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Restaurant Chatbot

AIDI 2000 – Applied Machine Learning

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# **Introduction**

We are familiar with chatbots as it’s a common feature in almost all websites we deal with every day. It serves the queries of users based on the domain it is designed for. The most popular example today is Amazon’s Alexa. It can be helpful to the users to get information that is not easily reachable on the website. A chatbot is a class of bots that existed on chat platforms. It is an artificially intelligent system that can understand human language, process it, and interact back with humans while performing certain tasks. They have become so humane that we do not feel that we are talking to a machine. It has become that advanced.

For this project we decided to go for Rule Based AI chat bot that can be classified in the category of Text based Chatbot

# **Problem Statement**

Considering a scenario where a client of a Startup food joint who has asked us to build a chat bot for their customer support acquisition. This startup is an Italian based fast food pizza joint. The main day-to-day task of this joint is to provide basic menu items to their customers through online and phone delivery methods.

The task in hand is to build a chat bot for the above situation. The basic responsibilities of this chatbot will be to display a user interface to the user where user can type in the query while chat bot displays the required result in the respective interface.

**We decided to build a chatbot due to various reasons including:**

* Most of the online orders for the pizza joint was showing over-whelming customer response due which there was existing slow delivery of orders.
* Pizza workers were not able to incorporate proper amount of support for their respective customers.
* Phone enquiries were giving slow response to the customers creating a bad review base among the customers.

**We built this chatbot to achieve the following objectives:**

* To analyze users’ queries and understand the message and provide the answer effectively.
* To save the time the users since it avoids face-to-face inquiries.
* The system will help the students to be updated about the college activities.
* The system will reply using an effective GUI as if a real person is talking to the user.
* Availability of an efficient interactive system that works around the clock.

# Available Online Alternatives

There are lot of online resources prebuilt available to build these chatbot. Few of these resources will be discussed in this report and their respective advantages and disadvantages. The following is a table representing the available chatbot frameworks:

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Source: <https://www.spaceo.ca/blog/top-ai-chatbot-frameworks/>

# Microsoft Bot Framework

Microsoft's Bot Platform is a collection of services, tools, and SDKs that provides a strong framework for the creation of AI chatbots. We can create and integrate intelligent bots using this chatbot development framework. These business-grade bots provide you full ownership and management over your data.

Chart, waterfall chart

Description automatically generated**Advantages**:

1. SDKs for multiple computer languages
2. Prebuilt entities
3. User-friendly
4. Machine Learning speech to text
5. Technical Computer support
6. Multilingual

**Disadvantages**:

1. Only available for Either Node.js or C# platforms for development

The following are the **integration** capabilities:

1. Skype
2. Slack
3. Website
4. Facebook Messenger
5. Microsoft Team
6. KiK

**Pricing**: The Microsoft Bot Framework is available in both free and premium editions. Pay as you go is how the paid version operates. It costs $0.50 for every 1,000 messages sent using the premium chatbot's AI channel. Flexible assistance packages are available for $29 a month.

# **Rasa**

Rasa NLU and Rasa Core are the two main parts of the open-source Rasa stack, which is a chatbot framework. Rasa core contributes to the development of intelligent, conversational chatbots, whereas Rasa stack NLU handles natural language understanding. In fact, Rasa Stack is at the forefront of open-source machine learning toolkits that assist programmers in building better AI chatbots with little to no training data.

**Graphical user interface

Description automatically generated with low confidenceAdvantages:**

1. Can be deployed on local server
2. It has lot of Customizable features
3. It offers analytics capabilities
4. It works based on interactive learning which means it learns itself through interaction with the people.
5. It allows multiple environments for development, staging and production

**Disadvantages:**

1. Not beginner Friendly

The following are the integration capabilities:

1. Facebook Messenger
2. Rocket Chat
3. Slack
4. Telegram
5. Twilio

Pricing: Despite being open-source, Rasa's AI chatbot creation framework also comes in a commercial edition. It is known as the Rasa platform, and it is accessible to businesses who require robust functionality and improved performance. To learn about the pricing structure of the Rasa platform, speak with their customer representative executives as the rates are not listed on their website.

# **Wit.AI**

Facebook has bought Wit AI, which is open source and free for commercial use. The entities and intent can be created by the developers using this NPL platform. An early Y Combinator startup developed the open-source chatbot framework. Without needing to teach the bot the fundamentals of human interaction, developers may quickly design bots with human-level intelligence because it is still an open-source project with open tools.

**Advantages:**

1. Deployment capabilities involves deploying it on the Facebook messenger which is relatively easy compared to other frameworks.
2. It is open-source which mean that it has a large developer community.
3. Scalable capabilities of this framework is considered better than other frameworks.
4. It supports more than 80+ languages

**Disadvantages:**

It is considered hard to retrieve missing parameters.

# **Dialogflow**

Dialogflow is a Google subsidiary and an AI chatbot framework. It has built-in NLP tools, machine learning capabilities, and connectors with many other well-known communication systems. With Google Dialogflow, programmers can build chatbots that are extremely intelligent, leverage Google's machine learning models to understand linguistic complexity, and get smarter over time. This is because it is compatible with Google's Cloud Natural Language, which makes it simpler to train the bot to comprehend feelings and sentiments from humans.

|  |  |
| --- | --- |
| **Advantages** | **Disadvantages** |
| Supports both voice-based and test-based assistants. | Fine control over dialogue processing is not available |
| It offers SDKs for more than 14 platforms |  |
| It offers sentiment analysis of all the input queries by the user |  |
| It provides IOT integration possibilities |  |

**Pricing:**

Although the standard edition is free, you can upgrade to a premium version if you frequently handle many questions. The costs range from $0.002 every text request to $0.075 per minute for all the phone calls that you handle.

# IBM Watson

One of the most well-known AI chatbot creation frameworks is Watson, which is utilised by developers. It provides a selection of tools for constructing bots. IBM Watson stands its own in terms of features, integration, and adaptability when compared to other major competitors in the fight for the best AI chatbot framework.

For their internal use, big businesses are adopting IBM Watson to create sophisticated AI chatbots. It is a leader in the domains of reasoning, machine learning, artificial intelligence, and natural language processing. Additionally, it gives the creators cutting-edge cognitive powers.

**Pricing**

The Lite edition, which is cost-free and permits up to 10,000 messages each month, is where the pricing structure begins. Standard, Plus, Premium, and Deploy Anywhere are additional pay plans. Standard gives you unlimited messages for a cost of $0.0025 per message. Pricing details for the Plus plan are not available online, but you can get in touch with IBM to get a free 30-day trial. Plans like Premium and Deploy Anywhere have specific pricing.