ChatBot Project Report

Project Description

Our team is developing an interactive conversational weather and navigation agent that will utilize various methods and APIs to respond to relevant user questions. The user can ask the bot questions regarding the current and future weather predictions and get brief POI information.The role of this bot would be to answer the frequent questions a user would need to know before leaving their house.The structure of our project is to make use of a third party software (wit.ai) to train and develop an existing AI that will help identify specific traits, entities and intents within the user question; then to use those parameters to query data via weather and geographic data APIs and provide output via a GUI.

Team repository: https://github.com/310LabGroup28/chat-bot

Chosen SDLC and rationale:

We have chosen to use the Agile development SDLC for our project. We believe that this is the most suitable life cycle for a project with a small team allocation and a short project timeframe. It helps each team member take up significant parts of the project and iterate on them continuously to meet the requirements. Agile development also means that the requirements can be altered throughout the iterations, which helps to improve software as more functional and responsive solutions can be discovered during development. Most importantly, Agile development leads to the team quickly developing a working software that needs to be iterated, this helps each team member easily visualize and identify their roles and future needs.

SDLC Phases

- 1. Planning
  - 1.1 Research and gather data
  - 1.2 Study existing systems
  - 1.3 Creation of WBS and Gantt chart
  - 1.4 Requirements Analysis
    - 1.4.1 Identify and define topics the agent will respond to
    - 1.4.2 Identify and define the accuracy and responsiveness of the agent
    - 1.4.3 Identify and define how the user will utilize and implement the software
- 2. Design
  - 2.1 Design infrastructure of the system
    - 2.1.1 Identify and map out of the communication between frontend, backend and third party API’s
  - 2.2 Identify objects and methods that are going to be developed in the system
  - 2.3 Design the UI of the frontend
    - 2.3.1 Develop several paper prototypes, compare and finalize the design

        - 2.3.2 Identify the medium to develop the frontend (html, Python, JS)
- 3. Development
    - 3.1 Code frontend
    - 3.2 Training of AI
    - 3.3 Develop python pages for objects
        - getDistance, getTimeDifference, getTimeZone, getPOI, getForecast, getTemperature, getTime, main
- 4. Acceptance Testing.
    - 4.1 Identify test cases
    - 4.2 Device testing, compile code on every users computer
    - 4.3 Execution of test cases

WBS breakdown

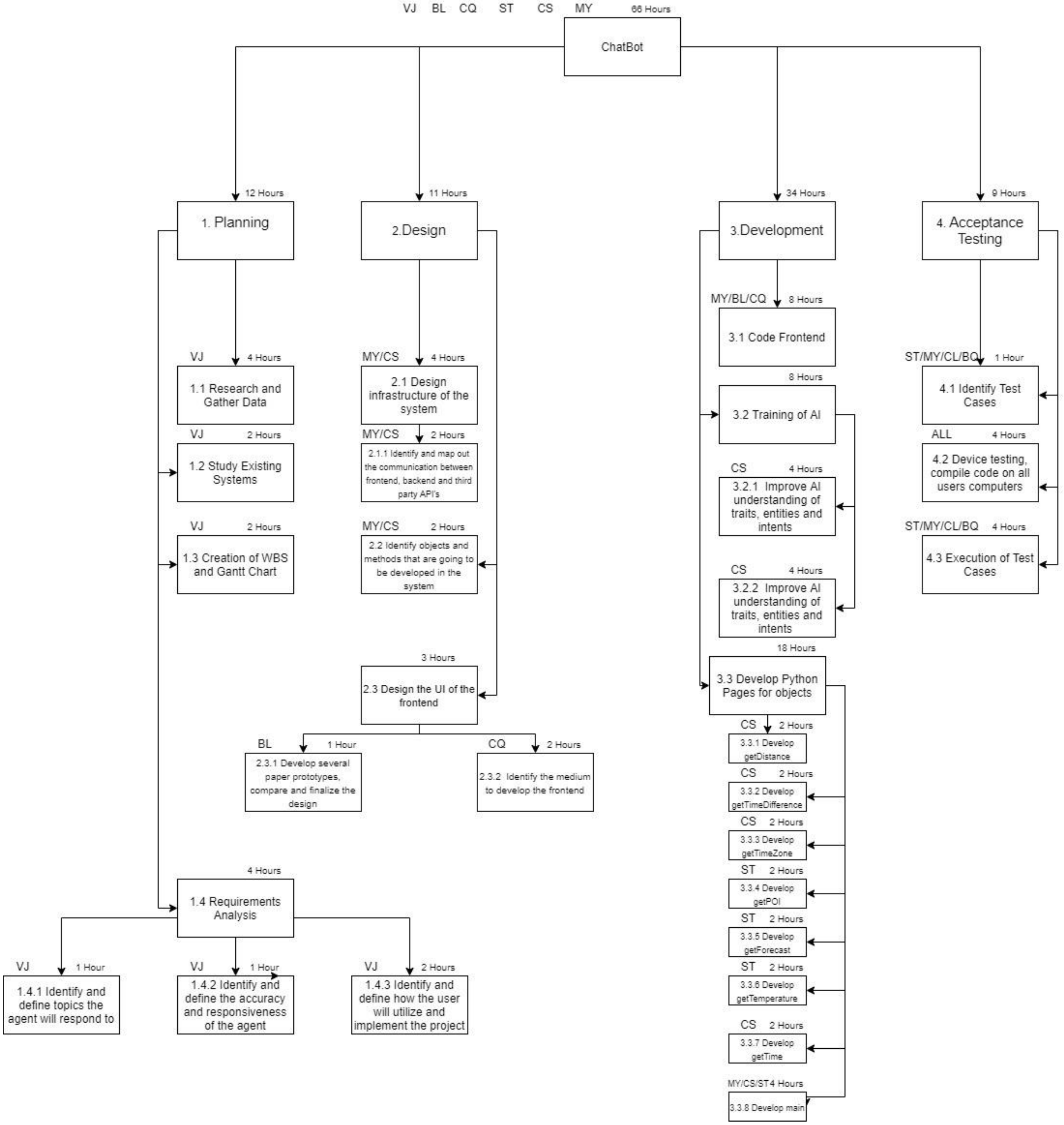
Group member initials:
VJ - Varun Jha
BL - Bang Liu
CQ - Calvin Qu
ST - Skylar Tian
CS - Cole Van Stienburg
MY - Manson Yu

WBS Explanation:

Each task has the initials of the group member that is assigned to it on the top left of the task. The estimated duration of the task is on the top right of each task: To calculate the total hours of any parent task, we can take the sum of all of the direct children tasks. Example:

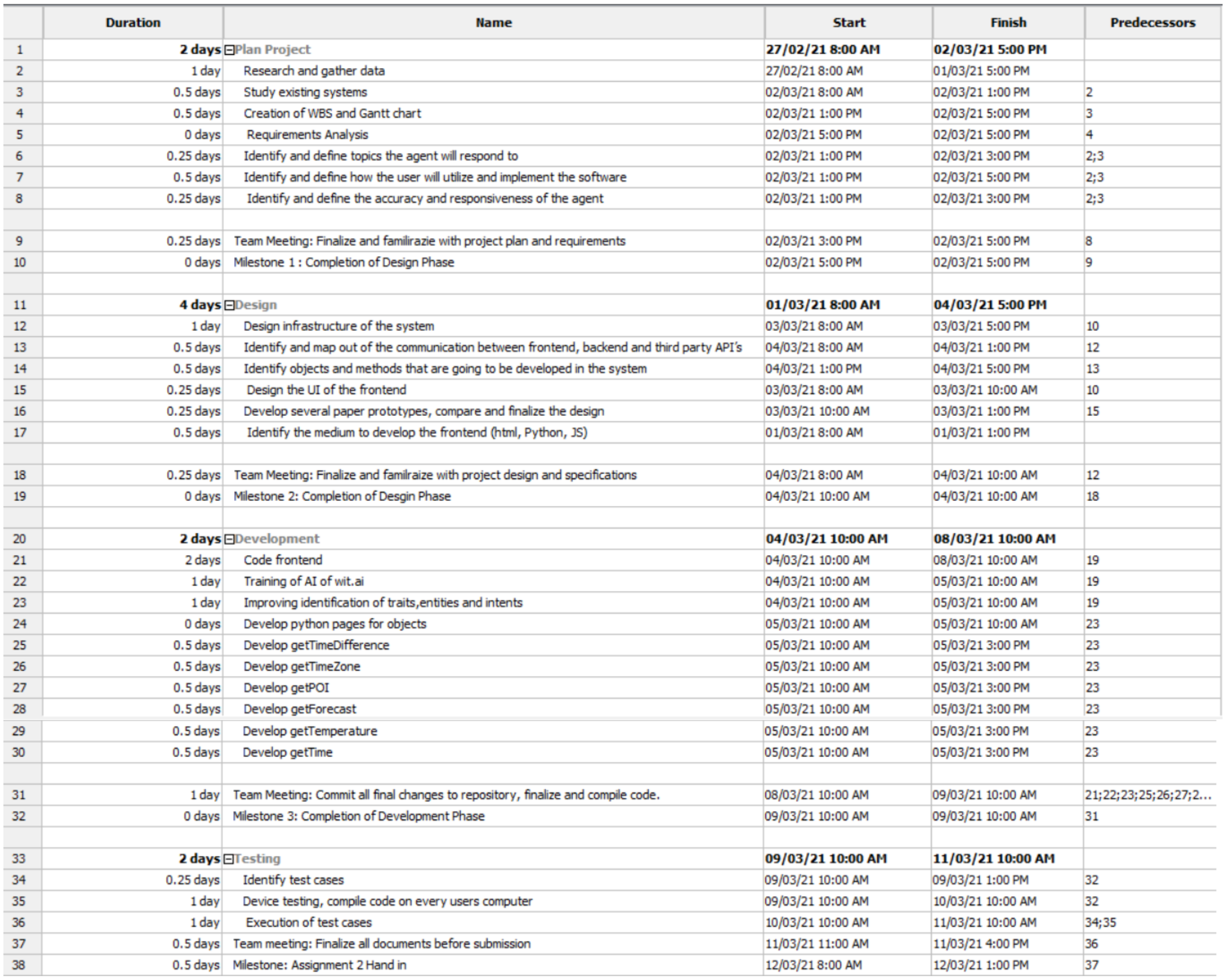
Total Hours in Task 1 = Task 1.1 + Task 1.2 + Task 1.3 = 4 + 2 + 2 + 4 = 12 hours
Total Hours in Task 1.4 = Task 1.4.1 + Task 1.4.2 + Task 1.4.3 = 1 + 1 + 2 = 4 hours

WBS



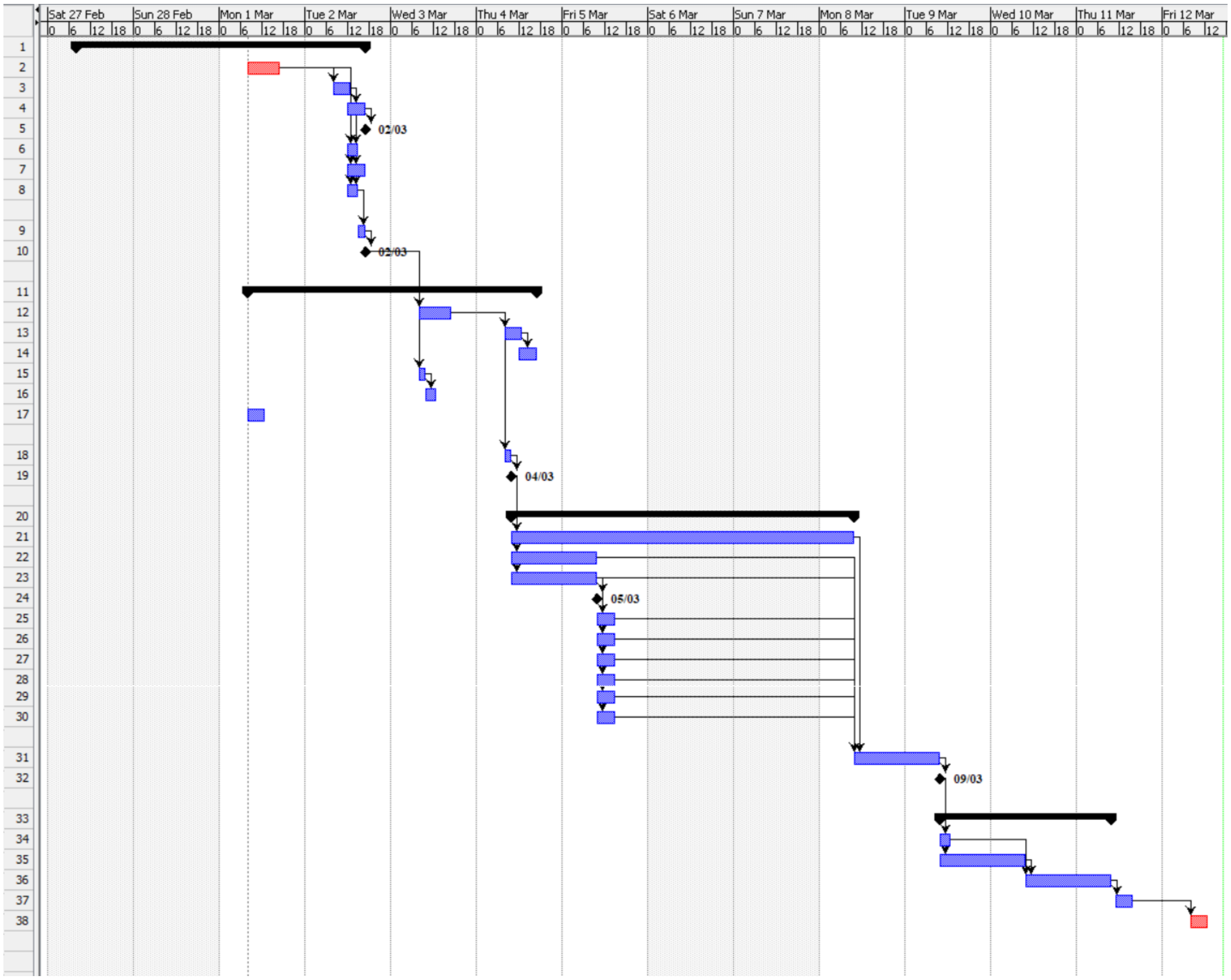
VJ BL CQ ST CS MY
66 Hours
ChatBot
12 Hours
1. Planning
11 Hours
2.Design
34 Hours
3.Development
9 Hours
4. Acceptance Testing
VJ 4 Hours
1.1 Research and Gather Data
VJ 2 Hours
1.2 Study Existing Systems
VJ 2 Hours
1.3 Creation of WBS and Gantt Chart
4 Hours
1.4 Requirements Analysis
VJ 1 Hour
1.4.1 Identify and define topics the agent will respond to
VJ 1 Hour
1.4.2 Identify and define the accuracy and responsiveness of the agent
VJ 2 Hours
1.4.3 Identify and define how the user will utilize and implement the project
MY/CS 4 Hours
2.1 Design infrastructure of the system
MY/CS 2 Hours
2.1.1 Identify and map out the communication between frontend, backend and third party API's
MY/CS 2 Hours
2.2 Identify objects and methods that are going to be developed in the system
3 Hours
2.3 Design the UI of the frontend
BL 1 Hour
2.3.1 Develop several paper prototypes, compare and finalize the design
CQ 2 Hours
2.3.2 Identify the medium to develop the frontend
MY/BL/CQ 8 Hours
3.1 Code Frontend
8 Hours
3.2 Training of AI
CS 4 Hours
3.2.1 Improve AI understanding of traits, entities and intents
CS 4 Hours
3.2.2 Improve AI understanding of traits, entities and intents
18 Hours
3.3 Develop Python Pages for objects
CS 2 Hours
3.3.1 Develop getDistance
CS 2 Hours
3.3.2 Develop getTimeDifference
CS 2 Hours
3.3.3 Develop getTimeZone
ST 2 Hours
3.3.4 Develop getPOI
ST 2 Hours
3.3.5 Develop getForecast
ST 2 Hours
3.3.6 Develop getTemperature
CS 2 Hours
3.3.7 Develop getTime
MY/CS/ST4 Hours
3.3.8 Develop main
ST/MY/CL/BQ 1 Hour
4.1 Identify Test Cases
ALL 4 Hours
4.2 Device testing, compile code on all users computers
ST/MY/CL/BQ 4 Hours
4.3 Execution of Test Cases

Tasks, showing start and end dates, and showing dependencies



	Duration	Name	Start	Finish	Predecessors
1	**2 days**	⊟**Plan Project**	**27/02/21 8:00 AM**	**02/03/21 5:00 PM**	
2	1 day	Research and gather data	27/02/21 8:00 AM	01/03/21 5:00 PM	
3	0.5 days	Study existing systems	02/03/21 8:00 AM	02/03/21 1:00 PM	2
4	0.5 days	Creation of WBS and Gantt chart	02/03/21 1:00 PM	02/03/21 5:00 PM	3
5	0 days	Requirements Analysis	02/03/21 5:00 PM	02/03/21 5:00 PM	4
6	0.25 days	Identify and define topics the agent will respond to	02/03/21 1:00 PM	02/03/21 3:00 PM	2;3
7	0.5 days	Identify and define how the user will utilize and implement the software	02/03/21 1:00 PM	02/03/21 5:00 PM	2;3
8	0.25 days	Identify and define the accuracy and responsiveness of the agent	02/03/21 1:00 PM	02/03/21 3:00 PM	2;3
9	0.25 days	Team Meeting: Finalize and familirazie with project plan and requirements	02/03/21 3:00 PM	02/03/21 5:00 PM	8
10	0 days	Milestone 1 : Completion of Design Phase	02/03/21 5:00 PM	02/03/21 5:00 PM	9
11	**4 days**	⊟**Design**	**01/03/21 8:00 AM**	**04/03/21 5:00 PM**	
12	1 day	Design infrastructure of the system	03/03/21 8:00 AM	03/03/21 5:00 PM	10
13	0.5 days	Identify and map out of the communication between frontend, backend and third party API's	04/03/21 8:00 AM	04/03/21 1:00 PM	12
14	0.5 days	Identify objects and methods that are going to be developed in the system	04/03/21 1:00 PM	04/03/21 5:00 PM	13
15	0.25 days	Design the UI of the frontend	03/03/21 8:00 AM	03/03/21 10:00 AM	10
16	0.25 days	Develop several paper prototypes, compare and finalize the design	03/03/21 10:00 AM	03/03/21 1:00 PM	15
17	0.5 days	Identify the medium to develop the frontend (html, Python, JS)	01/03/21 8:00 AM	01/03/21 1:00 PM	
18	0.25 days	Team Meeting: Finalize and familraize with project design and specifications	04/03/21 8:00 AM	04/03/21 10:00 AM	12
19	0 days	Milestone 2: Completion of Desgin Phase	04/03/21 10:00 AM	04/03/21 10:00 AM	18
20	**2 days**	⊟**Development**	**04/03/21 10:00 AM**	**08/03/21 10:00 AM**	
21	2 days	Code frontend	04/03/21 10:00 AM	08/03/21 10:00 AM	19
22	1 day	Training of AI of wit.ai	04/03/21 10:00 AM	05/03/21 10:00 AM	19
23	1 day	Improving identification of traits,entities and intents	04/03/21 10:00 AM	05/03/21 10:00 AM	19
24	0 days	Develop python pages for objects	05/03/21 10:00 AM	05/03/21 10:00 AM	23
25	0.5 days	Develop getTimeDifference	05/03/21 10:00 AM	05/03/21 3:00 PM	23
26	0.5 days	Develop getTimeZone	05/03/21 10:00 AM	05/03/21 3:00 PM	23
27	0.5 days	Develop getPOI	05/03/21 10:00 AM	05/03/21 3:00 PM	23
28	0.5 days	Develop getForecast	05/03/21 10:00 AM	05/03/21 3:00 PM	23
29	0.5 days	Develop getTemperature	05/03/21 10:00 AM	05/03/21 3:00 PM	23
30	0.5 days	Develop getTime	05/03/21 10:00 AM	05/03/21 3:00 PM	23
31	1 day	Team Meeting: Commit all final changes to repository, finalize and compile code.	08/03/21 10:00 AM	09/03/21 10:00 AM	21;22;23;25;26;27;2...
32	0 days	Milestone 3: Completion of Development Phase	09/03/21 10:00 AM	09/03/21 10:00 AM	31
33	**2 days**	⊟**Testing**	**09/03/21 10:00 AM**	**11/03/21 10:00 AM**	
34	0.25 days	Identify test cases	09/03/21 10:00 AM	09/03/21 1:00 PM	32
35	1 day	Device testing, compile code on every users computer	09/03/21 10:00 AM	10/03/21 10:00 AM	32
36	1 day	Execution of test cases	10/03/21 10:00 AM	11/03/21 10:00 AM	34;35
37	0.5 days	Team meeting: Finalize all documents before submission	11/03/21 11:00 AM	11/03/21 4:00 PM	36
38	0.5 days	Milestone: Assignment 2 Hand in	12/03/21 8:00 AM	12/03/21 1:00 PM	37

Gantt Chart



Sat 27 Feb
Sun 28 Feb
Mon 1 Mar
Tue 2 Mar
Wed 3 Mar
Thu 4 Mar
Fri 5 Mar
Sat 6 Mar
Sun 7 Mar
Mon 8 Mar
Tue 9 Mar
Wed 10 Mar
Thu 11 Mar
Fri 12 Mar
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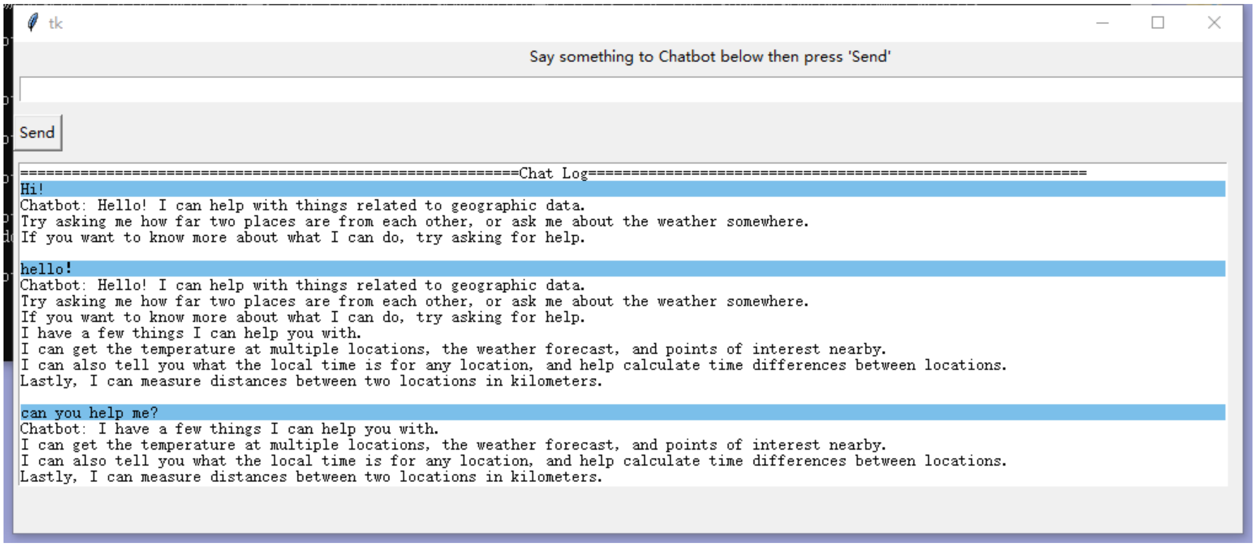
Limitations

Can only respond with useful information in a given region
Information given is often too brief, with no option for expanded data
Only able to provide answers to weather and temperatures for present time, not future
Can't transfer the client to real person staffs
Can’t provide multiple answers that might be helpful to one question

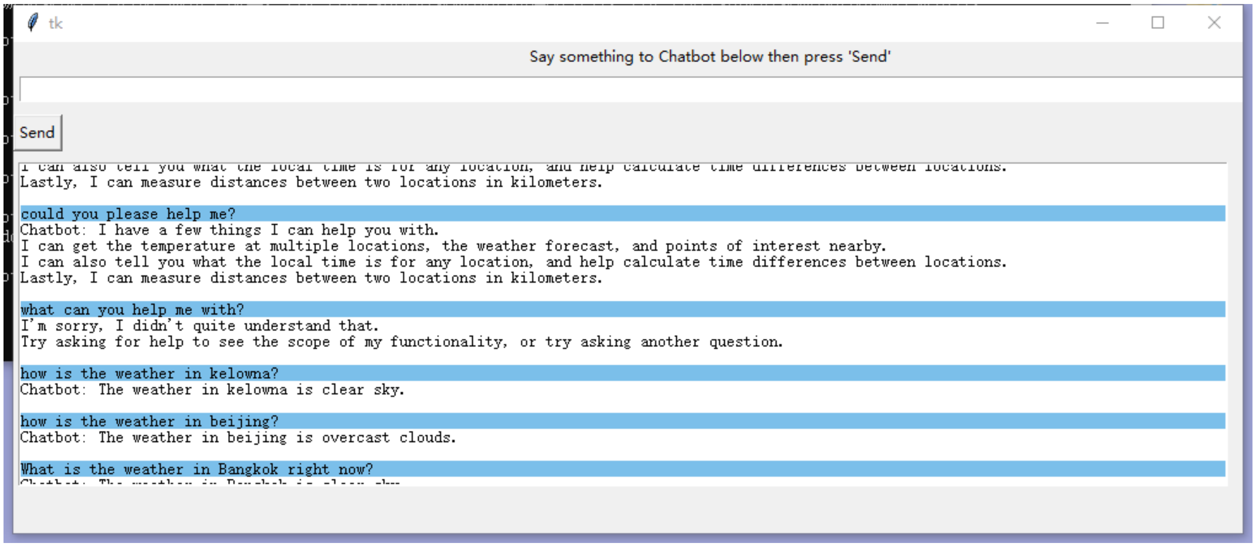
Sample Output



```
===========================================================Chat Log===========================================================
Hi!
Chatbot: Hello! I can help with things related to geographic data.
Try asking me how far two places are from each other, or ask me about the weather somewhere.
If you want to know more about what I can do, try asking for help.

hello!
Chatbot: Hello! I can help with things related to geographic data.
Try asking me how far two places are from each other, or ask me about the weather somewhere.
If you want to know more about what I can do, try asking for help.
I have a few things I can help you with.
I can get the temperature at multiple locations, the weather forecast, and points of interest nearby.
I can also tell you what the local time is for any location, and help calculate time differences between locations.
Lastly, I can measure distances between two locations in kilometers.

can you help me?
Chatbot: I have a few things I can help you with.
I can get the temperature at multiple locations, the weather forecast, and points of interest nearby.
I can also tell you what the local time is for any location, and help calculate time differences between locations.
Lastly, I can measure distances between two locations in kilometers.
```



```
I can also tell you what the local time is for any location, and help calculate time differences between locations.
Lastly, I can measure distances between two locations in kilometers.

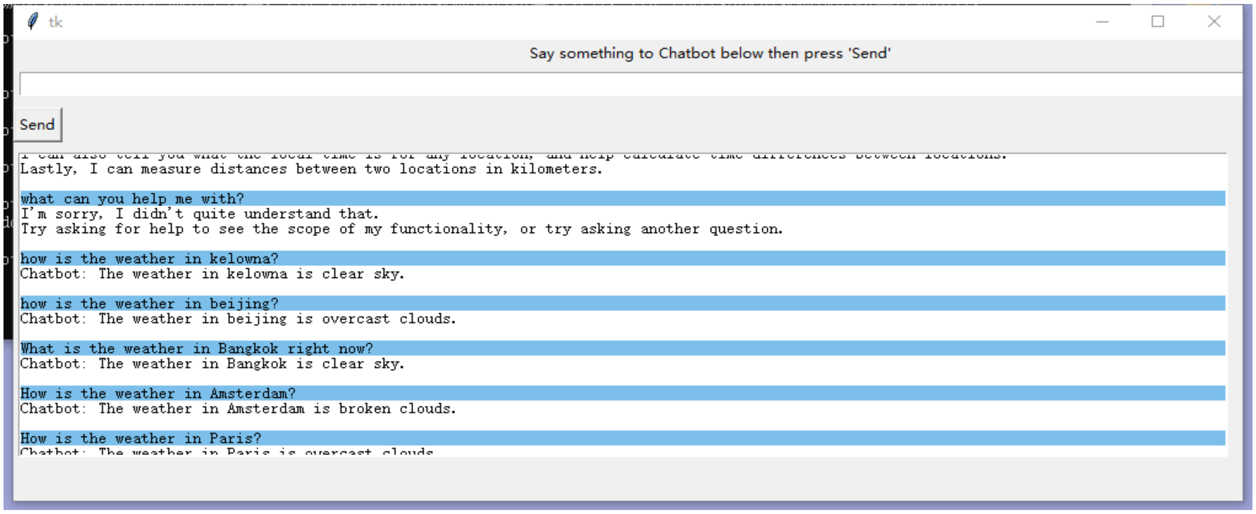
could you please help me?
Chatbot: I have a few things I can help you with.
I can get the temperature at multiple locations, the weather forecast, and points of interest nearby.
I can also tell you what the local time is for any location, and help calculate time differences between locations.
Lastly, I can measure distances between two locations in kilometers.

what can you help me with?
I’m sorry, I didn’t quite understand that.
Try asking for help to see the scope of my functionality, or try asking another question.

how is the weather in kelowna?
Chatbot: The weather in kelowna is clear sky.

how is the weather in beijing?
Chatbot: The weather in beijing is overcast clouds.

What is the weather in Bangkok right now?
Chatbot: The weather in Bangkok is clear sky.
```



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I can also tell you what the local time is for any location, and help calculate time differences between locations.
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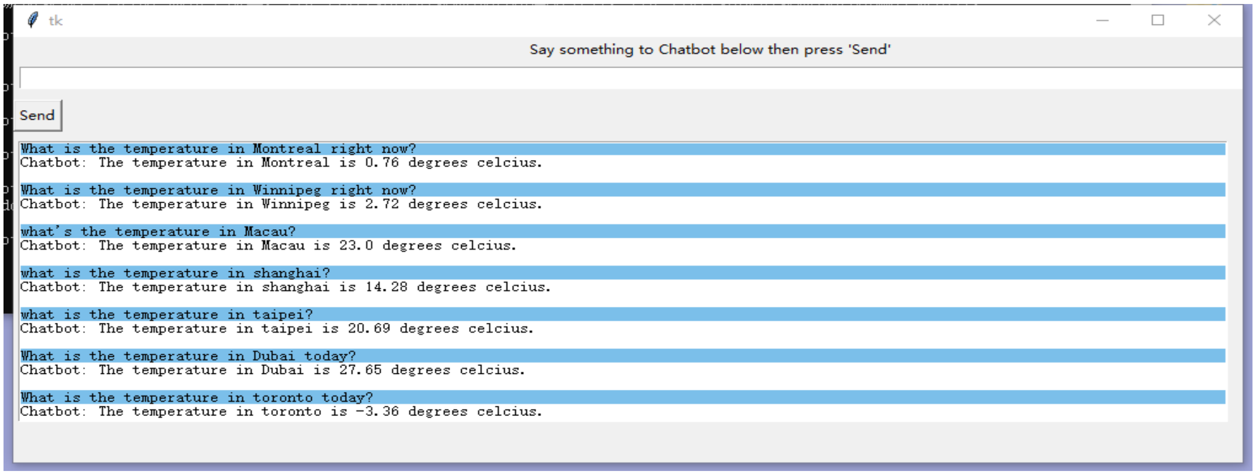
how is the weather in kelowna?
Chatbot: The weather in kelowna is clear sky.

how is the weather in beijing?
Chatbot: The weather in beijing is overcast clouds.

What is the weather in Bangkok right now?
Chatbot: The weather in Bangkok is clear sky.

How is the weather in Amsterdam?
Chatbot: The weather in Amsterdam is broken clouds.

How is the weather in Paris?
Chatbot: The weather in Paris is overcast clouds
```



```
What is the temperature in Montreal right now?
Chatbot: The temperature in Montreal is 0.76 degrees celcius.

What is the temperature in Winnipeg right now?
Chatbot: The temperature in Winnipeg is 2.72 degrees celcius.

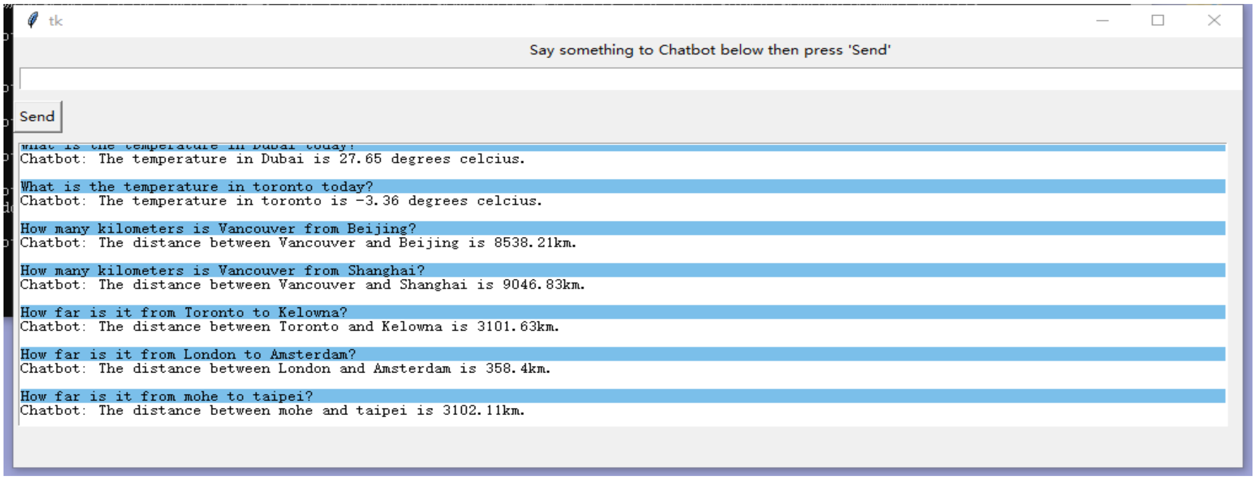
what's the temperature in Macau?
Chatbot: The temperature in Macau is 23.0 degrees celcius.

what is the temperature in shanghai?
Chatbot: The temperature in shanghai is 14.28 degrees celcius.

what is the temperature in taipei?
Chatbot: The temperature in taipei is 20.69 degrees celcius.

What is the temperature in Dubai today?
Chatbot: The temperature in Dubai is 27.65 degrees celcius.

What is the temperature in toronto today?
Chatbot: The temperature in toronto is -3.36 degrees celcius.
```



```
What is the temperature in Dubai today?
Chatbot:  The temperature in Dubai is 27.65 degrees celcius.

What is the temperature in toronto today?
Chatbot:  The temperature in toronto is -3.36 degrees celcius.

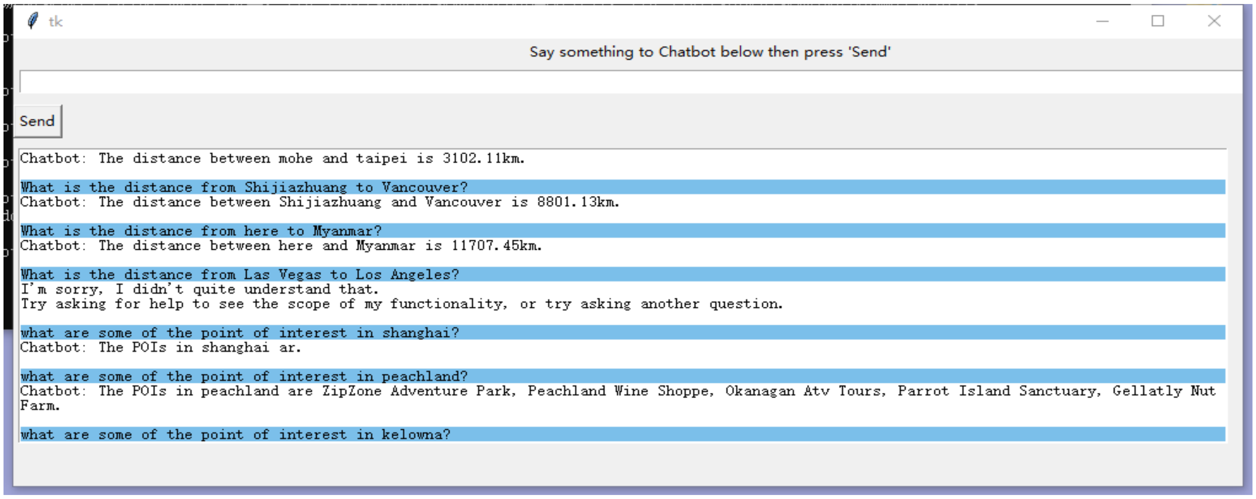
How many kilometers is Vancouver from Beijing?
Chatbot:  The distance between Vancouver and Beijing is 8538.21km.

How many kilometers is Vancouver from Shanghai?
Chatbot:  The distance between Vancouver and Shanghai is 9046.83km.

How far is it from Toronto to Kelowna?
Chatbot:  The distance between Toronto and Kelowna is 3101.63km.

How far is it from London to Amsterdam?
Chatbot:  The distance between London and Amsterdam is 358.4km.

How far is it from mohe to taipei?
Chatbot:  The distance between mohe and taipei is 3102.11km.
```



```
Chatbot:  The distance between mohe and taipei is 3102.11km.

What is the distance from Shijiazhuang to Vancouver?
Chatbot:  The distance between Shijiazhuang and Vancouver is 8801.13km.

What is the distance from here to Myanmar?
Chatbot:  The distance between here and Myanmar is 11707.45km.

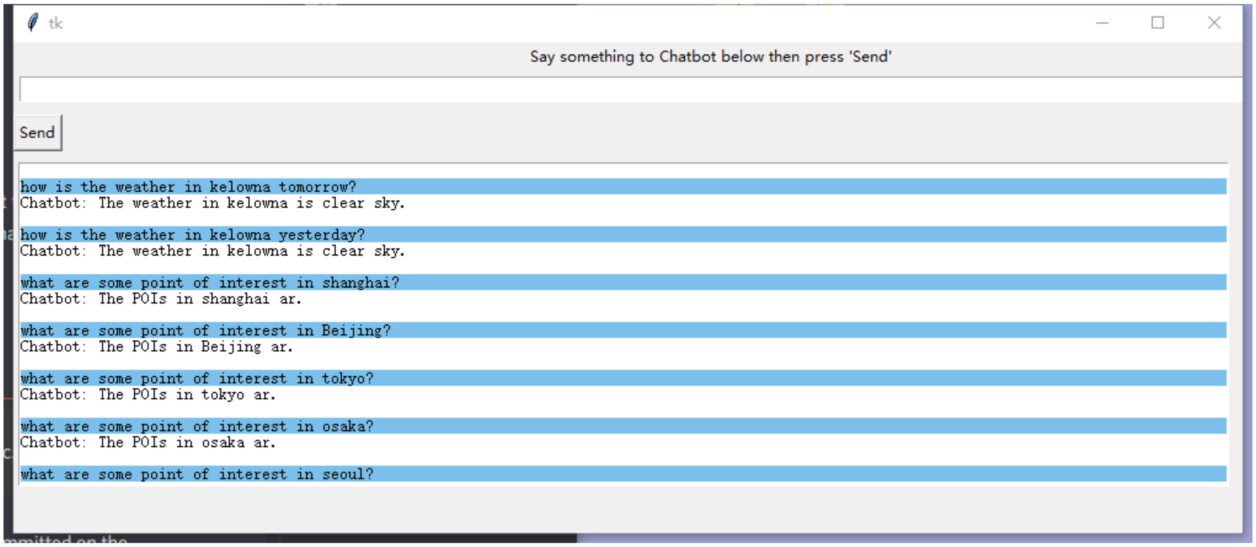
What is the distance from Las Vegas to Los Angeles?
I'm sorry, I didn't quite understand that.
Try asking for help to see the scope of my functionality, or try asking another question.

what are some of the point of interest in shanghai?
Chatbot:  The POIs in shanghai ar.

what are some of the point of interest in peachland?
Chatbot:  The POIs in peachland are ZipZone Adventure Park, Peachland Wine Shoppe, Okanagan Atv Tours, Parrot Island Sanctuary, Gellatly Nut
Farm.

what are some of the point of interest in kelowna?
```

Errors



```
how is the weather in kelowna tomorrow?
Chatbot:  The weather in kelowna is clear sky.

how is the weather in kelowna yesterday?
Chatbot:  The weather in kelowna is clear sky.

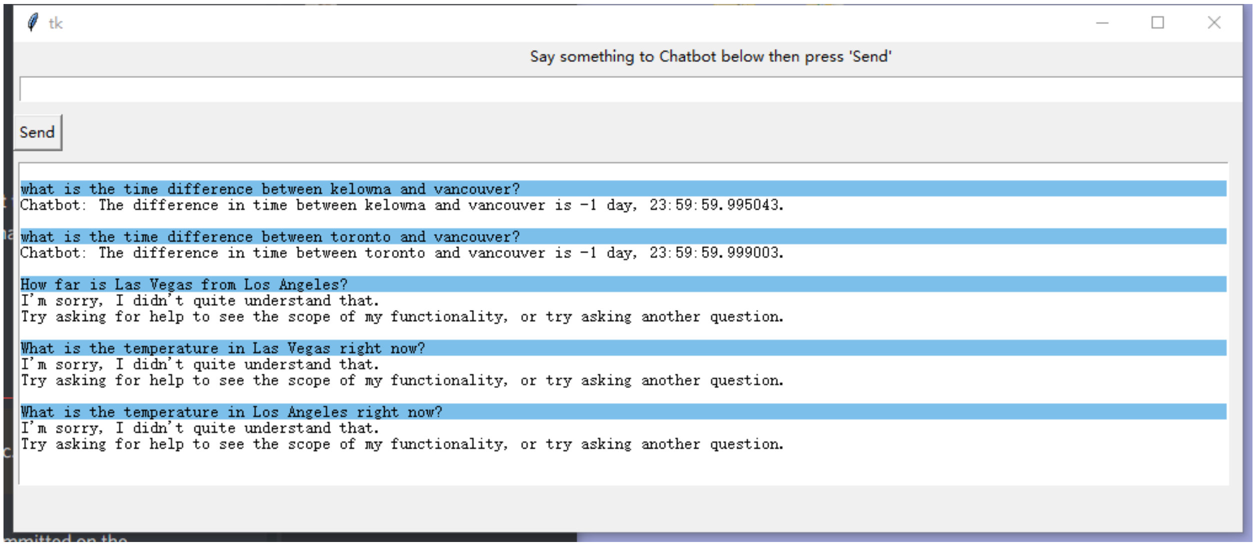
what are some point of interest in shanghai?
Chatbot:  The POIs in shanghai ar.

what are some point of interest in Beijing?
Chatbot:  The POIs in Beijing ar.

what are some point of interest in tokyo?
Chatbot:  The POIs in tokyo ar.

what are some point of interest in osaka?
Chatbot:  The POIs in osaka ar.

what are some point of interest in seoul?
```



```
what is the time difference between kelowna and vancouver?
Chatbot: The difference in time between kelowna and vancouver is -1 day, 23:59:59.995043.

what is the time difference between toronto and vancouver?
Chatbot: The difference in time between toronto and vancouver is -1 day, 23:59:59.999003.

How far is Las Vegas from Los Angeles?
I'm sorry, I didn't quite understand that.
Try asking for help to see the scope of my functionality, or try asking another question.

What is the temperature in Las Vegas right now?
I'm sorry, I didn't quite understand that.
Try asking for help to see the scope of my functionality, or try asking another question.

What is the temperature in Los Angeles right now?
I'm sorry, I didn't quite understand that.
Try asking for help to see the scope of my functionality, or try asking another question.
```