Chatbot building experiences

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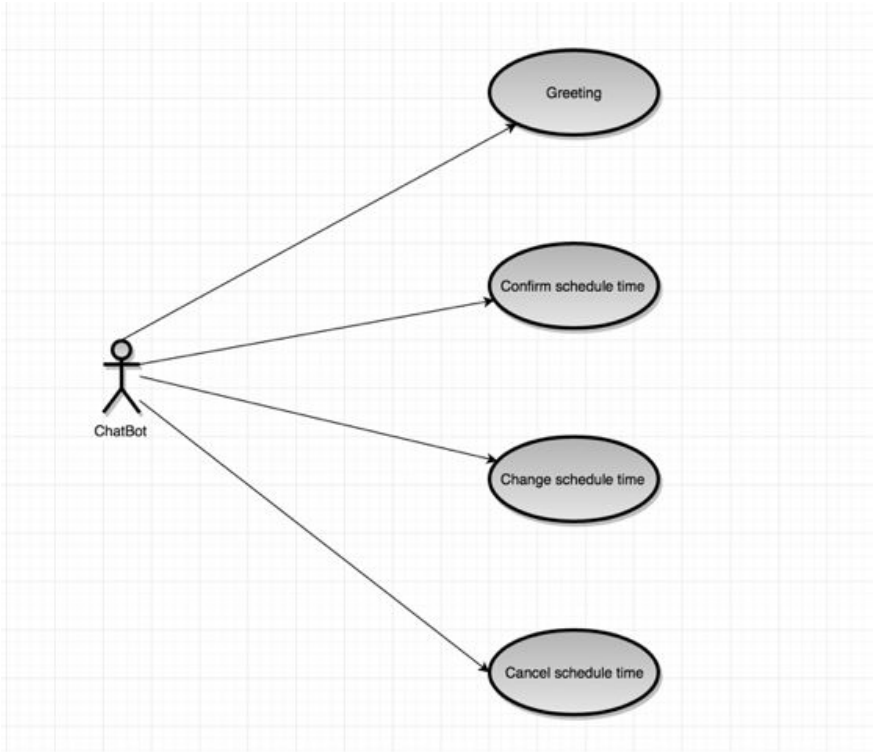
What are main problems when building chatbot?

- How chatbot can understand user's input? → "Detect user intent"
- How chatbot extract info from user input? → "extract entity"
- How chatbot can make correct reply? → "Chatbot behavior"



Set schedule

1. Detect intent? - Solution

- AIML : Artificial Intelligence Markup Language
- Example:

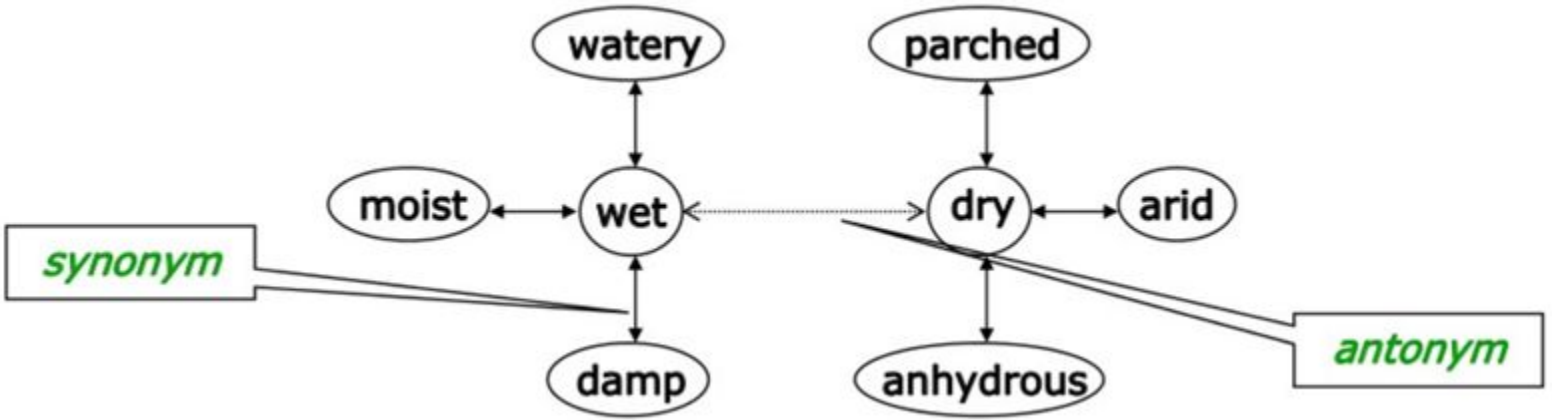
```
<aiml version = "1.0.1" encoding = "UTF-8"?>
   <category>
      <pattern> HELLO ALICE </pattern>

      <template>
         Hello User!
      </template>

   </category>
</aiml>
```

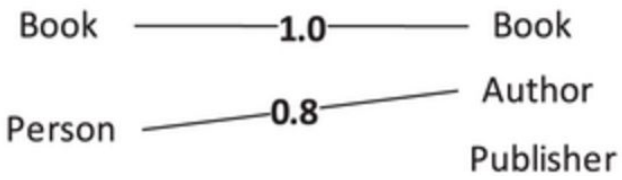
1. Detect intent? - Solution

- Wordnet : is a lexical database for the English language. It groups English words into sets of synonyms called synsets.



1. Detect intent? - Solution

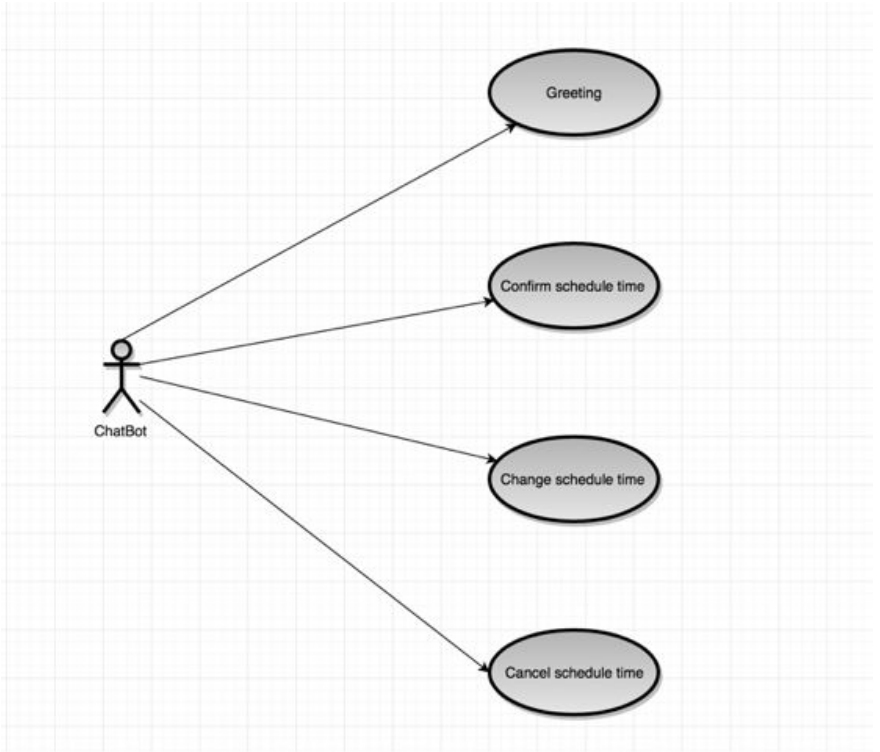
- From wordnet we can calculate one synonym number which explain how is relationship between two words



- And from number between two words, we can calculate the same number for two sentences.
- Example: “I want to change my schedule time” and “Can you change my schedule time?” → have synonym percent is 80% (0.8)

1. Detect intent? - Solution

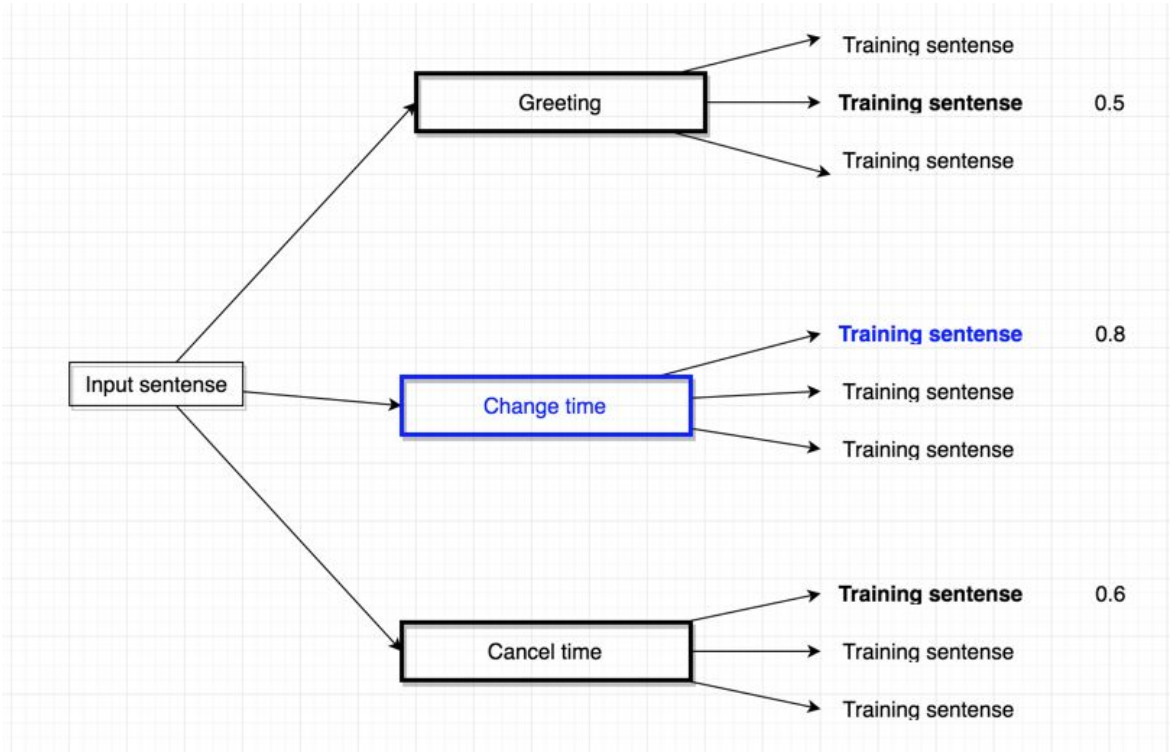
- With scheduling bot, we can define some intents like:
  - Greeting
  - Confirm schedule time
  - Change schedule time
  - Cancel schedule time.
- For each group we can define some template sentences as training data



Set schedule

1. Detect intent? - Solution

- Example:
  - Greeting: training data would be like: hi, hey, hello…
  - Confirm schedule time:
    - “I want to set my schedule time at 8am tomorrow”
    - “8am tomorrow please”
  - ….
- Find best sentence synonym:



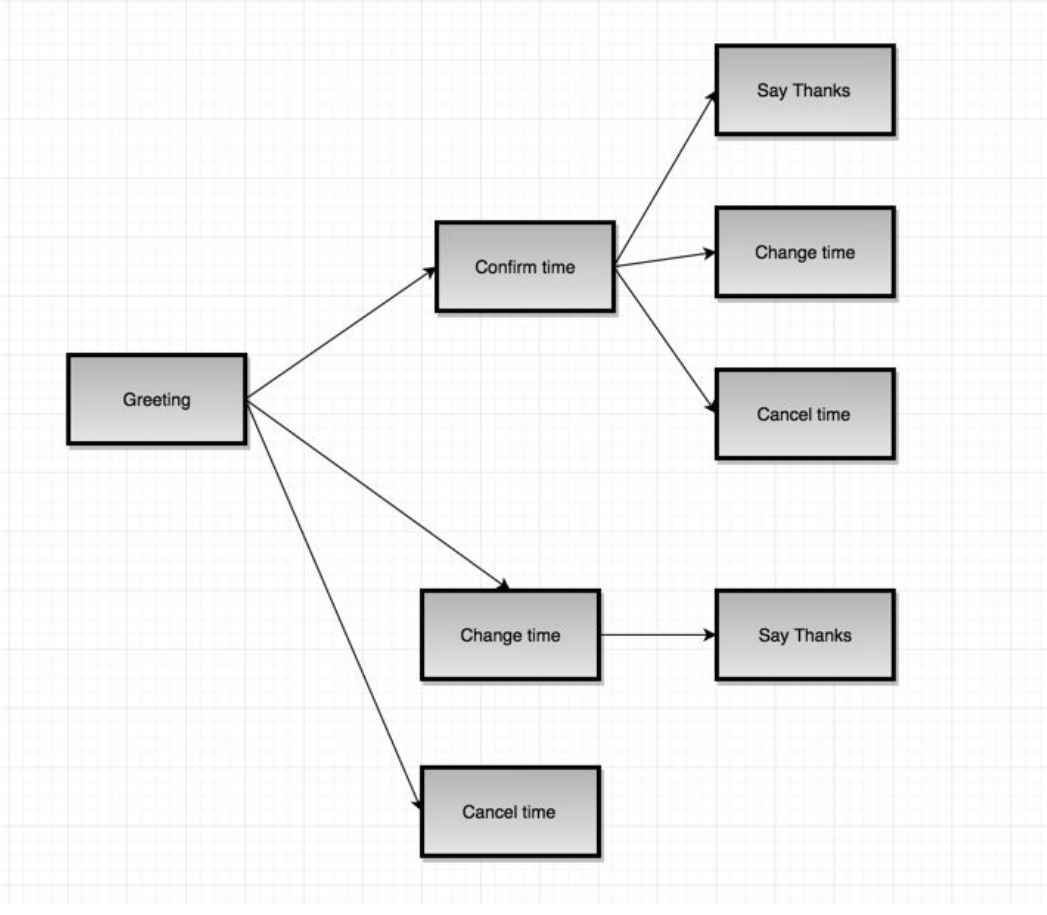
2. Extract name entity

- Entity is information include in user input, like user's name, location, number, time…
- We can use some existing libraries to extract that info, some good libraries:
  - Stanford NLP libs:
  - NLTK

Named Entity Recognition:

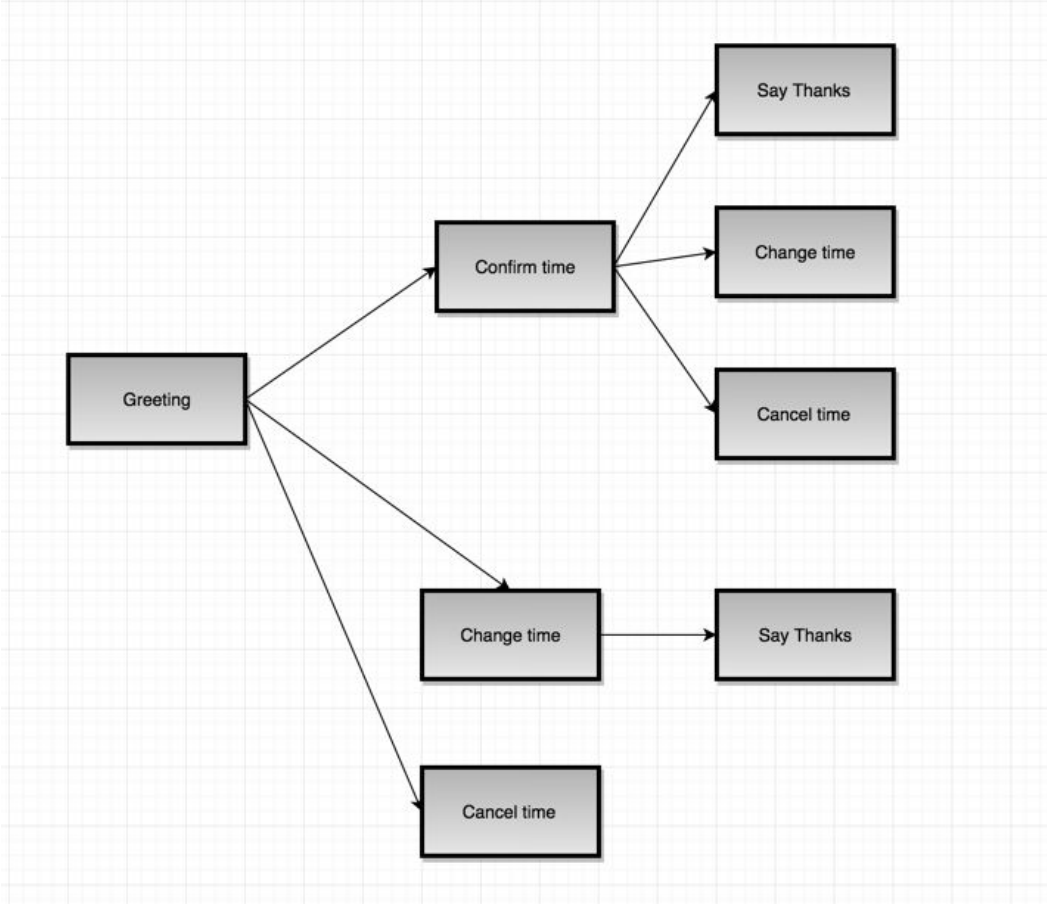
3. Chatbot behavior

- Actually, one chat dialog is the same one TREE with new message always based on prev message.
- Chatbot need remain current user status
- Chatbot need remain next intent user should be want to do → make listen and prepare something to make reply for each intent



3. Chatbot behavior

- Solution:
  - Store current status.
  - Store which intents user should be want to do in next message.
  - Store prev user status to make reply when user ignore current status and he want to change to prev status.



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