

# Coincent AI

## Project Chatbot

*By: Vaibhav Sharma*

### **Abstract:**

Chatbots, also known as conversational interfaces, offer new ways for people to communicate with computers. Traditionally, getting a query answered by a software program entailed utilizing a search engine or completing a form. A chatbot allows users to ask inquiries in the same way that they would to a human. The most well-known chatbots nowadays are voice chatbots like Alexa and Siri. However, chatbots are rapidly being used on computer chat sites.

### **Objective:**

To create a chatbot using NLP-algorithms and understand the pipeline and workflow of the process.

### **Introduction:**

NLP is the technology behind the chatbot revolution. Recent breakthroughs in machine learning have dramatically enhanced the accuracy and efficiency of natural language processing, making chatbots an attractive alternative for many businesses. This advancement in NLP is sparking a lot of new research, which should lead to ongoing improvements in the usefulness of chatbots in the years to come.

A basic chatbot may be built by feeding FAQs into chatbot software. The chatbot's capabilities may be expanded by linking it with the organization's business software, allowing it to answer more personal inquiries such as "What is my balance?" or "What is the status of my order?"

### **Methodology:**

- Analysis of the characteristics of the training and testing datasets, including their lengths and types of information contained.
- Determining the size of the vocabulary set and assign numerical indices to each word using tokenization techniques provided by the Keras Tokenizer.
- Convert textual data into numerical representations using tokenization and sequence padding techniques.
- Implementing input sequence encoders, question encoders and answer decoders using embedding layers, LSTM layers and dropout layers.

- Compile the chatbot model using appropriate loss functions, optimizers, and evaluation metrics.
- Analyze the model's accuracy and loss curves over epochs to understand its learning behavior.

## **Code:**

Please refer to this link for the jupyter notebook and the model:

[https://github.com/vaibhav7766/coincent\\_ai\\_chatbot](https://github.com/vaibhav7766/coincent_ai_chatbot)

## **Conclusion:**

Overall, a chatbot can be used anywhere a human is interacting with a computer system. These are the areas where the fastest adoption is occurring:

- Customer Service — A chatbot can be used as an “assistant” to a live agent, increasing the agent’s efficiency. When trained, they can also provide service when the call centre is closed, or eventually even act as an independent agent, if desired.
- Sales/Marketing/Branding — Chatbots can be used for sales qualification, ecommerce, promotional campaigns, or as a branding vehicle.
- Human Resources — An HR chatbot can help with frequently asked questions and can act as an onboarding assistant.