

The background of the slide is a light gray gradient with several realistic water droplets of various sizes scattered across it. The droplets have highlights and shadows, giving them a three-dimensional appearance.

# EEI

## Final project

# Intelligent Chatbot for Trademark Infringement Queries

姓名:林哲丞

學號:106034543

# Outline

- Background
- Literature review
- As-is model
- To-be model
- Conclusion

The background features a light gray gradient with several realistic water droplets of various sizes scattered across the surface. The droplets have highlights and shadows, giving them a three-dimensional appearance. The word "Background" is centered in a black serif font.

# Background

# Background

- In the generation of the advancement of technology. Especially, the rise of the artificial intelligence (AI). Additionally, chat platform such as line, facebook, messenger has become an important part of life. Therefore, chatbot, which is a computer program that simulates human conversation, and when the user need some help, chatbot can solve the questions who need timely response.
- Trademark is the key point to enhance the brand image because the trademark registration does not only protect the existing trademark from infringement, but to gain its trademark market value. So, in this research, I hope to combine the trademark with the AI technology - chatbot to provide a platform of consultation service of trademark field. The goal of this research is to reduce the possibility of trademark infringement in the future.

The background features a light gray gradient with several realistic water droplets of various sizes scattered in the corners. The droplets have highlights and shadows, giving them a three-dimensional appearance. The text 'Literature review' is centered in a black serif font.

# Literature review

# Literature review

- Chatbot

- The study of chatbots began in Turing's article on mind in 1950 which called “computing machinery and intelligence”.
- Back in the 1960s, MIT professor Joseph Weizenbaum developed ELIZA, the first chatbot, that could “interact” with people like a psychotherapist would. The most representative chatbot system is the Artificial Linguistic Internet Computer Entity (ALICE) system developed by Richard S. Wallace in 1995.
- A computer program that simulates human conversation, or chat, through artificial intelligence. Chatbots are typically used in dialog systems for various practical purposes including customer service or information acquisition.
- For example, I can ask “please give me the website of Taiwan trademark”, and the chatbot will reply me a website: <https://twtmsearch.Tipo.Gov.Tw/OS0/OS0101.Jsp>. Therefore, when the user needs some help related to the trademark, chatbots can solve the questions of those who need a timely response.

# Literature review

- Trademark infringement

- According to the Trademark Law of Taiwan, the trademark is defined as any identifying mark, which is composed of characters, figures, marks, colors, three dimensional shapes, dynamic, hologram, voice and so on (TIPO, 2017).
- The so-called "confusion of trademark" refers to the market as the two trademarks have the same or similar pattern, and use for the same or similar goods. This decision is made to determine whether the infringement is established or not.

# Literature review

- Language understanding intelligent service (LUIS)
  - LUIS is released by Microsoft for the development of natural language understanding module.
- Important concepts in LUIS (Microsoft LUIS, 2017)
  - 1) Utterance
    - The expression statement is that the application needs to understand the text input from the user.
  - 2) Intent
    - Intent is the purpose or goal that the user wants to express.
  - 3) Entity
    - Entity represents the detailed information in the statement, which is the key to the accuracy of the entire semantic understanding.

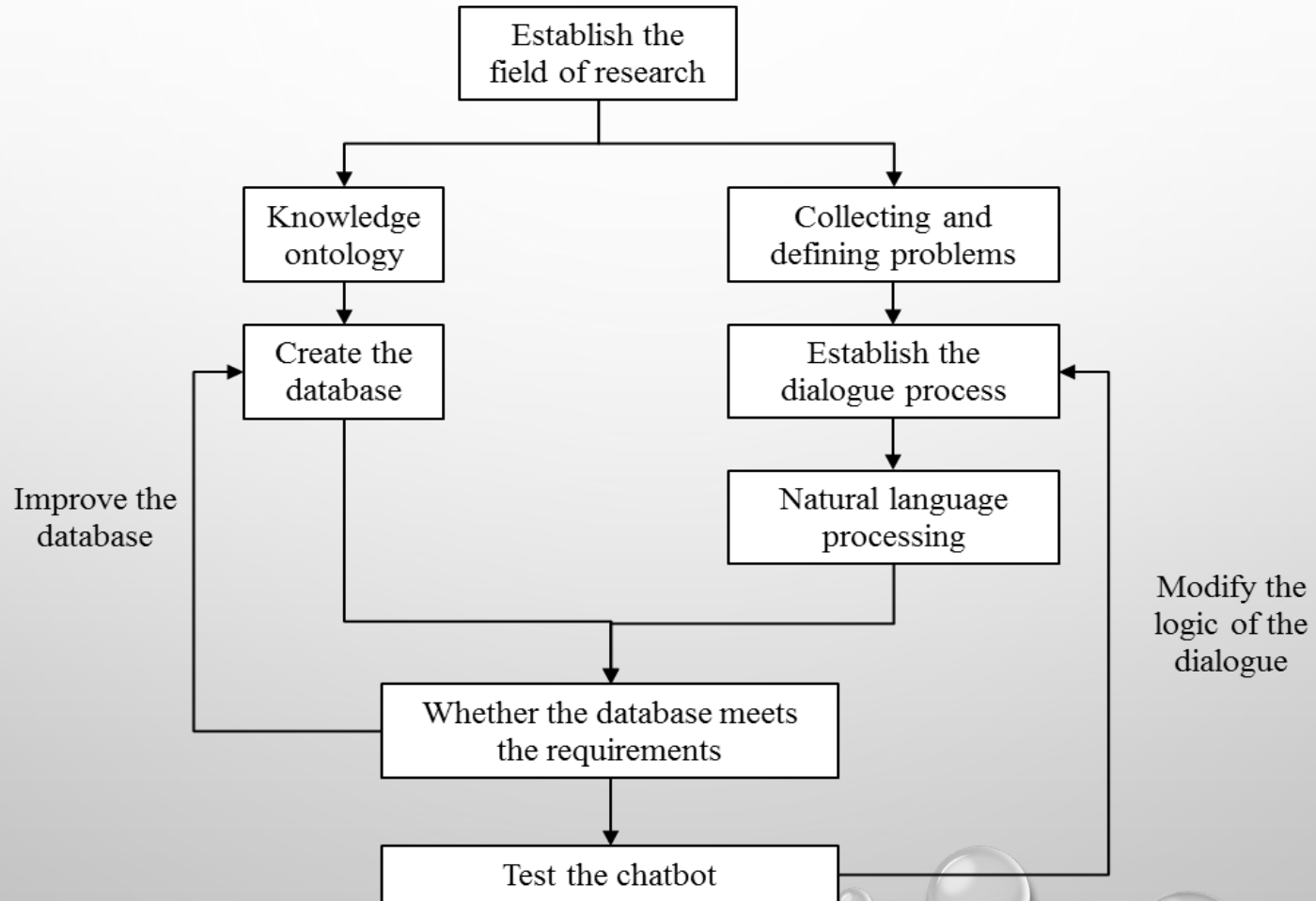


# As-is model

- When users need to consult the trademark online, they will use search engine and use keyword search, but keywords are often partial consultations. Users must find out the web pages that they really need from search results, and can not get the right information accurately and instantly.

# To-be model


## The construction method of chatbot





# To-be model

## First - Define problems

1. Search for a trademark website
  2. Inquire about the process of trademark registration
  3. Query the name of similar trademark
  4. Inquire the verdict of the similar trademark
- 

# To-be model

## Second - Train the utterances in LUIS platform

- According to the utterances for a trademark

The screenshot displays the LUIS platform interface for training a model. The main content area shows a list of utterances with their corresponding predicted intents and confidence scores. The utterances are:

- 我想知道 國家 註冊的 流程 (Confidence: 1.0)
- 我想知道 國家 註冊的 流程 (Confidence: 0.99)
- 我想知道 國家 註冊的 流程 (Confidence: 0.99)
- 我想知道 國家 註冊的 流程 (Confidence: 0.98)
- 我有一個商標要怎麼向 澳洲智財局 註冊 (Confidence: 1.0)
- 我有一個商標要怎麼向 國家智財局 註冊 (Confidence: 1.0)
- 我有一個商標要怎麼向 國家智財局 註冊 (Confidence: 1.0)
- 我要在 國家 註冊，可以告訴我怎麼 註冊嗎？ (Confidence: 0.99)
- 我要在 國家 註冊，可以告訴我怎麼 註冊嗎？ (Confidence: 0.99)
- 我要在 國家 註冊，可以告訴我怎麼 註冊嗎？ (Confidence: 0.99)

to apply

## To-be model

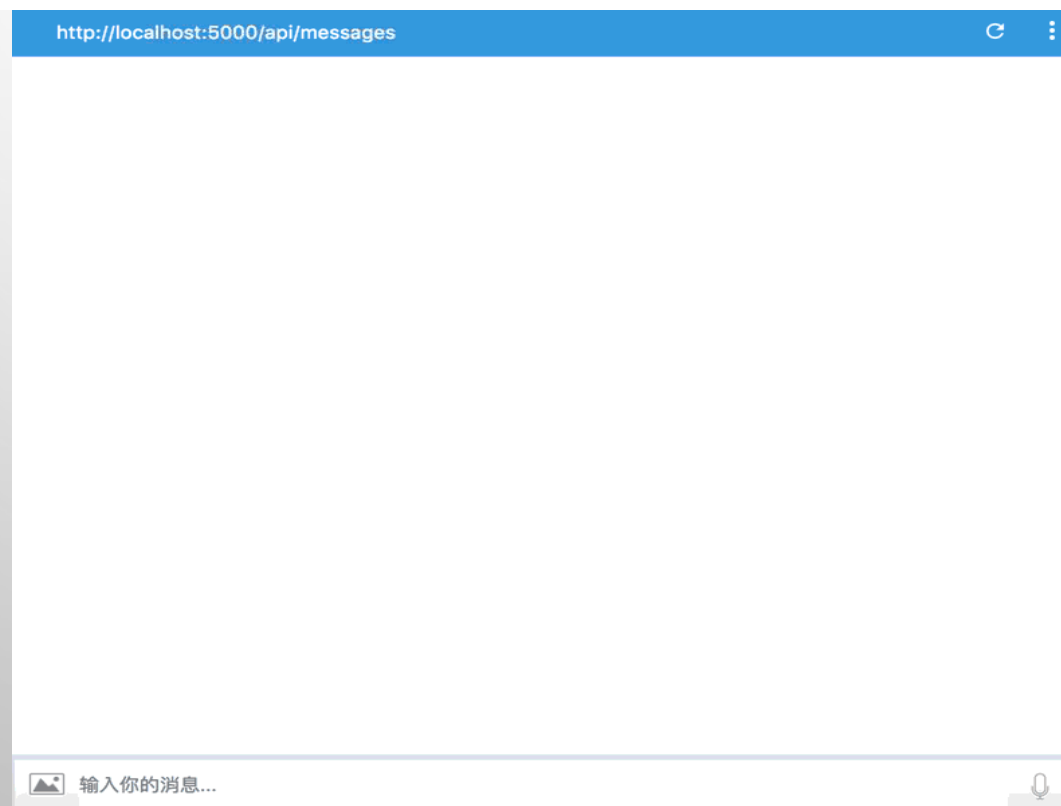
### Third – Design the answer of the dialogue process.

- Search for a trademark website
  - Directly answer the URL of each country
- Inquire about the process of trademark registration
  - Directly answer the process chart of each country provided by WIPO
- Query the name of similar trademark
  - Directly answer the similar name, the database is provided by Intellectual Property Office (IPO)
- Inquire the verdict of the similar trademark
  - Directly answer the similar verdict and similarity. The database of verdict is provided by Findlaw website and the mainly method is “Doc2vec” which can calculate the similarity between verdicts.

# To-be model DEMO (1/4)

- Example of chatbot for question “search for a trademark website”
  - Input “我想找台灣的商標網站”

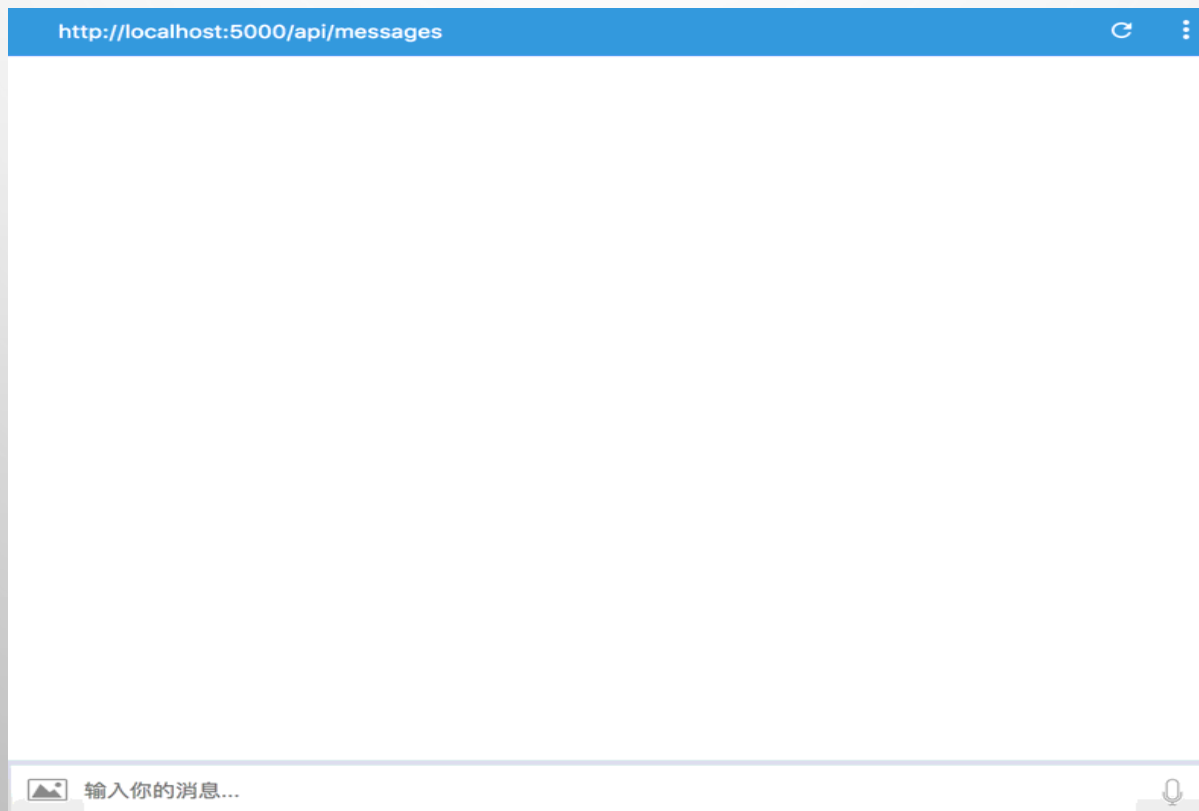
```
[<Entity entity='台灣' type='國家' score=0.998999655 start_index=3 end_index=4 resolution=None>, <Entity entity='商標網站' type='商標網站' score=0.9038429 start_index=6 end_index=9 resolution=None>]  
<Intent intent='詢問商標網站' score=0.9812081>
```



# To-be model DEMO (2/4)

- Example of chatbot for question “inquire about the process of trademark registration”
- Input “我想詢問日本的商標註冊流程”

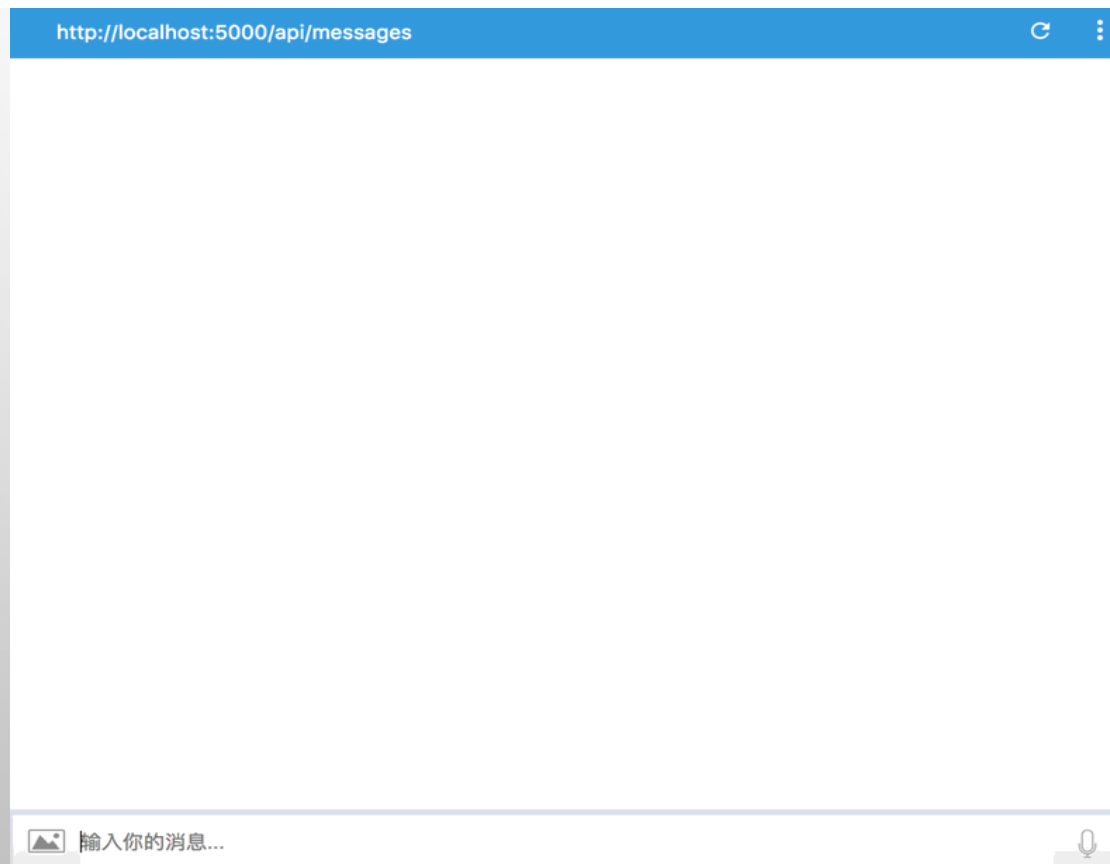
```
[<Entity entity='詢問' type='詢問' score=0.9628747 start_index=2 end_index=3 resolution=None>, <Entity entity='日本' type='國家' score=0.991841137 start_index=4 end_index=5 resolution=None>, <Entity entity='註冊' type='註冊' score=0.9883123 start_index=9 end_index=10 resolution=None>, <Entity entity='流程' type='流程' score=0.8115354 start_index=11 end_index=12 resolution=None>]  
<Intent intent='詢問商標註冊流程' score=0.9587182>
```



# To-be model DEMO (3/4)

- Example of chatbot for question “Inquire the verdict of the trademark”
- Input “我想搜尋NIKE相似的商標名稱”

```
[<Entity entity='NIKE' type='企業' score=0.9222807 start_index=5 end_index=8 resolution=None>  
<Intent intent='查詢商標相關名稱' score=0.985502839>
```

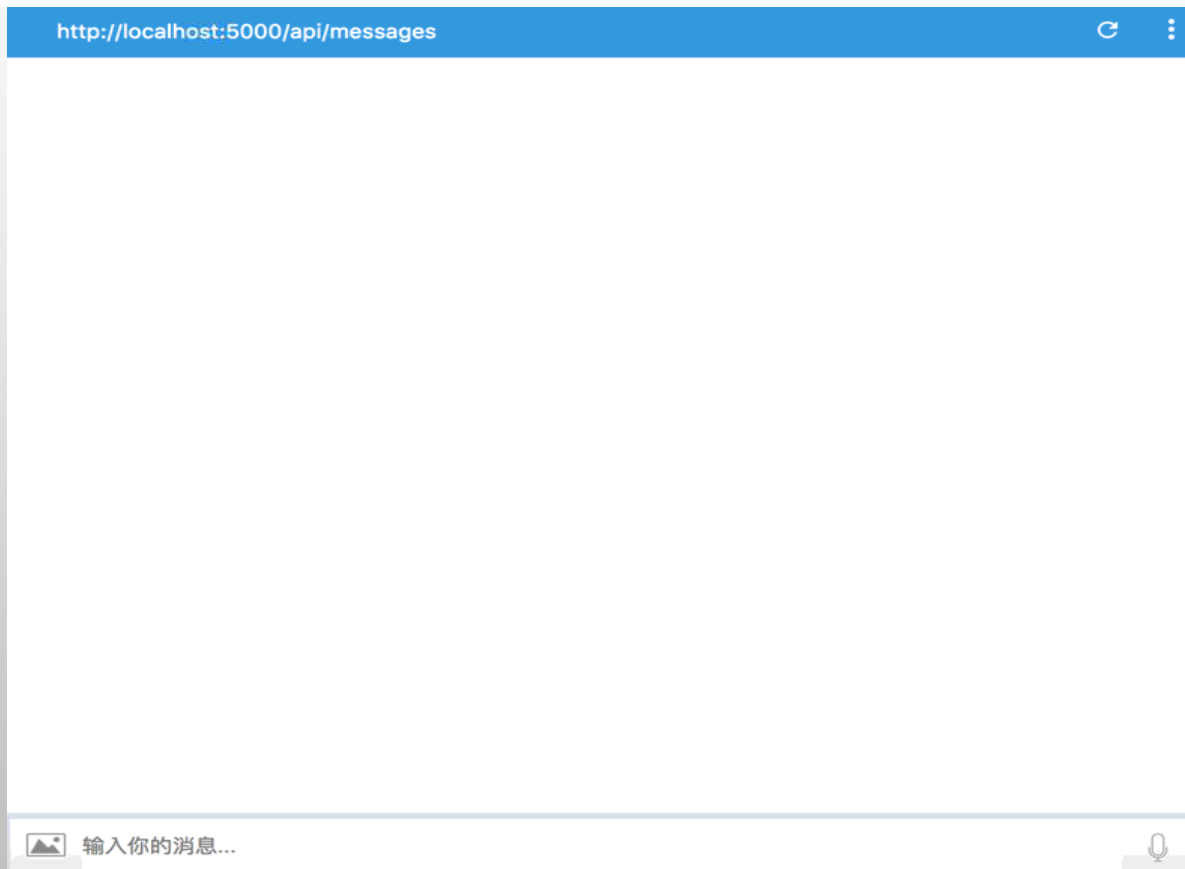




# To-be model DEMO (4/4)

- Example of chatbot for question “Query the name of similar trademark”
- Input “我想搜尋NIKE相似的商標名稱”

```
[<Entity entity='http : / / corporate . findlaw . com / intellectual - property / nike - s - trademark - infringement - case - turns - on - covenant - not - to - sue .  
html' type='判例網址' score=0.986246765 start_index=8 end_index=126 resolution=None>  
<Intent intent='查詢商標判例' score=0.9682651>
```



# Conclusion

- With the rise of chat platform, chatbot has evolved into a popular application.
- In enterprise, in order to develop the trust, confidence or raise the global reputation in its products or service, trademark registration is an effective method.
- This research applies the chatbot to the trademark field. This study provides a platform of consultation service of trademark field, and the ultimate aim is to effectively reduce the possibility of trademark infringement.

**THANK YOU  
FOR YOUR  
ATTENTION**

