METAR

The National Weather Service is a part of the National Oceanic and Atmospheric Administration and is charge of providing weather forecasts and warnings all around the U.S. You can find all sorts of great weather maps, weather data, climate news, and information on natural disasters on their Web pages.

One of the services provided by the National Weather Service is their Internet Weather Source, an online source for weather maps, current conditions, and weather forecasts. The NWS maintains a network of automated weather monitoring stations all around the country, most operating from airports. The purpose of these weather stations is to provide current weather information for aviation. The stations make their data available over the Internet in a special format called METAR.

The METAR codes form a very abbreviated summary of the weather conditions at the various reporting stations. The NWS provides a detailed description of the METAR system and codes. A METAR report is in the form:

2001/11/17 15:38
KSGS 171538Z AUTO 19005KT 7SM CLR M01/M05 A3021 RMK AO2

A fresh copy of this report can be obtained by pointing your Web browser (or Python program) to
http://tgftp.nws.noaa.gov/data/observations/metar/stations/KHUL.TXT

You can probably already guess about some the features of the METAR code. The following table summarizes some of the important features of this particular METAR report:

2017/04/12	The date of the last observation.
10:53	The time of the last observation. (Note: This time is in 24-hour format and is expressed in GMT (Greenwich Mean Time) or Zulu in aviation-speak.)
KSGS	The four-letter station code. KSGS is the station at the South St. Paul Municipal-Richard E. Fleming Field Airport. Other station codes can be found by searching by state and airport at the Internet Weather Source page (use the United States Weather search).
171538Z	This is a further abbreviated field indicating the date and time (Z for Zulu)
AUTO	The KSGS station reports its data automatically.
19005KT	Wind direction and velocity. This indicates a direction of 190 and a velocity of 05 knots. This field can be more complicated if there are wind gusts. You might see something like 19010G25KT which means that winds are at 10 gusting to 25 knots.
7SM	The visibility is 7 statute miles.
CLR	The sky is clear
M01/M05	The current temperature is -1 C and the dew point is -5 C. (Negative (minus) numbers are indicated by the M in front of the numbers.)

A3021	The atmospheric pressure is 30.21" of mercury.

This link explains the the METAR codes in detail (you don't need to go in detail of all codes for now).
http://chesapeakesportpilot.com/wp-content/uploads/2015/03/military_wx_codes.pdf

Reports from all the metar stations are available at
http://tgftp.nws.noaa.gov/data/observations/metar/stations/

Requirements

You need to design and implement json web api's that return the latest weather info given a specific station code.

When your code is run locally, it should be able to run a local server and respond to api calls made from the browser.

One key requirement is that data received from METAR should be cached locally for 5 minutes. You need to use redis for this.

Suppose your web server is running at port 8080 on localhost, then I should be able to do the following:

1. Point my browser to localhost:8080/metar/ping and receive a sample pong json response (something like {'data':'pong'})
2. Point my browser to localhost:8080/metar/info?scode=KSGS and receive a json response that includes last observation time, date, temperature, wind speed and direction. A sample response is given below. You can use that or design your own.
   {'data': {'station': 'KSGS', 'last_observation': '2017/04/11 at 16:00 GMT', 'temperature': '-1 C (30 F)', 'wind': 'S at 6 mph (5 knots)'}}

One additional param you need to support is ‘nocache’. When the value of nocache is 1, we need to fetch live data from METAR and also refresh the cache.

Solution set

Your solution set needs to be a tar.gz file containing all your code and a README with setup and run instructions. I will test your code on a mac-osx box by default. If you need me to test it on a specific unix distro, please state it in the README. Please also state any other assumptions you make.

Please feel free to reach out to me on ujjwalgrover@gmail.com if you have any questions.

Good luck.