

# Part4 Update

## 1. Introduction:

My project is a weather checking chatbot which get idea from the project1. Users can input questions like the temperature, moisture and even more data related to weather on today or given time with the location. Also, this chatbot can recommend clothes to wear according to the temperature and weather. The reason I want to design this chatbot is because it is inconvenient to decide what to wear after checking the outside place weather and then come back to room and choose clothes. With this chatbot, it can provide all these information at one time.

### Part 3 update:

The Api I find online can only provide the temperature, other data need to be paid. Also I can't find suitable api for clothes recommending, so I hardcode this part. Therefore, my project will be about report on today's temperature, and recommend clothes according to it.

### Part 4 update:

No change.

## 2. Technical Overview

It will be based on python. And I will use some online API to find weather. For the clothes recommended function, I am not sure whether I can find suitable API now. If I can't find online API, then I will use hard-coded.

**Part 3 update:** No changes. Found weather Api online, and hard-code clothes part.

### Part4 update:

The API I found online is <https://openweathermap.org/forecast5>, which can help to forecast the weather in 5day every 3 hours. . The clothes part is the same as in part3, which is hand-coded in a python dictionary.

Please see the final page about how to run the bot.

## 3. Phases

For project 3, first part will include the syntax and lexicon of grammars needed for the chatbot, which can help to understand the sentence.

The second part will be about handling the input. It can convert the user input to internal representation and decide which service needed.

For project4,

Part 1 will be about the output, which can combine answers generated by API and output in sentences.

Part 2 will be about the final checking part, and test them to see if need some modification.

**Part 3 update:** No changes. In this part I finished output some answer according to the keywords asked in terminal with Api. But I not started the talking version yet, which I decide to leave it for part4.

#### **Part 4 update:**

Add one more phase which can help to recognize the wrong words spelling or other character problems. I only test the API for cities in US, and it works well.

#### **4. Example**

(since I am not decide whether to use API for the clothes recommendation part, the example is not that specific)

- a. User can ask the chatbot question about “today’s weather on xxx city”  
Chatbot output : the weather on xxx city is now xxx Fahrenheit, recommended wearing: xxx.
- b. User can ask the chatbot question about “future 5-day weather on xxx city”:  
Chatbot output : the future weather on xxx city will be xxx Fahrenheit on mean, recommended wearing: xxx.  
(which can give the mean weather of future 5-days, and the recommended wearing is also based on this)
- c. User can ask the chatbot question like ”Is it suitable that if I wear xxx cloth today?”  
Chatbot output : yes./ No, you’d better wear xxx.
- d. User can ask the chatbot question about hourly change weather like “will it still be (windy) after xxx hours on xxx city ? ”(on the same day)  
Chatbot: Yes, it will still be (windy)./ No, it will be (rainy) after xxx hours.
- e. User can ask the chatbot question like “What should I bring if I will go to xxx city in xxx days?”  
Chatbot: You can bring (T-shirts/shits) clothes for the next (x) days in xxx city.

(This is not final version yet, and I may change them according to the API I found)

**Part 3 update:** No change. You can see my input and output answering in the final screenshots part below, which is quietly similar to these examples.

#### **Part4 update:**

Just as question3 said, I add one more sentences in the case that the input wrong words, and this example will be shown in the screenshot part at the end of the report.

## 5. Input handling:

Input will be based on the syntax and lexicon. And I will change the same part as in project 1 to better suits for my weather project.

First, connect words to part of speech,

```
[ 'Verb', 'be', 0.5 ],  
[ 'Verb', 'was', 0.5 ],  
[ 'Name', 'Peter', 0.1 ],  
[ 'Name', 'Sue', 0.1 ]
```

Then combine words into sentences :

```
'syntax' : [  
  [ 'Greeting', 'S', 0.25 ],  
  [ 'S', 'NP', 'VP', 0.25 ],  
  [ 'S', 'WQuestion', 'VP', 0.25 ],  
  [ 'VP', 'Verb', 'Name', 0.2 ],  
  [ 'VP', 'Verb', 'NP', 0.1 ],  
]
```

This is just an example, and I will change them in the real code.

## Part 3 update:

I change a lot based on the phases on part1, and I add num type so that I can report on future day's weather. Besides, I add more features so that it can recognize the time, place and temperature keywords.

## Part 4 update:

Implemented as planned in Part 3.

## 6. Internal Representation and data sources

Firstly, I will define functions to distinguish the type of questions, and then decide which API or coded needed to use. And since the use of keywords is important, I may use them as a trigger and store them as global variables. Also, I will build a collections to store the clothes type if I can't find suitable online API.

The final project may contain more types of data to implement these functions.

**Part 3 update:** The weather API I found online is not that useful as I thought, so I re-scheduled the questions and answers to fit for the API. The clothes part costs me lots of time. I am not sure if it is large or helpful enough to generate outputs.

#### Part 4 update:

Implemented as planned in Part 3.

### 7. Output Handling

According to the return values by API or hard-coded part, output will use the syntax and lexicons to combine them to output the answers corresponding to the key words in question. Output for the same type of answers will use the same format, just change variables like temperature or location.

**Part 3 update:** No changes.

**Part 4 update:** No changes.

## Part4 Output:

```
you: future 5-day weather on Tustin
bot: Checking the weather for you...
bot: peter,at that time the temperature on tustin is 60.51 Fahrenheit on mean,with clear sky.
bot: are you going to tustin for 5 day?
:yes
bot: do you need me to recommendate the clothes for you?
:not

you: How's future 2-day weather on Pasadena
bot: Checking the weather for you...
bot: peter,at that time the temperature on pasadena is 57.94 Fahrenheit on mean,with overcast clouds.
bot: are you going to pasadena for 2 day?
:yes
bot: do you need me to recommendate the clothes for you?
:yes
bot: It's not too cold, but you might consider taking a light jumper
bot: The air will be quite calm, so no need to worry about wind

you: How will the weather change in the future 5 days in Pasadena
bot: Checking the weather for you...
bot: peter,at that time the temperature on pasadena is 65.71 Fahrenheit on mean,with scattered clouds.
bot: are you going to pasadena for 5 day?
:n

you: In Tustin, tell me the future 5 days weather
bot: Checking the weather for you...
bot: peter,at that time the temperature on tustin is 60.51 Fahrenheit on mean,with clear sky.
bot: are you going to tustin for 5 day?
:n
```

you: hi my name is Peter  
Hello peter.

you: Is it suitable that if I wear sunglasses today  
bot: peter,i dont know where you are

you: today's weather on Pasadena  
bot: Checking the weather for you...  
bot: peter,the temperature on pasadena is 56.86 Fahrenheit on mean,with light rain.  
bot: How's your feeling today?

you: Is it suitable that if I wear sunglasses today  
bot: Checking the weather for you...  
bot: peter,i am no sure what you need to wear,but according to the weather following recommend may be useful  
bot: There'll be violent rain, so wear a life-jacket  
bot: It's not too cold, but you might consider taking a light jumper  
bot: There'll be a light breeze, so maybe long sleeves might be useful  
bot: by the way,you look great all the day!

you: Is it okay if I wear sunglasses today  
bot: Checking the weather for you...  
bot: peter,i am no sure what you need to wear,but according to the weather following recommend may be useful  
bot: There'll be violent rain, so wear a life-jacket  
bot: It's not too cold, but you might consider taking a light jumper  
bot: There'll be a light breeze, so maybe long sleeves might be useful  
bot: by the way,you look great all the day!

you: will it still be windy after 5 hours on Pasadena  
bot: Checking the weather for you...  
bot: peter,the temperature on pasadena is 53.06 Fahrenheit on mean,with light rain.  
bot: How's your feeling today?

you: In Pasadena, how's the weather be like after 4 hours  
bot: Checking the weather for you...  
bot: peter,the temperature on pasadena is 55.72 Fahrenheit on mean,with light rain.  
bot: How's your feeling today?

you: What should I wear if I will go to Pasadena in 4 days  
bot: Checking the weather for you...  
bot: peter,i am no sure what you need to wear,but according to the weather following recommend may be useful  
bot: There'll be heavy rain, so you'll need an umbrella and a waterproof top  
bot: It's not too cold, but you might consider taking a light jumper  
bot: The air will be quite calm, so no need to worry about wind  
bot: by the way,you look great all the day!

you: What should I bring if I will go to Pasadena in 4 days  
bot: Checking the weather for you...  
bot: peter,at that time the temperature on pasadena is 66.99 Fahrenheit on mean,with clear sky.  
bot: are you going to pasadena for 4 day?  
:n

Shows the E point, which is the “remember” function.

The part1 did not mention the city, so the bot don't know.

In part2, bot helps to forecast the weather in *Bakersfield*.

In part3, the bot know the city is Bakersfield even don't mention the name of city again.

```
C:\Users\xixih\Desktop\python_chat>python Proj1.py
you: Is it suitable that if I wear sunglasses today
bot: i dont know where you are

you: today' s weather on bakersfield
bot: Checking the weather for you...
bot: the temperature on bakersfield is 44.74 Fahrenheit on mean, with clear sky.
bot: How' s your feeling today?

you: Is it okay if I wear sunglasses today
bot: Checking the weather for you...
bot: i am no sure what you need to wear, but according to the weather following recommend may be useful
bot: It should be sunny, so a hat or sunglasses might be needed
bot: It's going to be cold, so a coat or thick jumper might be sensible
bot: The air will be quite calm, so no need to worry about wind
bot: by the way, you look great all the day!

you:
```

recognize the wrong words and ask for another input.

```
you: hi my name is Peter
Hello peter.

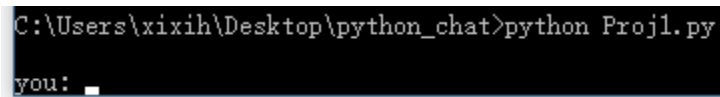
you: hi my nane is Peter
bot: sorry i don't know what you mean, would you mind ask again?

you:
```

## How to run the bot:

1. Open the CMD or terminal(win+r )
2. Cd to the path containg the file.
3. Input python Proj1.py to run the file
4. After the terminal shows [you: ], then the bot is running correctly. We can ask the bot questions in the terminal.

Like this:



```
C:\Users\xixih\Desktop\python_chat>python Proj1.py  
you: _
```