Food Delivery Chatbot

Group-4

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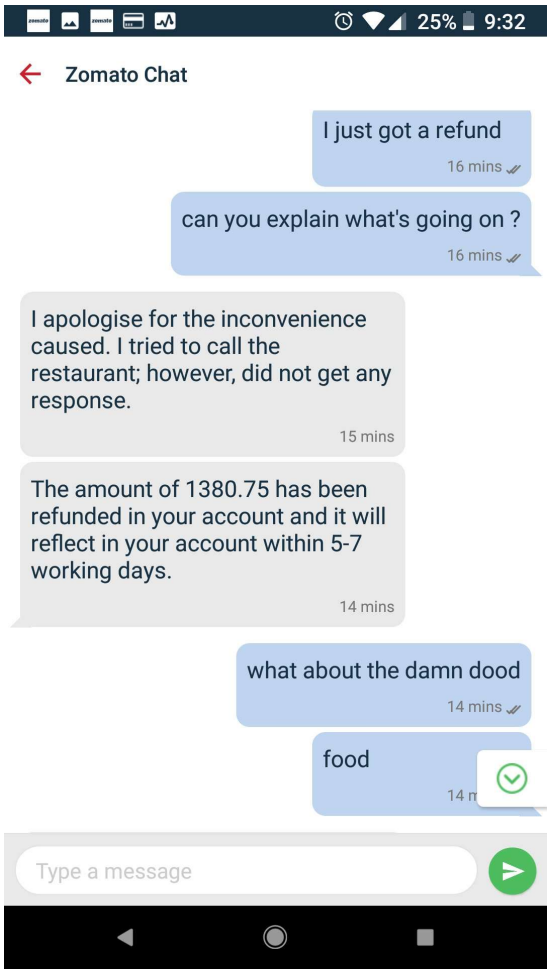
Chatbots

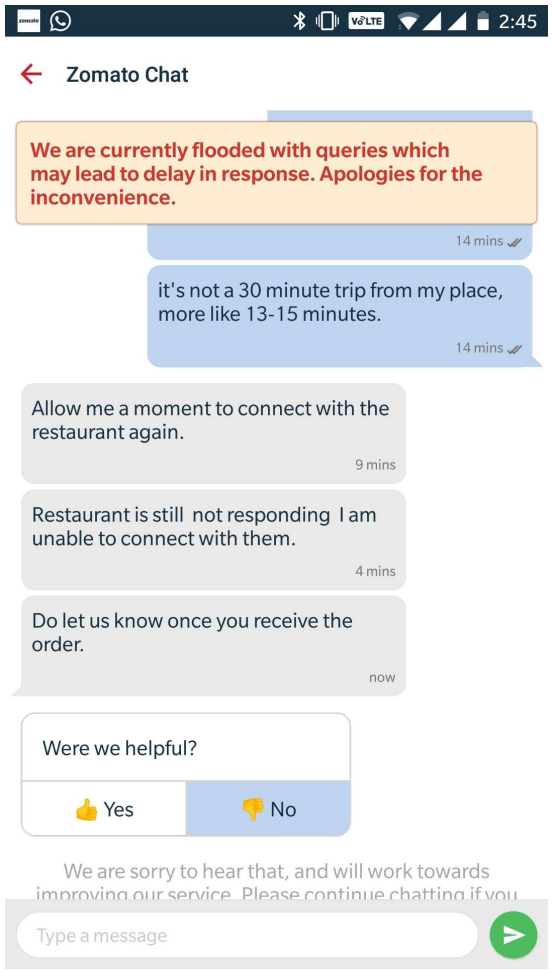
- A chatbot is artificial intelligence (AI) software that can imitate a natural language discussion (or chat) with a user via messaging apps, websites or mobile apps.

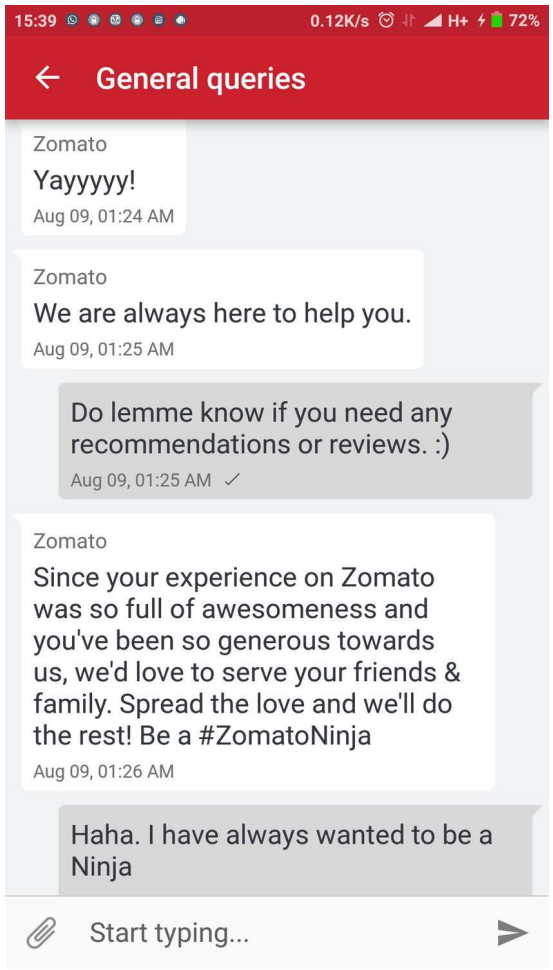
Why Chatbots?

- For faster and transparent order processing
- To know order patterns and to keep track of loyal customers
- To assess customer feedback.
- Foodtech chatbots are more interactive, easy to use, scale ,and can be easily automated.

Zomato Chat:


25% 9:32
Zomato Chat
I just got a refund
16 mins
can you explain what's going on ?
16 mins
I apologise for the inconvenience caused. I tried to call the restaurant; however, did not get any response.
15 mins
The amount of 1380.75 has been refunded in your account and it will reflect in your account within 5-7 working days.
14 mins
what about the damn dood
14 mins
food
Type a message


2:45
Zomato Chat
We are currently flooded with queries which may lead to delay in response. Apologies for the inconvenience.
14 mins
it's not a 30 minute trip from my place, more like 13-15 minutes.
14 mins
Allow me a moment to connect with the restaurant again.
9 mins
Restaurant is still not responding I am unable to connect with them.
4 mins
Do let us know once you receive the order.
now
Were we helpful?
Yes
No
We are sorry to hear that, and will work towards
Type a message

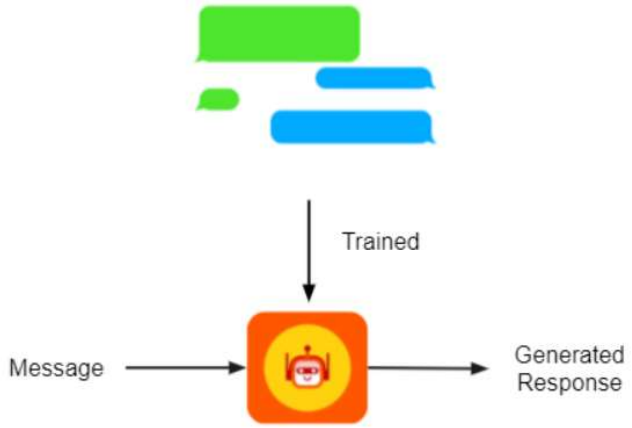

15:39
0.12K/s
H+
72%
General queries
Zomato
Yayyyyy!
Aug 09, 01:24 AM
Zomato
We are always here to help you.
Aug 09, 01:25 AM
Do lemme know if you need any recommendations or reviews. :)
Aug 09, 01:25 AM
Zomato
Since your experience on Zomato was so full of awesomeness and you've been so generous towards us, we'd love to serve your friends & family. Spread the love and we'll do the rest! Be a #ZomatoNinja
Aug 09, 01:26 AM
Haha. I have always wanted to be a Ninja
Start typing...

Types of Chatbots

- Generative based

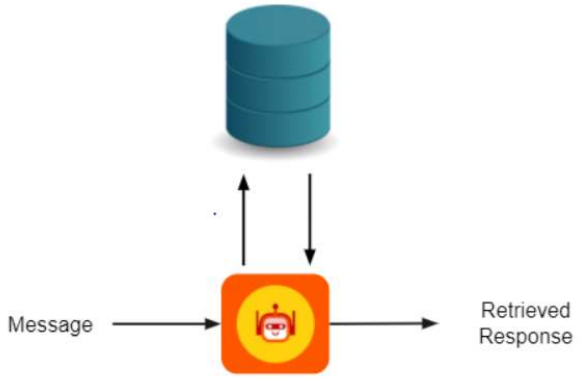
Generative chatbots use a combination of supervised learning, unsupervised learning & reinforcement learning. A generative chatbot is an open-domain chatbot that creates unique language combinations rather than selecting from a list of pre-defined responses.

Chatbots that use generative methods can generate new dialogue based on large amounts of conversational training data.



- Retrieval based

Retrieval-based systems are limited to predefined responses.

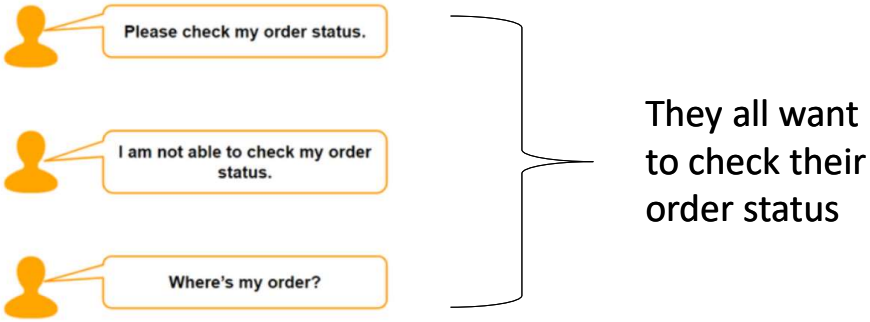


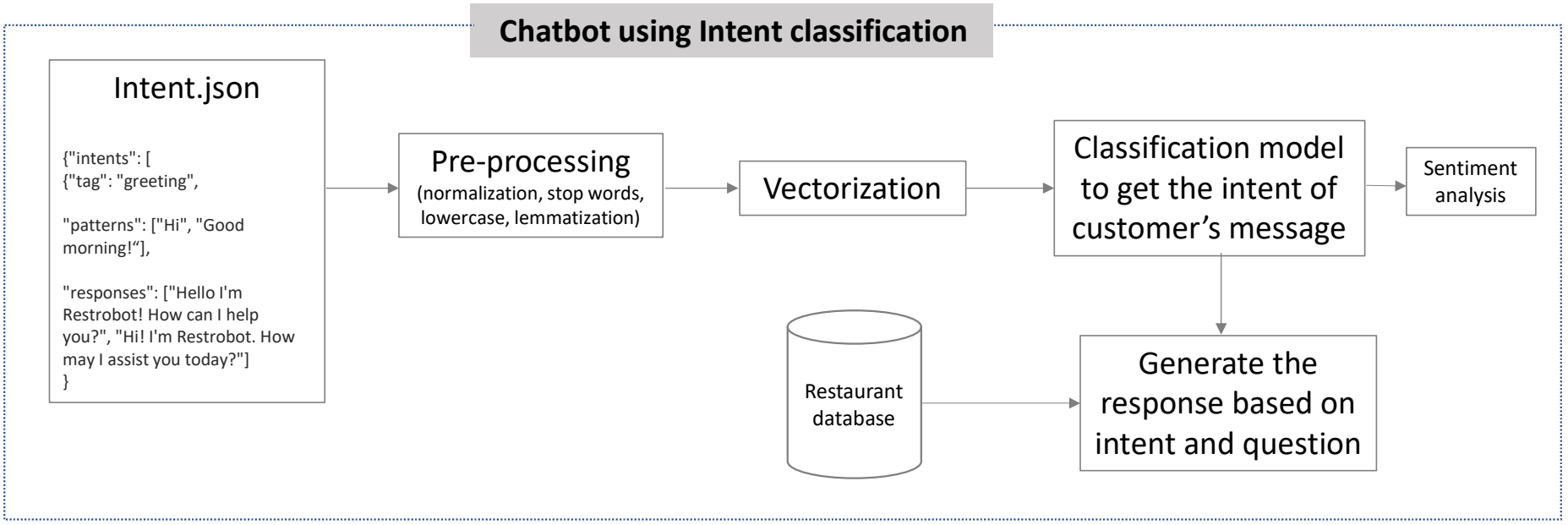
In this we can use Intent Recognition method. Intent classification or intent recognition is the task of taking a written or spoken input, and classifying it based on what the user wants to achieve

Source: https://www.techlearn.live/

Method 2: Retrieval based chatbot

This can be done using Intent classification. Intent classification or intent recognition is the task of taking a written or spoken input, and classifying it based on what the user wants to achieve.



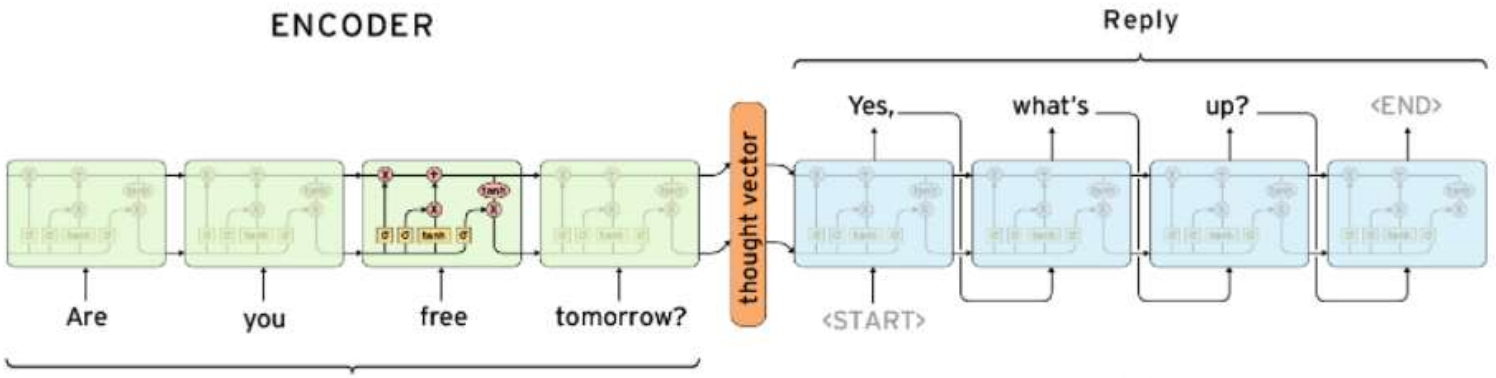


Method 1: Generative method based chatbot

As we have seen, Chatbots that use generative methods can generate new dialogue based on large amounts of conversational training data. Here, we can use Sequence to sequence learning.

Sequence to Sequence Learning:

- The Sequence to Sequence model (seq2seq) consists of two RNNs - an encoder and a decoder.
- The Encoder reads the input sequence, word by word and **emits a context** (a function of final hidden state of encoder), which would ideally capture the essence (semantic summary) of the input sequence.
- Based on this context, the Decoder generates the output sequence, one word at a time while looking at the context and the previous word during each timestep.

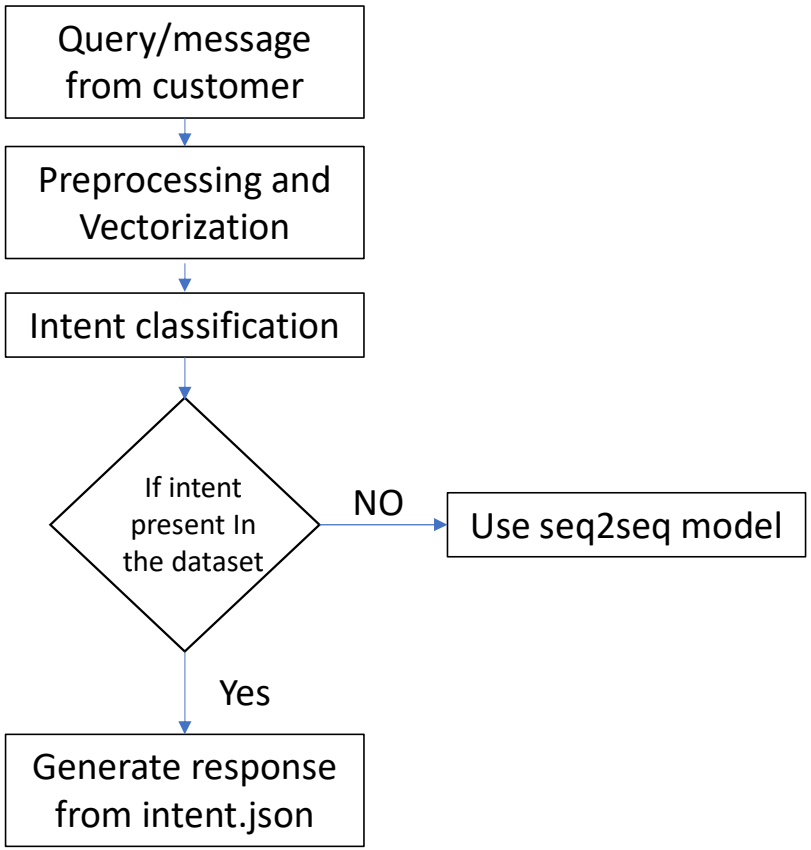


Source: parctical seq2seq

Datasets

- Json file with intents : dataset
- Cornell movie dataset for Seq2Seq model : dataset

Using combination of both Method 1 and 2

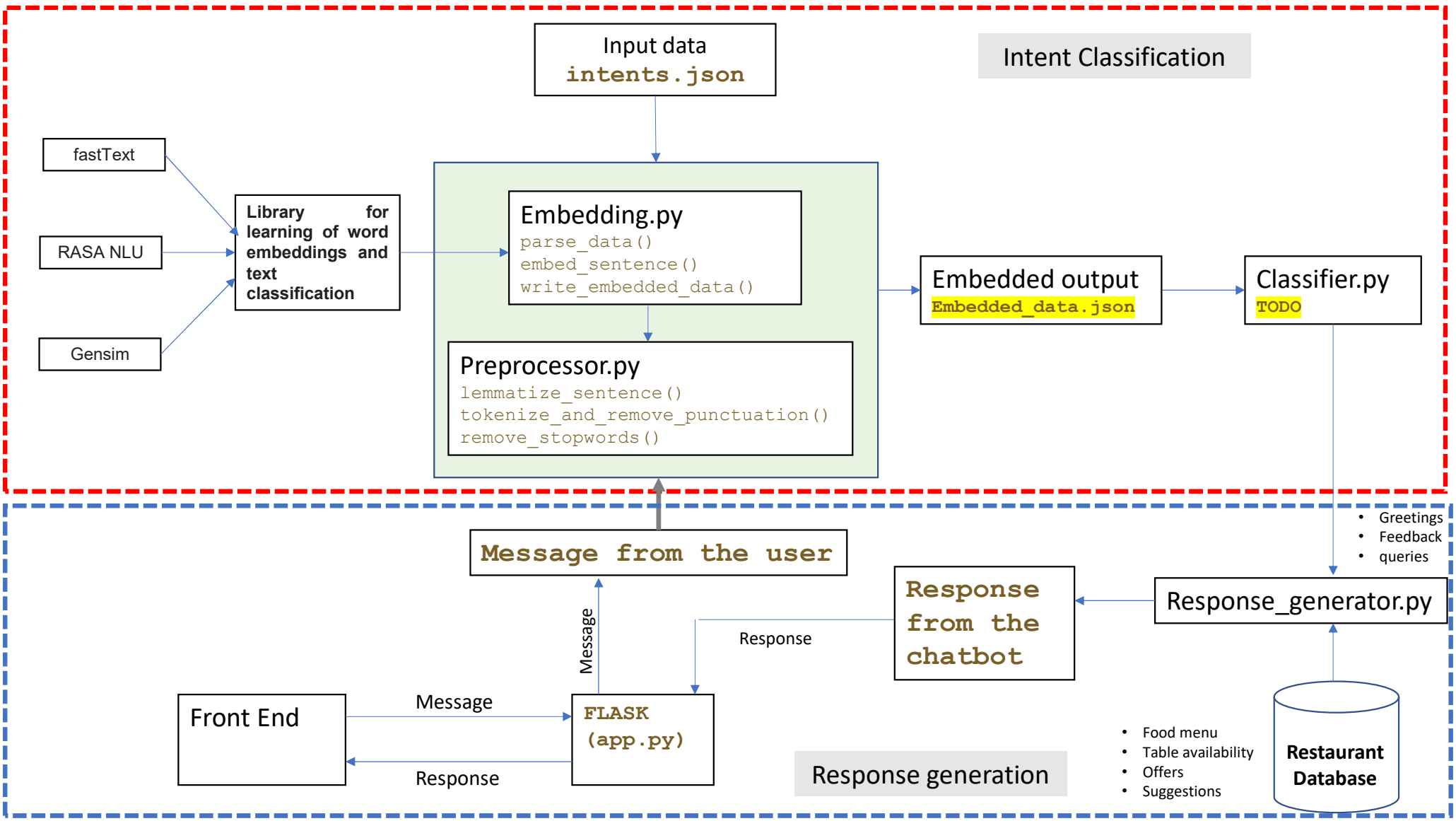


Project Architecture / Project Flow

Intent Classification

Intents list: Dataset

- Greetings
- Table booking
- Table availability
- Menu
- Contact and address details
- Offers
- Positive/Negative feedback
- Veg/nonveg/vegan food enquiry
- Order status
- Suggestions
- Queries related to payments, recipes, delivery
- Closure
- Ratings


Input data
intents.json
Intent Classification
fastText
RASA NLU
Gensim
Library for learning of word embeddings and text classification
Embedding.py
parse_data()
embed_sentence()
write_embedded_data()
Preprocessor.py
lemmatize_sentence()
tokenize_and_remove_punctuation()
remove_stopwords()
Embedded output
Embedded_data.json
Classifier.py
TODO
Message from the user
Response from the chatbot
Response_generator.py
Greetings
Feedback
queries
Message
Response
Front End
Message
Response
FLASK (app.py)
Response generation
Food menu
Table availability
Offers
Suggestions
Restaurant Database

Short JSON file and Clustering of Intents


```
{"intents": [
   {"tag": "greeting",
    "patterns": ["Hi", "Hey", "Hello", "Good morning!", "Hey! Good morning", "Hey there", "Hey Janet", "Very good morning", "A very good morning to you", "Greeting", "Greetings to you"],
    "responses": ["Hello I'm Restrobot! How can I help you?", "Hi! I'm Restrobot. How may I assist you today?"]
   },
   {"tag": "book_table",
    "patterns": ["Book a table","Can I book a table?", "I want to book a table", "Book seat", "I want to book a seat", "Can I book a seat?", "Could you help me book a table", "Can I reserve a seat?", "I need a reservation", "Can you help me with a reservation", "Can I book a reservation", "Can i have a table?", "Help me reserve a table", "book table"],
    "responses": [""]
   },
   {"tag": "goodbye",
    "patterns": ["cya", "I will leave now","See you later", "Goodbye", "Leaving now, Bye" , "Good bye dear", "Bye dear","I am Leaving", "Have a Good day", "cya later", "I gotta go now", "I gotta rush now", "Thank you, bye", "Bye", "Ok Bye", "Okay goodnight", "Have a good day ahead", "Have a great day", "Tata", "Take care"],
    "responses": ["It's been my pleasure serving you!", "Hope to see you again soon! Goodbye!"]
   },
   {"tag": "negative_feedback",
     "patterns": ["what the fuck is wrong with these noodles?", "The choco lava was so undercooked", "Ew such a waste of money man", "too salty", "we were served cold food", "so disappointed", "the food is pathetic", "hate it"],
     "responses": ["Thank you so much for your valuable feedback. We deeply regret the inconvenience. We have forwarded your concerns to the authority and hope to satisfy you better the next time!"]
   },

   {"tag": "offers",
     "patterns": ["Could you tell me the pocket friendly options?","Are there any discounts going on?", "Are there any special offers today?", "What about the festive offers?", "Could you please tell me which foods are on discount?", "are there any discounts", "are there any discount offers", "do you have any offers?", "what are the offers going on?", "what are the discounts available?"],
     "responses": [""]
   },

   {"tag": "veg_enquiry",
     "patterns": ["Can I see the vegetarian options?","Do you have any vegetarian options??", "Please show me your best vegetarian foods", "I dont want to eat non veg", "I am vegetarian", "vegetarian", "is this place vegetarian?"],
     "responses": [""]
   }
]
}
```

TSNE Projection : Notebook