Hospital Management System with Chatbot

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Abstract— Chatbots receive increasing attention from media and industry, but at the same time it is not yet well known what chatbots really are, what they can be used for and how to create them. The goal of this work is to answer these three questions by analyzing existing platforms, products and technologies, and additionally developing an exemplary chatbot. Explaining what chatbots are, demystifying what to use them for and showing how to create them will help more people to be able to use and create chatbots and thereby accelerate the development of the chatbot ecosystem. Starting by defining fundamental terms, the first half of the work focuses on showing available platforms, products and technologies, while the second half guides through the development of an exemplary chatbot, including user interaction design and software architecture.

Index Terms— chatbot, AI, NLP, Ecosystem

I Introduction

This work gives a general introduction to chatbots by explaining what they are, what they can be used for and how to develop them. No previous domain-specific knowledge is required. Lately as of writing topics around chatbots have received increasing attention from media and also numerous investments from different actors in the industry. At the same time not many potential users know about the existence of chatbots or about areas in which chatbots could be helpful assistance. The topic is equally unknown to developers. While the term chatbot is commonly used in media, the meaning mostly remains ambiguous. There is a need for further explanation of what chatbots are and further analysis to identify well suited applications for chatbots. Additionally to spreading knowledge about the potentials of chatbots and their use cases, more developers should be enabled to create new, innovative chatbots. The lack of knowledge can be solved by providing answers to the questions of what chatbots are, what benefits they bring and how to create them. An appropriate definition of chatbots can be given by analyzing the fundamental meaning of the term chatbot and by exploring past and current applications. Use cases of chatbots can be identified in existing products. Market trends and attributes of media and technology can be analyzed to find new potential scenarios for the usage of chatbots. Development is best explained by creating a real chatbot and by using it to present the general principles of the development process. Explaining what chatbots are, demystifying what to use them for and presenting how to create them, will help more people to be able to use and create chatbots, and thereby, accelerate the development of the chatbot ecosystem. Innovation in technology and the creation of new solutions can help automating and simplifying more tasks, which gives people the opportunity to focus on more interesting issues and accomplish more things. Chatbots have the potential to simplify and automate many existing tasks and thereby accelerate the overall technological progress.

The structure of this work follows the three main questions. To begin with, terminology is defined and applications are explored to form a definition and understanding of what chatbots are. Afterwards use cases of chatbots are identified not only through the collection of existing examples, but also through the exploration of future potentials by analyzing attributes of the relevant technologies. The second half of the work is a case study for the development of a chatbot. The presented example guides through the process of designing user interactions for a chatbot, and additionally explains architectural decisions and technological choices, which

provide a basis for other developers to buildon when creating new chatbots in the futurey

2 Literature survey

2.1 "Intelligent Chatbot for Easy Web-Analytics Insights". In 2018 International Conference on Advances in Computing, Communications and Informatics (ICACCI) (pp. 2193-2195). IEEE [5].

In this paper, a comparison is done based on their ease of usage, using different analytic tools. The chatbot is built using Artificial Intelligence Markup Language contain analytics' raw data and the required data is fetched from the analytics tool's raw data. Every website note all the details user made. AIML comprises of possible queries and their responses. It consists of 3 elements such as template, categories and pattern. Each category contains pattern and a template. Patterns are the possible queries that the bot-user may type in and the template is the response to the respective pattern [5]. There are 3 query scenarios that can be considered [5]

2.2 "Recruitment Chatbots", International Research Journal of Engineering and Technology (IRJET), vol. 5, Issue: 08, Aug 2018[1]

hiring the right candidate. Using simply a chatbot can be a solution to this problem. Recruiters can use this in day-to-day life to automate time-consuming tasks [1].

Describing the designing process of interaction between the chatbot and the user. It uses dialogues systems, and they are of two types [1]: 1) Goal Oriented Dialogue Systems. 2) General conversation Dialogue Systems.

We use Generative and Selective approaches in recruitment chatbot which needs a general conversational dialog system. The Machine Learning principle is a core philosophy for both these approaches: Build it, Train it, and Test it. By using bot characteristics, constraints, dialogue dataset, access flow, and Sequence tokens this model is built.

2.2 Classification Technique of Interviewer-Bot Result using Naïve Bayes an Phrase Reinforcement Algorithms," International Journal of Emerging Technologies in Learning (iJET), 13(02), 33-47, 2018[2]. Authors: Sarosa, M., Junus, M., Hoesny, M. U., Sari, Z., & Fatnuriyah, M.

In this paper authors have classified the outcomes of a job interview among the the interviewer-bot and user by using Naïve Bayes algorithm.

It is easy to understand and implement.

- Any kind of complex optimization is not required.
- It is easily updated if new training data is received.

Sometimes independence assumption may seem unreasonable, but its performance is usually good

3 Implementation Study

Before exploring new technology one should examine prior work and learn from past ideas, both succeed and also failed attempts. This section presents a selection of events from the last century, which introduced the ideas that formed the present definition of a chatbot. It is not an attempt to give an all-encompassing overview about the history of computing, instead the aim is to explain where the concept of chatbots and the interest of creating them originated from.

3.1proposed methodology

This is an automated chat robot design to answer users frequently asked questions, earlier natural language processing techniques were using to design this robots but its accuracy of giving correct answer was less and now due to Deep Learning algorithms accuracy of giving correct answer increase, so here using python deep learning project we are building CHATBOT application to answer users questions.

To implement this technique first we train deep learning models with the train data (all possible question's answers) and whenever users give any question then application will apply this test question on train model to predict exact answer for given question.

Earlier companies were hiring humans to answer user's queries but by using this application we can answer user's question without using any man power.

Chabot can be described as software that can chat with people using artificial intelligence. Chabot 's are generally used to respond quickly to users. Chabot's, a common name for automated conversational interfaces, present a new way for individuals to interact with computer systems. Traditionally, to get a question answered by a software programinvolves using a search engine, or filling out a form. A Chabot allows a user to simply ask questions inthe same manner that they would address a human. There are many well-known voice-based catboatscurrently available in the market: Google Assistant, Alexa and Siri. Chabot's are currently being adoptedat a high rate on computer chat platforms.

To implement this project we are using python deep learning neural networks and NLTK (natural Language Processing API) to process train and test text data.

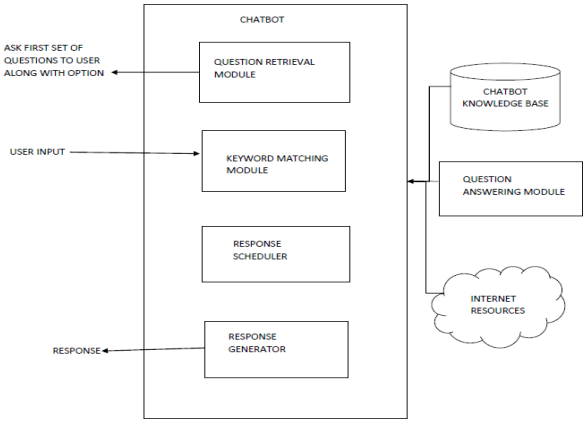

Fig 1: - flow of proposed system

3.2 Methodology

This application consists of 4 modules

New user Registration: Using this module users can sign up with the application.

Login: Using this module user can login to application

Chabot: Using this module users can interact with Chabot

Logout: Using this module users can exit from the application

4 Results and Evolution Metrics

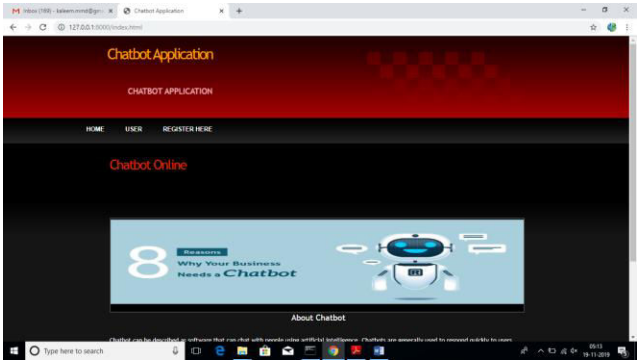

Fig 2:_ Main screen

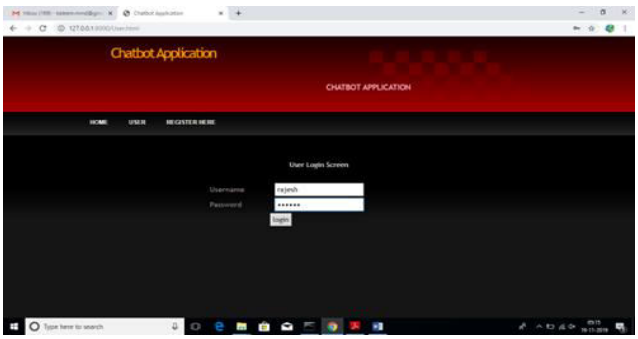

Fig 3:- login screen

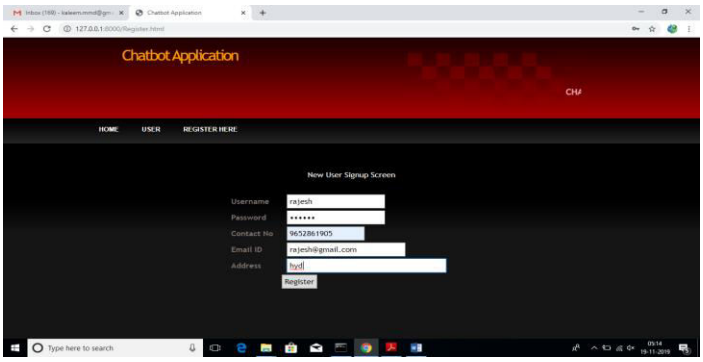

Fig 4: Registration page

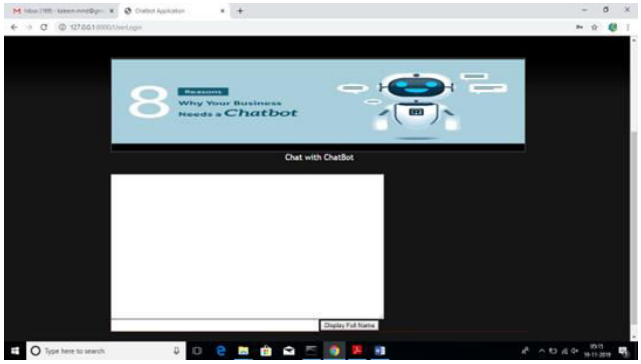

Fig 5: _ chat bot page

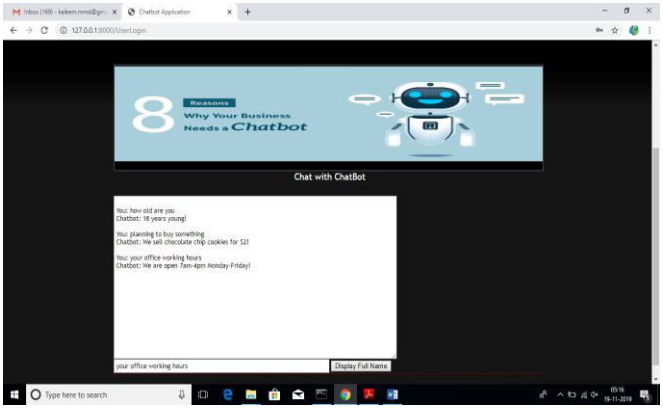

Fig 6: - In above screen we can see I asked 3 questions and chat bot answer them correctly. Similarly we can ask any question and chat bot can answers those questions as long as those question answers are available inside training model of deep learning object.

5 Conclusion

This work introduced the fundamentals of what chatbots are. It gave an overview about ideas, products and platforms, both, from the past and available today. The current interest in chatbots, potential use cases and limitations have been explored in detail. Different aspects of the implementation of a chatbot and working with

conversational interfaces have been presented through the creation of an exemplary chatbot, which included interaction and user experience design, and a general, reusable software architecture for chatbots. While not all aspects can be covered within the context of this work, the goal was to give an overview about what chatbots are, their use cases and how to create them. This knowledge should help exploring further possibilities of chatbot usage and it should enable more developers to apply chatbots to new scenarios and thereby also improve human-machine interaction in general.

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