PyBot- A chatbot for answering python queries

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Abstract: Pybot can change the way learners try to learn python programming language in a more interactive way. This chatbot will try to solve or provide answer to almost every python related issues or queries that the user is asking for. We are implementing NLP using NLTK module for improving the efficiency of the chatbot. We will include voice feature for more interactivity to the user. Sequence to Sequence model introduced in Learning Phrase Representations using RNN Encoder-Decoder for Statistical Machine Translation has since then, become the Go-To model for Dialogue Systems and Machine Translation. It consists of two RNNs (Recurrent Neural Network): An Encoder and a Decoder. The encoder takes a sequence (sentence) as input and processes one symbol (word) at each time step. Its objective is to convert a sequence of symbols into a fixed size feature vector that encodes only the important information in the sequence while losing the unnecessary information. You can visualize data flow in the encoder along the time axis, as the flow of local information from one end of the sequence to another.

Index Terms— Natural Language Processing, Machine Learning, Recurrent Neural Network, Chatterbot.

I. INTRODUCTION

Fast transportation systems and rapid transit systems are nerves of economic developments for any nation. Mismanagement and traffic congestion results in long waiting times, loss of fuel and money. It is therefore utmost necessary to have a fast, economical and efficient traffic control system for national development. The monitoring and control of city traffic is becoming a major problem in many countries. With the ever-increasing number of vehicles on the road, the Traffic Monitoring Authority has to find new methods of overcoming such a problem. One way to improve traffic flow and Safety of the current transportation system is to apply automation and Intelligent control methods. As the Number of road users constantly increases, and resources provided by current infrastructures are limited, intelligent control of traffic will become a very important issue in the future.

In our project we are using Quantitative approach. It is a process of deciding on the quality of the results obtained from the input of different process occurring in the system. The decision-making quality of the system depends on the maximum number of inputs giving the same amount of results. Similarly, the decision making of our project will depend on the change in the user review time by time. If the decision is based on neutral reviews (i.e. both positive + negative) then results might be average. The administrator OR admin that is monitoring the flow of data will make sure to encode the software to handle neutral reviews as well. For example, if a customer posts a review saying, "The product was good, but battery life is poor". Now this is a neutral review, so the application will be encoded to manage it.

The main objectives of the project were to develop a NLTK model that will be used to identify answers related to user submitted questions. To develop a trained model were all the related data will be stored in vector/checkpoints and can be used by integrating it with the Chatbot for answering the questions. The user interface developed is simple and easy for every user who is new to the interactive environment and can grab the intuitive-ness of the bot [1]-[3].
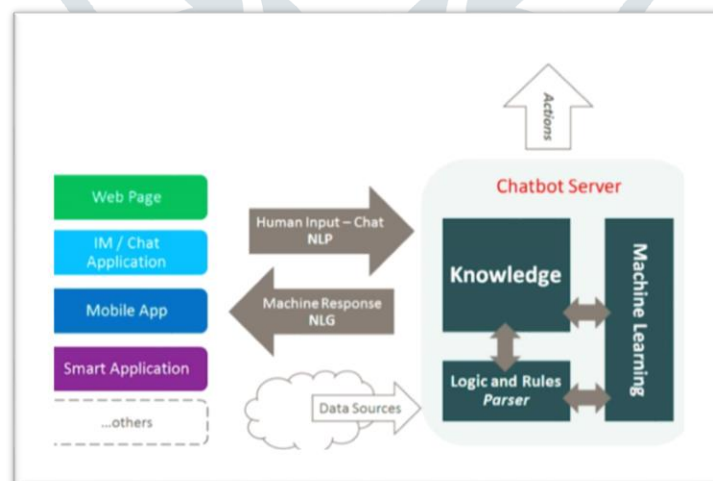
II. PROPOSED SYSTEM ARCHITECTURE

Fig.1. Block diagram of proposed system architecture

2.1 Hardware Module:
- Intel i5 (Pentium P4) Processor
- Motherboard (Genuine Intel)
- RAM (4 GB)

- 350GB HDD

2.2 Software Module:
- Tkinter
- Python
- Anaconda
- Jupiter IDEA

III. PROPOSED TECHNIQUES

3.1 Query by User

Here we are using the qualitative approach. The approach used for system development in the project implementation. This System is a web application which provides answer to the query of the student. 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 queried.

Systems design is the process of defining the architecture, modules, interfaces, and data for a system to satisfy specified requirements. Systems design could be seen as the application of systems theory to product development. System design is the process of defining the elements of a system such as the architecture, modules and components, the different interfaces of those components and the data that goes through that system. It is meant to satisfy specific needs and requirements of a business or organization through the engineering of a coherent and well-running system.

3.2 System Working

Initial stage the system where project is setup so in that system environment python must be install in order to run the software we need to install python as well as the basic module of python which is required for software running. After the installation user just need to run that application then the our PyBot user interface will open base on that user interface user has to provide the input user has provided the voice as well as input option in order to interact with the software. Base of the user input it will give the matching or relevant output.

IV. PROPOSED SYSTEM DESIGN

The following features are implemented in our proposed system

1. Textbox and window view.
2. White/Black UI for night mode.
3. Easy response with proper grammatical response.
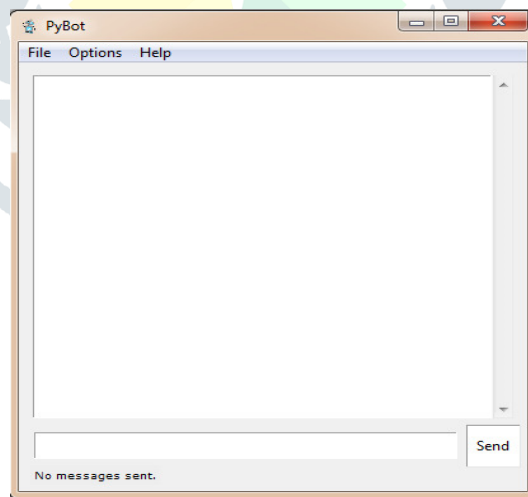4. Definition and explanation present.
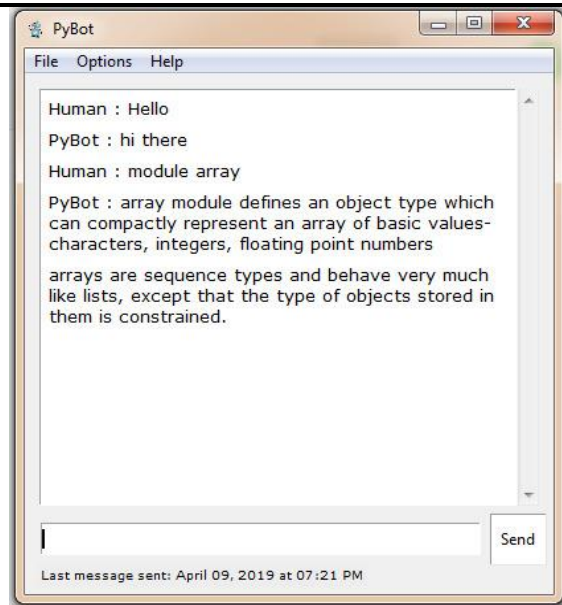

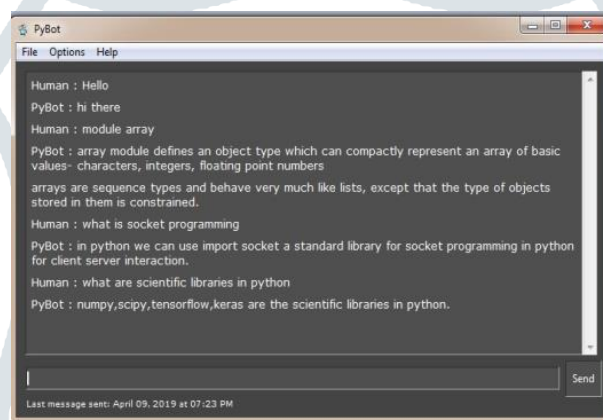Fig. 1. Preview window

Fig.2. Query & Response
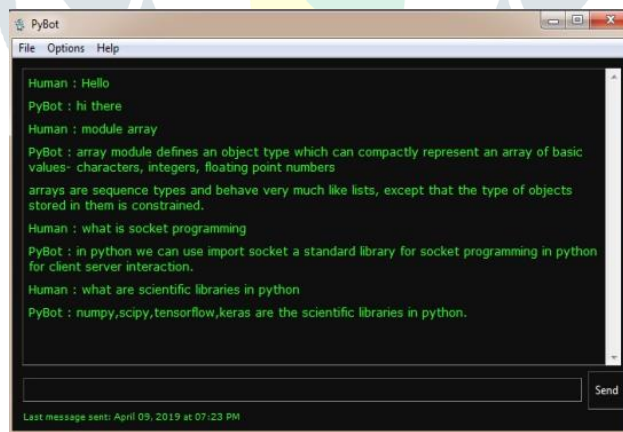

Fig.3. Last Seen feature

Fig.4. Dark Screen feature

V. CONCLUSION

Proposed system gives efficient way of utilizing the resources implemented during the making of Chatbot (Pybot) model this provides a structured and well-defined execution of the bot for which it was build. Bots should be used to improve the end user experience. It is highly optimized for answering python question with adequate amount of accuracy based of the trained model checkpoints. Improving and doing changes in the hyper-parameters of the training model could increase the accuracy rate of the Chabot.

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