Middlebury

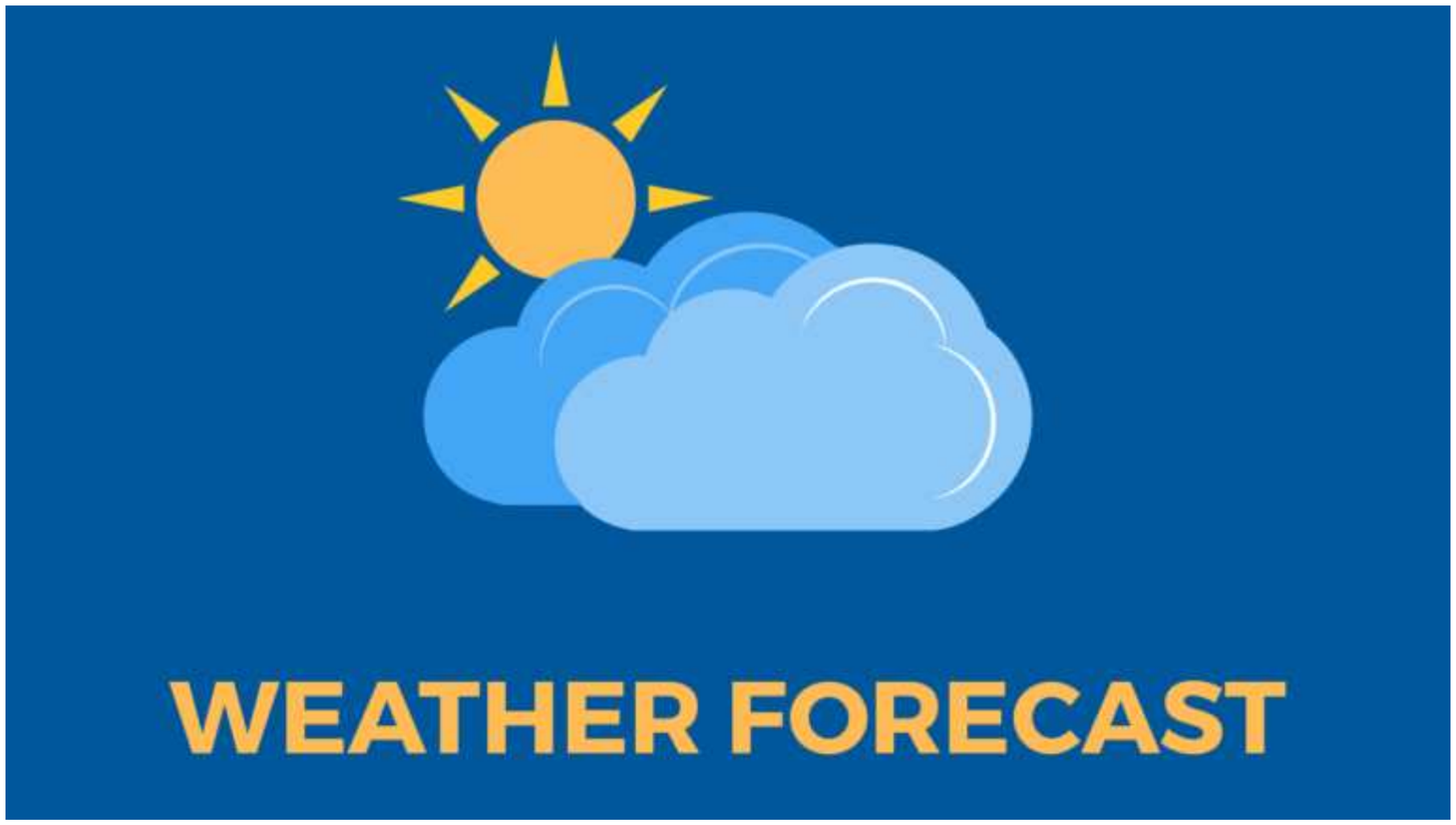
CSCI 146: Intensive Introduction to Computing

Fall 2025

Lecture 22: Application Programming Interfaces

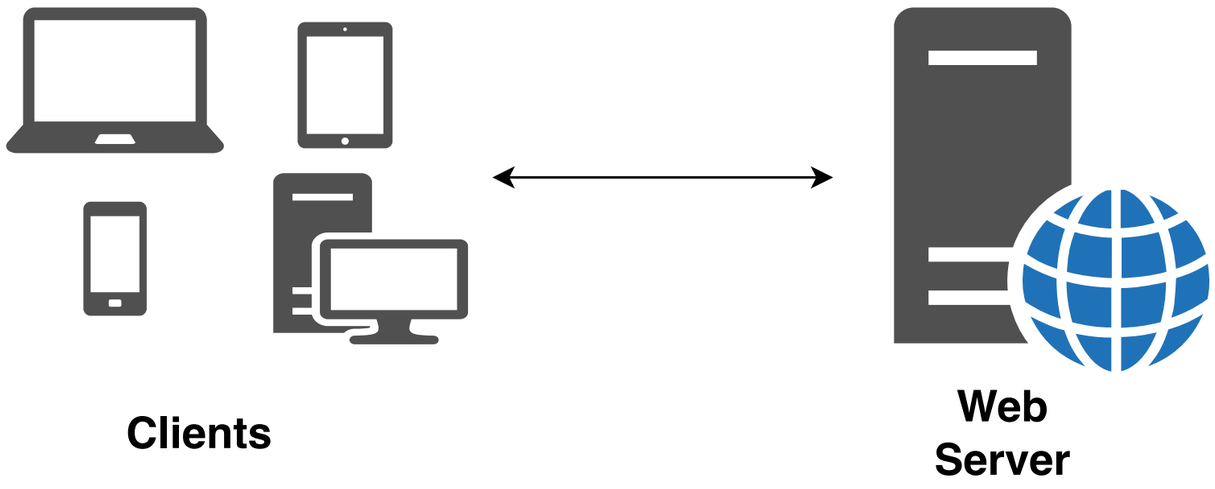
Goals for today

- Collect data from the web using an API.
- Write data to a file.



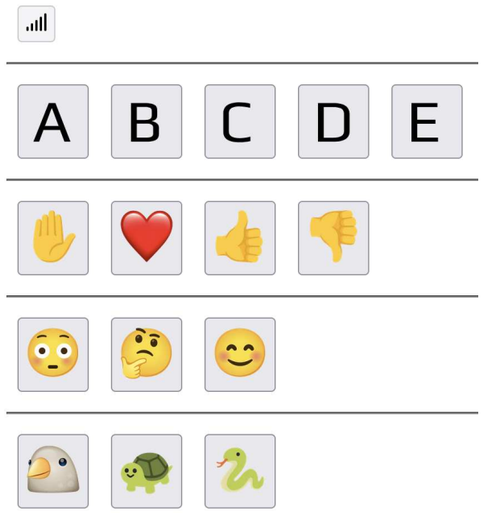
Please start by creating an account (and verifying your email) at `openweathermap.org`

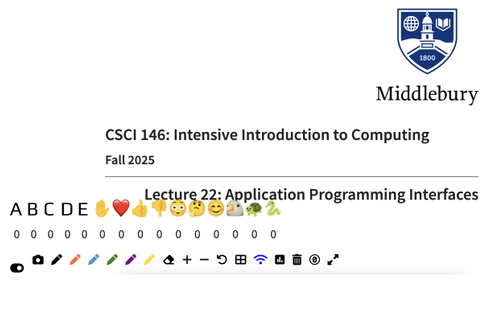
The internet refers to any network of two or more machines connected by wires (WiFi is like invisible wires).

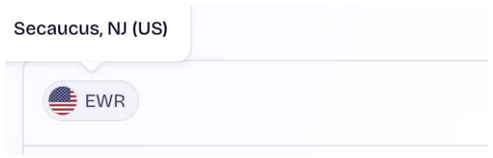


1. **Identification**: visit https://whatismyipaddress.com/ to determine your IP address.
2. **Protocol**: how computers communicate, e.g. HTTP (HyperText Transfer Protocol).

There are other protocols used to communicate, and you have been using one called a "websocket" all semester!







Communicating with an API: using a Yoda translator.

```
import requests

endpoint = 'https://api.funtranslations.com/translate/yoda.json'
message = "computer science is my favorite subject".replace(" ", "%20")
url = endpoint + "?text=" + message

response = requests.get(url)

print(response.content)
```

```
https://api.funtranslations.com/translate/yoda.json?text=computer%20science%20is%20my%20favorite%20subject
```

Now we'll use the `OpenWeatherMap` API to get the *current* weather in Middlebury.

https://openweathermap.org/current#zip

```
import requests

API_KEY = "abc123456789xyz" # replace with your key
BASE_URL = "https://api.openweathermap.org/data/2.5/weather"
response = requests.get(f"{BASE_URL}/weather?zip={zip_code},us&appid={API_KEY}")

print(response.content)
```

Exercise: complete the `get_current_temperature` function in `get_weather.py`.

Now try to use the "forecast" API to get the 5-day 3-hour forecast and make a plot like this (work in pairs).

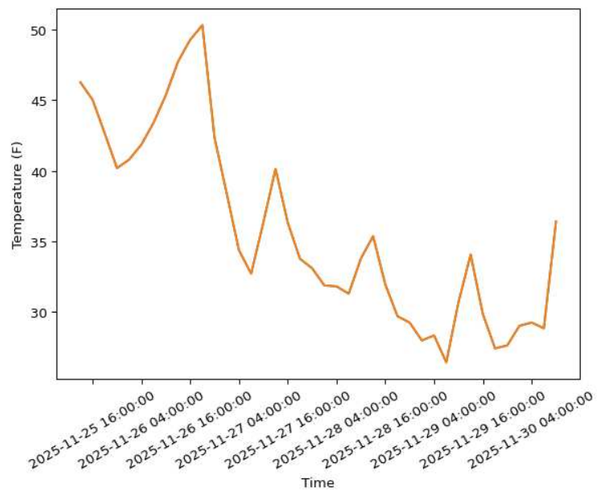
https://openweathermap.org/forecast5

Extend the `get_weather.py` program. This should print the current temperature:

```
python get_weather.py 05753 current
```

This should plot the forecasted temperature:

```
python get_weather.py 05753 forecast
```

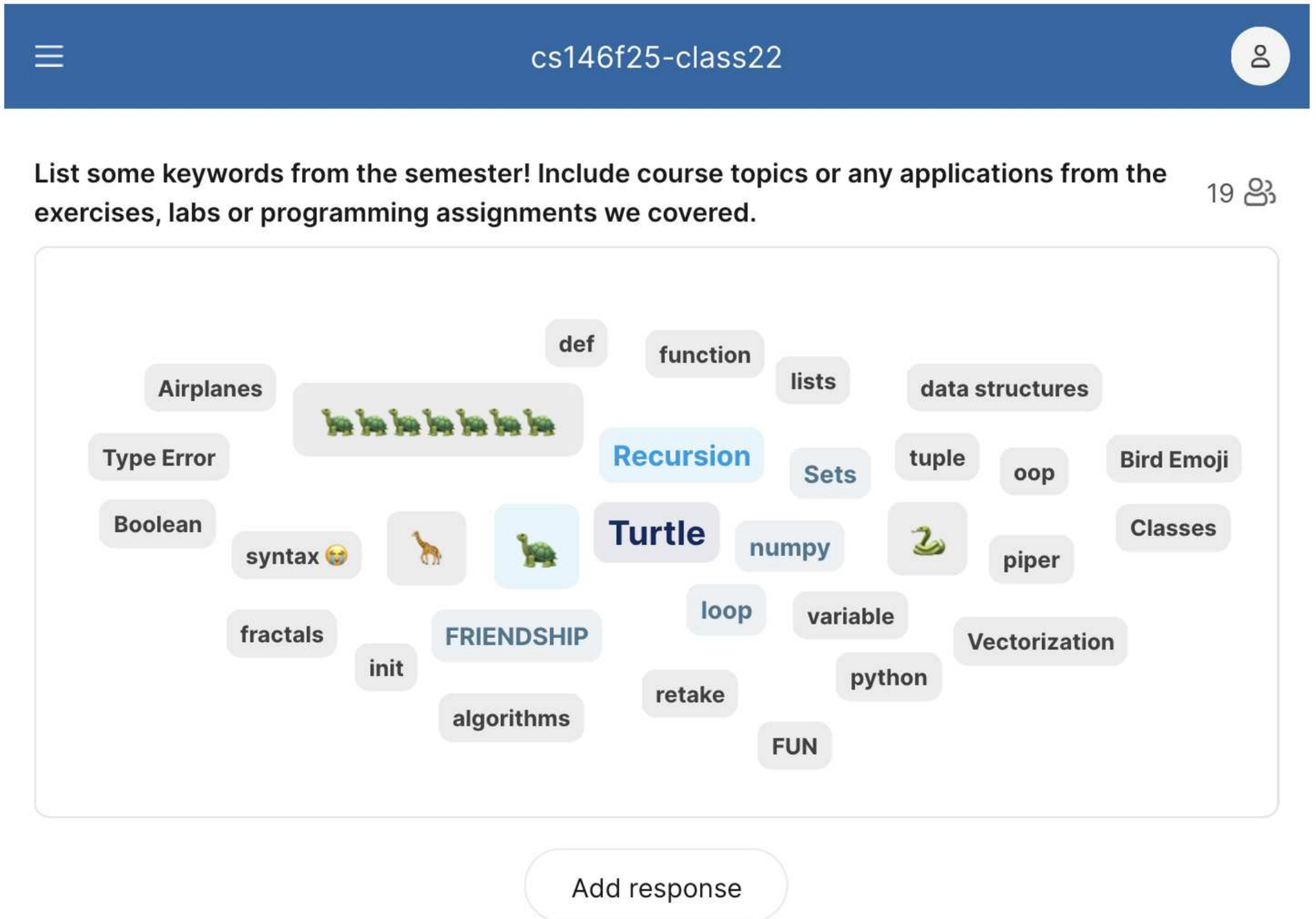


See some other hints in the reading for today.

Reminders

- Self-scheduled **Exam retakes** on Friday 12/5: questions 1, 3, 5, 8, 9, 10, 15, 16.
- Self-scheduled **Quiz retakes** on Monday 12/8: quizzes 1 - 9.
- You do not need to retake questions you have already gotten an E on. Only the highest score is kept.
- Final review on Monday 12/8.
- **Test Project** initial due date 12/8, final due date 12/15.
  - No collaboration.
  - No Google searching or trying to find any parts of the solution online.
  - Please treat this as a "programming test". More details on the website.
- Programming Assignment 8 final due date this Thursday 12/4.
- Programming Assignment 9 final due date Monday 12/8.

Wrapping up: list some keywords from this semester!



- Stickers are currently printing (I'll bring them to the final exam).
- **Rest of class:** please complete the Course Response Form at go/crf