Weather Map

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Outline

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Introduction

Equifax 2018 Auburn Code-A-Thon

The problem statement

Dark Sky [1] is the most accurate source of hyperlocal weather information. They also provide API access into their data sets so people can build their own hyperlocal weather apps. We need an app that allows a user to choose a location (city, state, or zip, or coordinates) and display the current weather, precipitation forecast minute-by-minute for the next hour and hour-by-hour for the next 7 days. Since we love history, we also want an option to see the forecast on this day last week, last month, and last year. We also want to see the forecast history of the current day for the last ten years!

[1] `https://darksky.net/dev`

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Introduction

Considerations

- Usability is key. There are a lot of weather apps out there that are hard to use. Users should be allowed to be lazy and see as much as possible without too much clicking around.
- Is any data missing? Can you handle it gracefully?
- How creative is your solution for getting coordinates by city, state, or zip
- Get creative and over deliver by adding other features that you think would be cool or fun
- Be careful of API rate limits! Did you go over during development or did you come up with a creative way to limit or cache your queries?

Why we choose Rshiny

The advantage of using Rshiny

Efficiency

- We want our app not only provides the basic functions as required by the competition but also offers the potential functions for analyzing the weather data
- The Darksky API is wrapped by R [2]

Dynamic user interface

- Reactive programming
- Interactive plots

[2] `https://github.com/hrbrmstr/darksky`

Framework Overview

Inspired by the SuperZip demo [3]

We implemented our app with the following three main features.

- Traveling: Show Weather and geographic information at the same time;
- Flexible: Multiple Way To Input Location;
- Caching: Saving Cloud Cost

[3] https://github.com/rstudio/shiny-examples/tree/master/063-superzip-example

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Feature 1

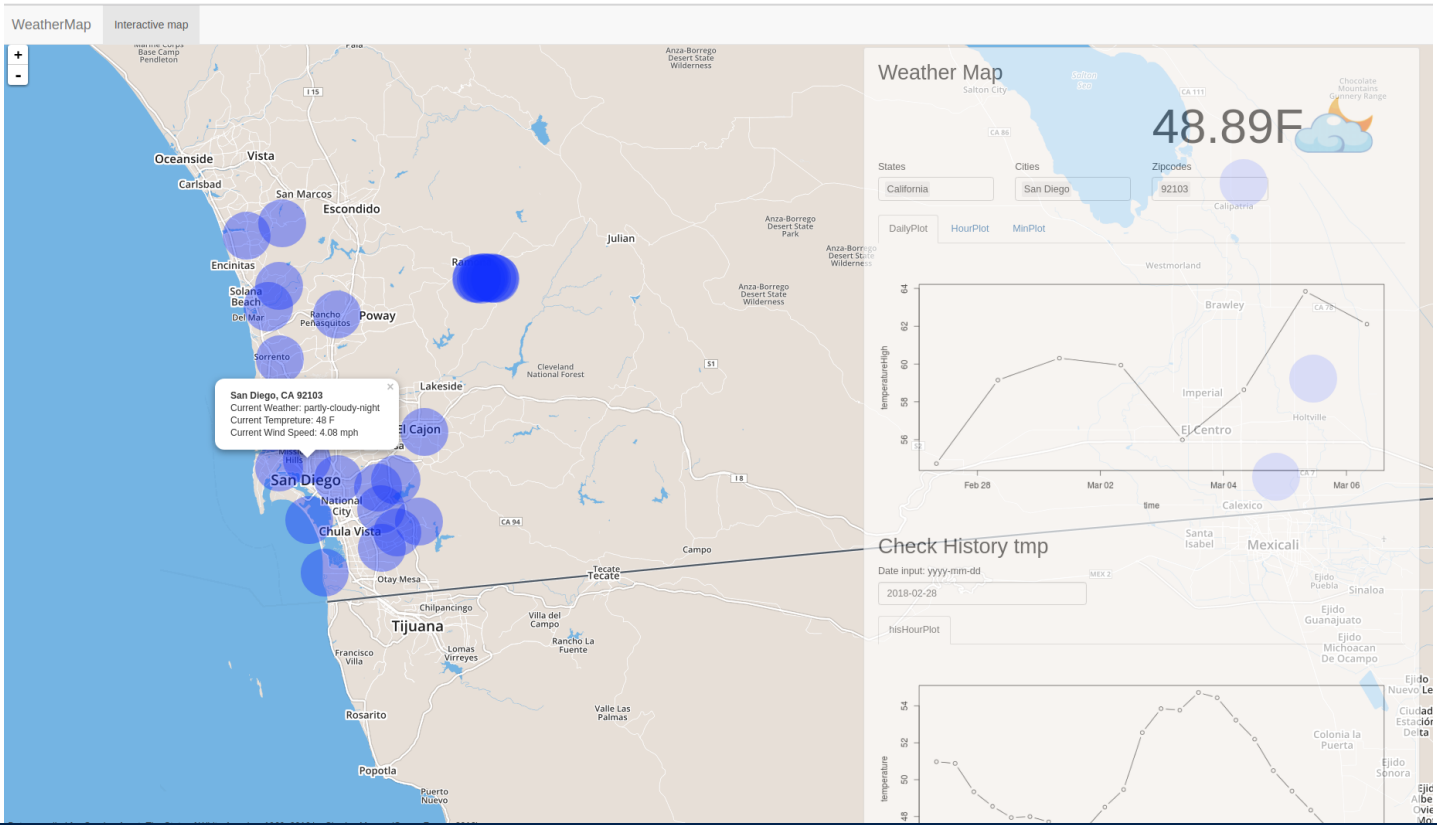
Traveling

- Show Weather and geographic information at the same time;
- Support multi locations query at the same time (TODO)
- Visualize the distance between current location and destination (TODO)

Feature 2

Flexible

- Query with state, city and Zip-code.
- Query with clicking on the map: Coordinates will assign to the nearest Zip-code by euclidean distance(30K Total)



Feature 3

Caching

- Dark Sky Only Allow 1000 API Requests Per Day: Check Disk Cache before call API
- Cache Space Cost: 4.3K * 30K Zip-code= 129M
- Cache Expired After 24 Hours

Demo

Source code and Video Demo

- Source Code is available on GitHub [4]
- Demo Video is available on Youtube [5]

[4] https://github.com/chao92/WeatherMap
[5] https://www.youtube.com/watch?v=rZcj8Bn3K4M

Conclusions

Recap

- Traveling
- Flexible
- Caching

Future works

- Improve the robust of this app by fixing some of the small bugs.
- Improve the visulization of the plots

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Questions?

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