Exercise for Software Engineer (Intern)

Objective

You will need to implement a web crawler to grab weather information from Taiwan's Central Weather Bureau website (http://www.cwb.gov.tw/V7e/forecast/taiwan/Taipei_City.htm) and do some aggregation.

Requirement

1. You should implement the web crawler using Javascript / Node.JS, but you're free to use HTTP request or any browser headless library such as PhantomJS.
2. All cities and counties on the **Other Area Forecasts** dropdown list should be retrieved.
3. Write a program `q-1.js` to output 7-day forecast data: For each area, you need to grab the day and night temperature range for the entire week (7 days). The results should be output as `output-1.json` in below JSON format.

```
[
  {
    "area": "Changhua County",
    "forcasts": [
      {
        "date": "2017-10-30",
        "dayTemperature": [18, 27],
        "nightTemperature": [19, 23]
      },
      ...
    ]
  }
]
```

   a. The program should be run with `node q-1.js` and the output file will be generated thereby.
   b. The start day should be what you can see at the moment.
   c. Date should be in `YYYY-MM-DD` format.
   d. Temperature should be in celsius scale.
   e. The list should be sorted by **area** alphabetically.
4. Write a program `q-2.js` that is able to aggregate the input 7-day forecast data: For each date of the input 7-day forecast, find the area with the largest temperature difference. Take 11/5 as example, the largest time difference is found at 5 places which are **Chiayi County** (20-28), **Nantou County** (21-29), **Pingtung County** (22-30), **Taichung County** (21-29), and **Yunlin County** (20-28). The results should be output as `output-2.json` in below JSON format.

```
[
  ...,
  {
    "date": "2017-11-05",
    "temperatureDifference": 8,
    "areas": ["Chiayi Country", "Nantou County", "Pingtung County", "Taichung County", "Yunlin County"]
  },
  ...
]
```

a. The input format forecast data should be the same as the output of `q-1.js`.
b. The program should be run with `node q-2.js {forecast_file}`, for example `node q-2.js output-1.json`
c. Date should be in `YYYY-MM-DD` format.
d. Temperature difference should be calculated in celsius scale.
e. The list should be sorted by **date**.

Submission Requirement

Please pack up all the files including `q-1.js`, `q-2.js`, `output-1.json`, `output-2.json`, and `package.json` in a single zip file and send back.