

Chatbots

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What is chatbot

- A chatbot is a software system that is used to have a conversation with people via text or speech
- Chatbots are used for various purposes, including customer service, enterprise operations, and healthcare.

Type of chatbots

- Based on technical
 - Retrieval-based chatbot:
 - Use directed flows
 - Provide the best possible response from a database of predefined responses.
 - Techniques: Keywords matching, machine learning or deep learning for classification
 - Example: Mitsuku
 - Generative chatbot:
 - Generate new dialogue based on large amounts of conversational training data
 - Techniques: supervised learning, unsupervised learning, reinforcement learning,
 - Example: ChatGPT, Google Bard, ...

- Based on requirement

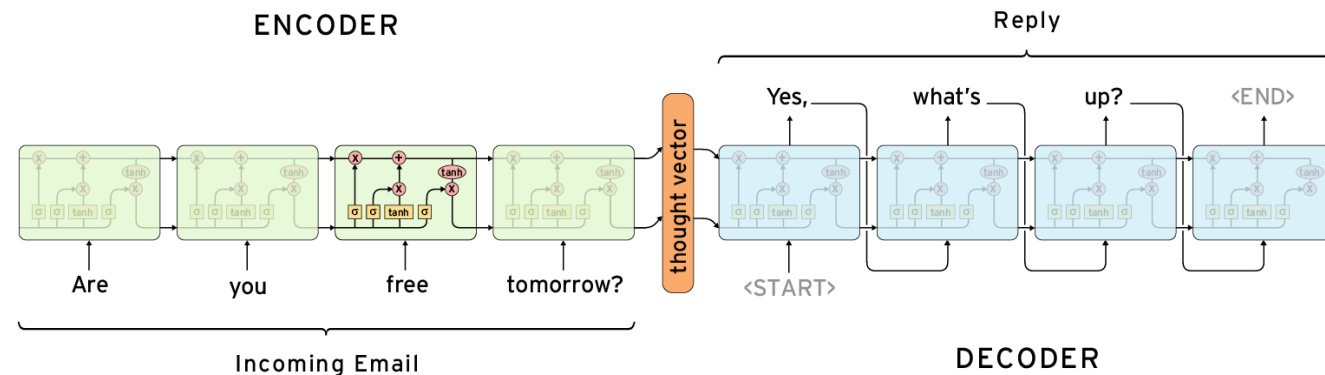
- Task-oriented bots:
 - Goal of finishing specific tasks by interacting with people,
 - booking a flight ticket for someone,
- chitchat bots:

How to make a chatbots

- We can make a chatbot by using Machine Learning, Deep learning or using some framework

Build from scratch

- We can use deep learning method such as: sequence to sequence model to build a chatbot:
- Example: Encoder+Decoder+Long short-term memory
- We can add some Technique like: Attention, transformer to increase performance
- Training: required a large dataset
- Dataset type: Question-Answering, Or Conversation data,
- FQuAD: French Question Answering
- French Reddit Discussion dataset



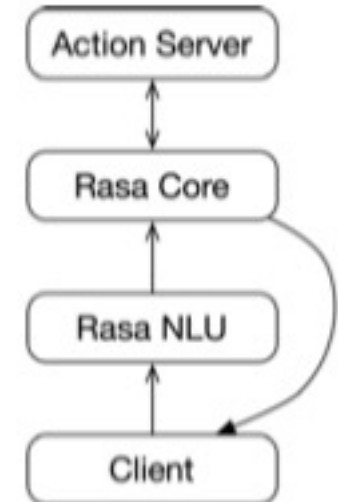
Framework

- There are a lot of framework
- Rasa (15.6k stars Github) is currently best choise:
- Open source, Python, large community

Chatbot Framework	Programming Language	NLP Support	Ease Of Use	Integration
Rasa	Python	Yes	80%	FB Messenger, Telegram, Website, Slack, Twilio
Wit.ai	Python, Ruby	Yes	100%	App, website, Slack, FB Messenger, wearable devices, Home Automation
Botpress	Javascript	Yes	100%	Telegram, FB Messenger, Website
BotKit	NodeJS	No	100%	Slack, MS teams, FB Messenger, Google Hangouts, Twilio SMS

How to build a chat bot with RASA

- RASA have 2 main task
- RASA Natural Language Understanding (NLU):
 - NLU interprets text-based user input. It recognizes the intent and entities from a user's input.



Natural Language Understanding (NLU)

NLU RASA

- From a chat, NLU process and give us a best intent (greet, goodbye,...)
- Using a Machine Learning or Deep Learning technique to classify intent
- From that, get the best response

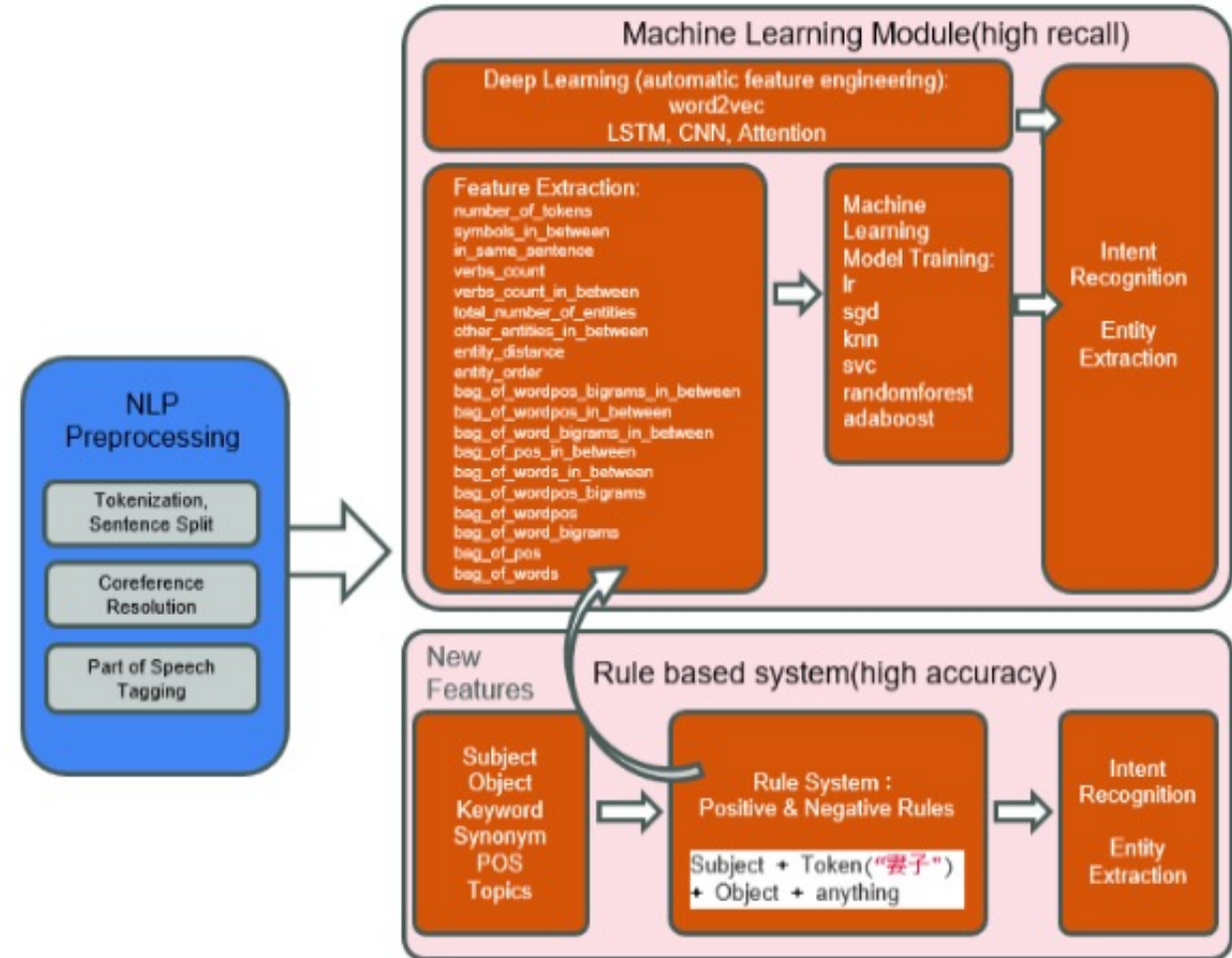


Figure 1.8 – A complex NLU system

RASA Core

- Rasa Core is responsible for the conversation flow, context handling, bot responses and session management. It can be built on the Rasa NLU or other services that take over the intent recognition and entity extraction and make the results available to the Rasa Core.



