INTENT RECOGNITION FOR HOSPITALIZED PATIENTS

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bot-that's-not-a-bot (pod: military-anteaters)

INTRODUCTION

- Problem: bedridden hospital patients often require personalized care and frequent supervision

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- Solution: create a specialized conversational agent to handle patients' commonly asked questions
- Task: intent recognition
- 5 intents:
  - make a phone call
  - send a text
  - find information about visitors/visiting hours
  - ask for help
  - order food
  - + out-of-scope

How can we develop a conversational agent catering to hospitalized patients?

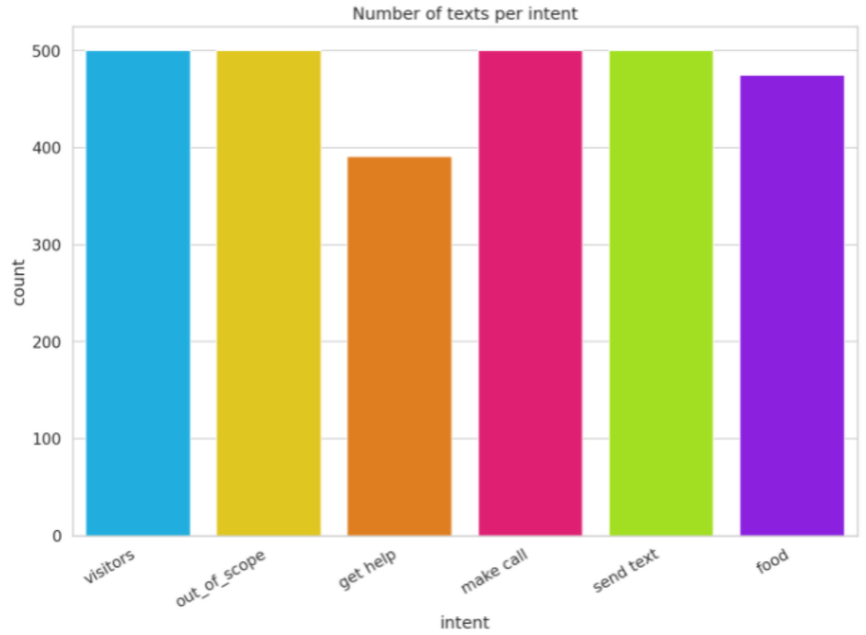
DATASET GENERATION

Chatette package:

- Labeled intents
- Sentence structures
- Slots and aliases
- Probabilities
- Other modifiers
- 500 examples per intent

```
%[send_text](500)
    ~[can_you?name] ~[can_I?!name] send [a?] ~[text]
    ~[can_you?name] ~[can_I?!name] send [a?] ~[text]
    to @[person?name/80%] @[name?!name]
```

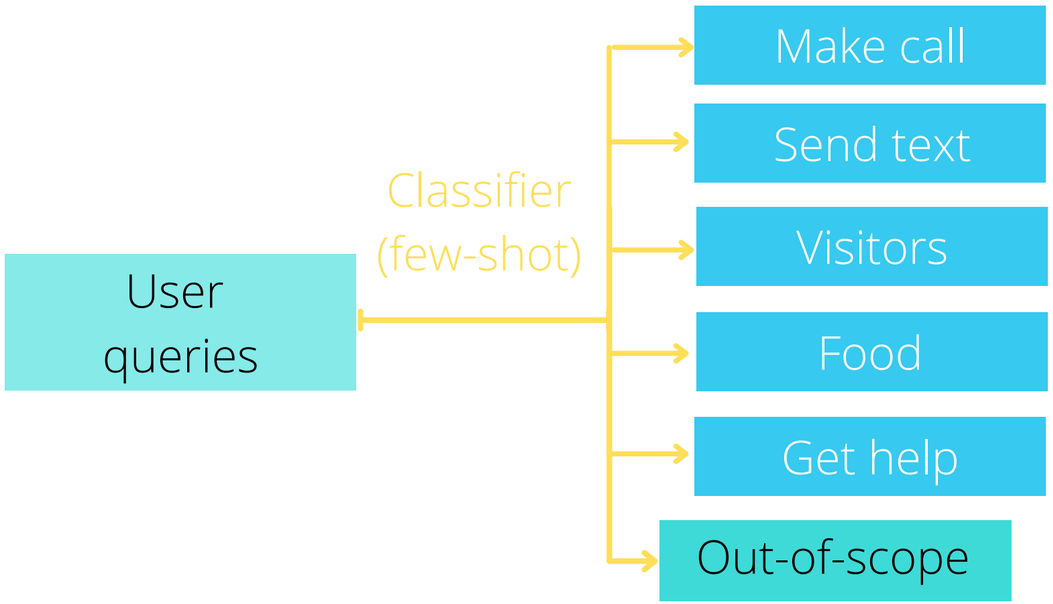
```
Could you send a DM to stella
```



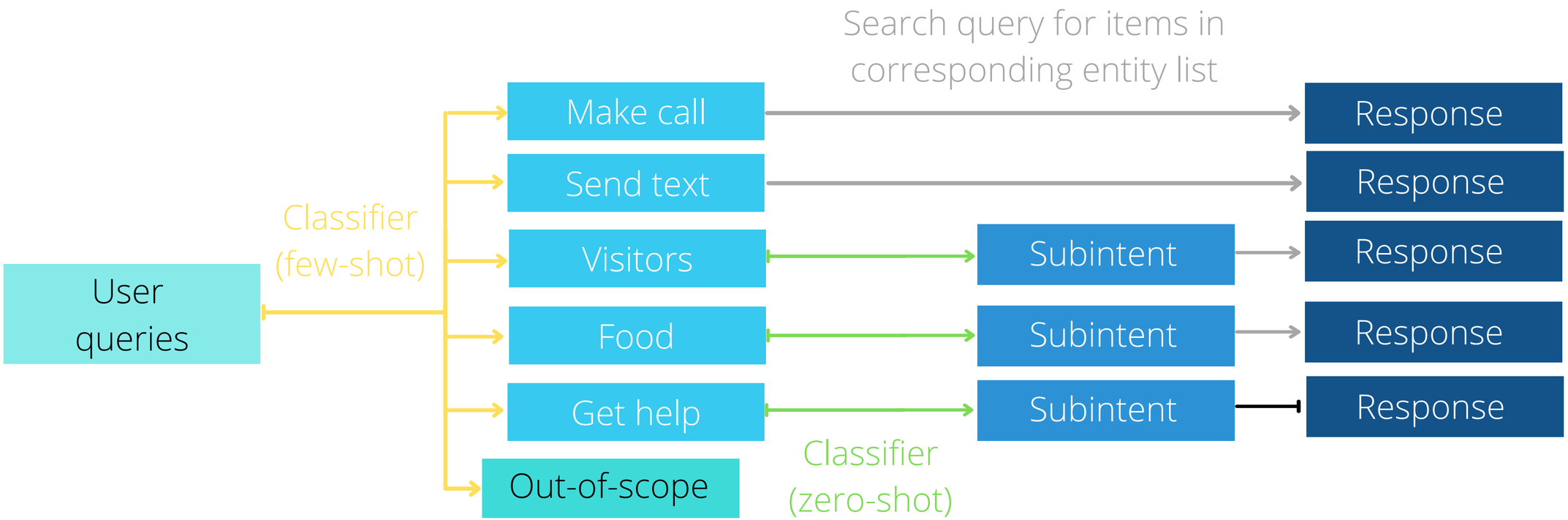
TWO-STAGE PROCESS

User queries

TWO-STAGE PROCESS



TWO-STAGE PROCESS



RESULTS

- 99% test accuracy for Intent Classification

	text	predicted
0	Call the nurse please	get help
1	Can I get some tacos	food
2	Walk my dog	get help
3	Open the window	out_of_scope
4	Can you open the window	out_of_scope
5	I don't want tacos for lunch	food

```
1 bot_GUI("can I have tacos?")
```

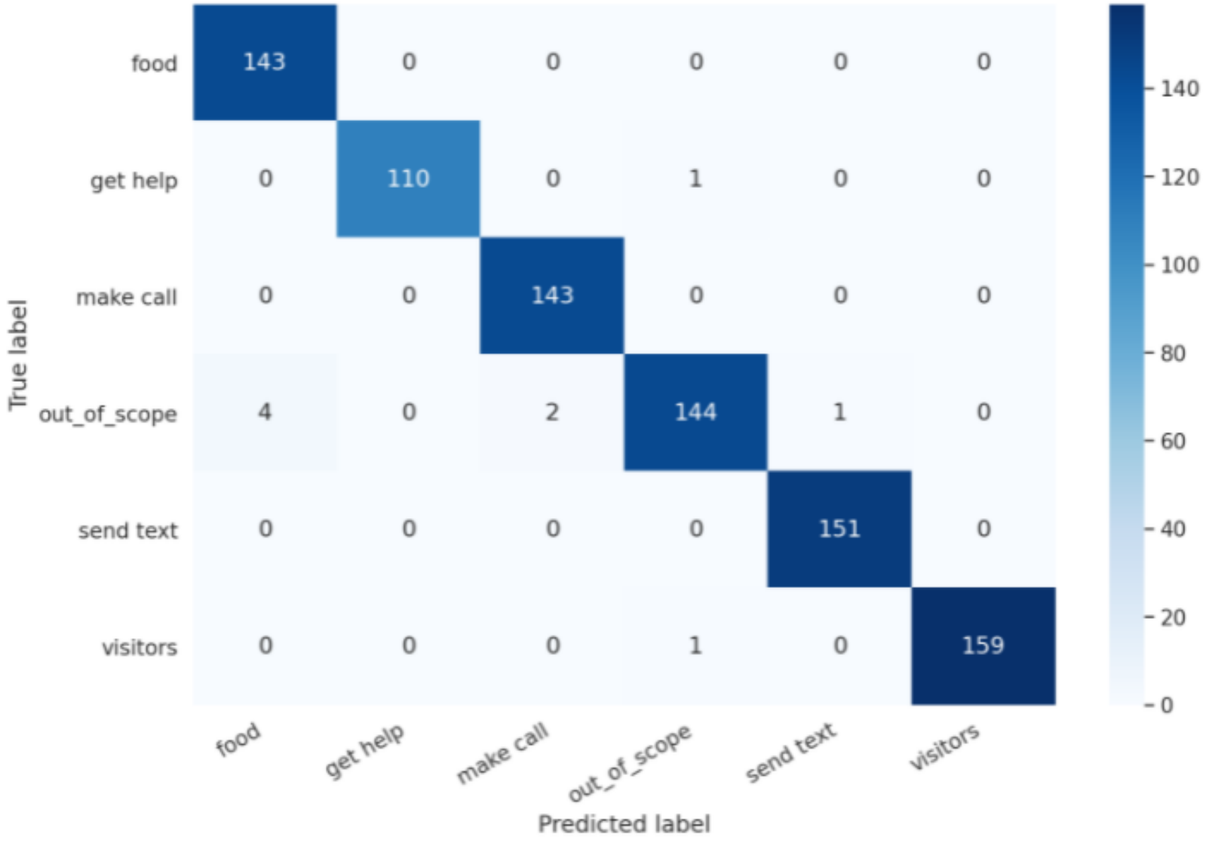
```
('Ok, I will order tacos', 0.8153497576713562)
```

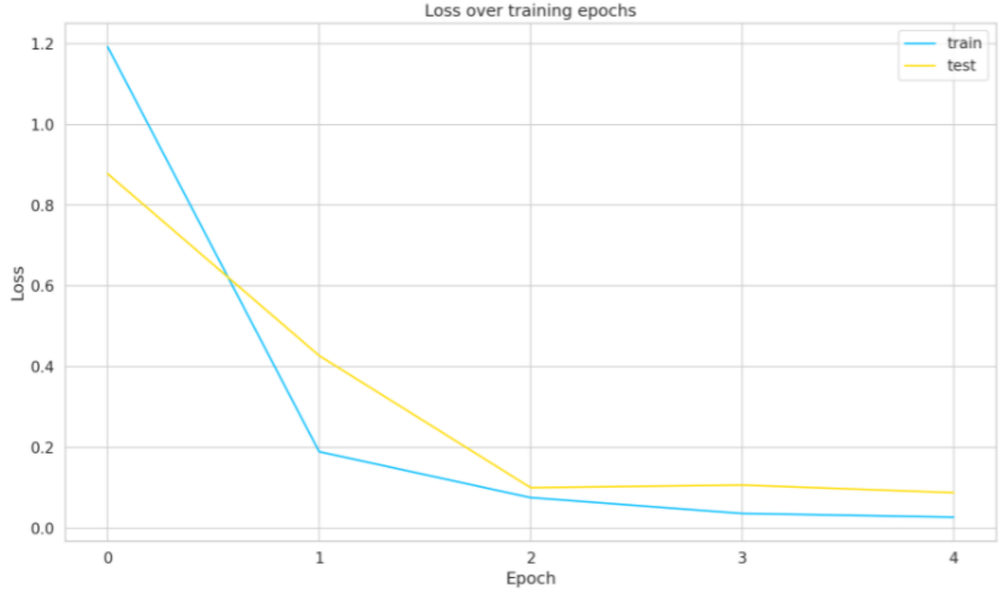
```
1 bot_GUI("send a message to dad")
```

```
('Who would you like to send a message to?', 0.2913784682750702)
```

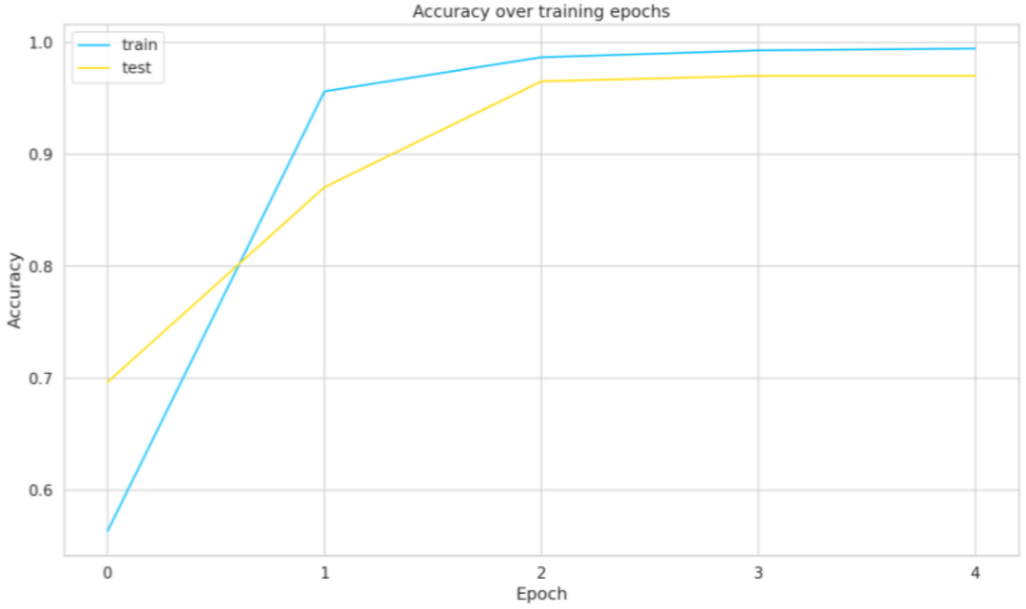
```
1 bot_GUI("may you call in the doctor")
```

```
('Calling the doctor for assistance...', 0.8137686252593994)
```



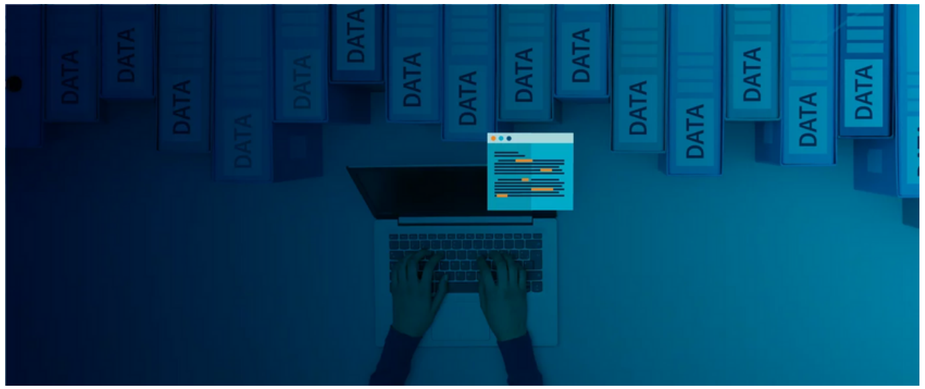



```
63/63 [==============================] - 4s 60ms/step - loss: 0.0136 - acc: 0.9960
27/27 [==============================] - 2s 60ms/step - loss: 0.0499 - acc: 0.9895
train acc 0.9960119724273682
test acc 0.9895226955413818
```



FUTURE DIRECTIONS

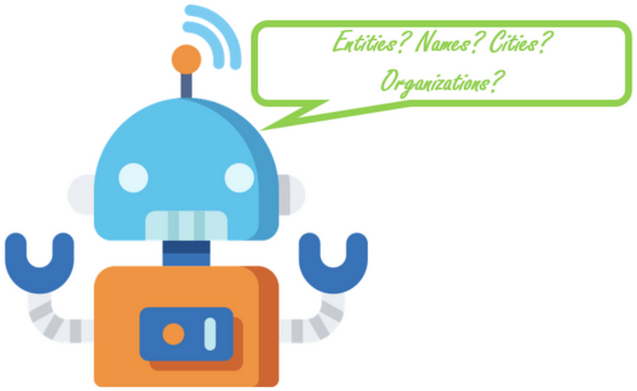
- Build a better dataset for edge cases



- Fine-tune the model using real-life data

- Expand range of intents covered

- Named entity recognition for subintents



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