3: Choose the technology
- Step 4: Design the conversation
- Step 5: Deploy and maintain the bot

Working



Data Flow Diagram:

Level 0:

Fig 2: Zero level DFD of Chatbot system

Level 1:

How do Bots and Chatbots Work?

There are 2 fundamental classification methods used to run a professional chatbot.

TYPE 1:

The first option is to create a pattern-matching bot. Pattern-matching bots classify text and produce a response based on the keywords they see. In pattern-matching, the chatbot only knows answers to questions that exist in their models. The bot cannot go beyond the patterns already implemented into its system.

TYPE 2:

Another option for today's chatbots is to use algorithms. For each kind of question, a unique pattern needs to be available in a database for the bot to provide the right response. With various combinations of trends, it's possible to create a hierarchical structure. Algorithms are how developers reduce the classifiers and make the structure more manageable. The classic algorithm for NLP and text classification is Multinational Naïve Bayes.

The new generation of chatbots are NLP-powered *virtual agents* that get smarter each day. They keep track of information throughout the conversation and learn as they go.

Training and Iteration: To ensure your NLP-powered chatbot doesn't go awry, it's necessary to systematically train and send feedback to improve its understanding of customer intents using real-world conversation data being generated across channels.

Natural Language Processing: Your chatbot's NLP works off the following keys: utterances (ways the user refers to a specific intent), *intent* (the meaning behind the words a user types), entity (details that are important to the intent like dates and locations), context (which helps to save and share parameters across a session), and session (one conversation from start to finish, even if interrupted).

The best approach towards NLP is a blend of Machine Learning and Fundamental Meaning for maximizing the outcomes. Machine Learning only is at the core of many NLP platforms, however, the amalgamation of fundamental meaning and Machine Learning helps to make efficient *NLP based chatbots*.

chat

Machine Language is used to train the bots which leads it to continuous learning for natural language processing (NLP) and natural language generation (NLG). Both ML and FM has its own benefits and shortcomings as well. Best features of both approaches are ideal for resolving real-world business problems.

Here’s what an NLP-based bot entails :

1. Lesser false positive outcomes through accurate interpretation.

2. Identify user input failures and resolve conflicts using statistical modeling.

3. Use comprehensive communication for user responses.

4. Learn faster to address the development gaps.

5. Achieve natural language capability through lesser training data inputs.

6. Ability to re-purpose the input training data for future leanings.

7. Provide simple corrective actions for false positives.