



Weather App for Road Trips

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WHY?

Road Trips are a great american pastime, but planning one can be a pain.



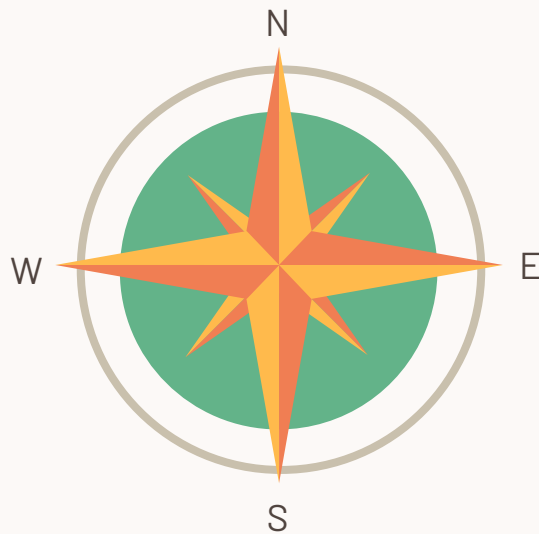
Current Dilemma

The Two App Problem

Planning a road trip takes
juggling two apps

The Solution

Building a data pipeline to
connect the two



Workflow

01

Google Directions

Pull latitude, longitude data from API call

02

Getting Cities

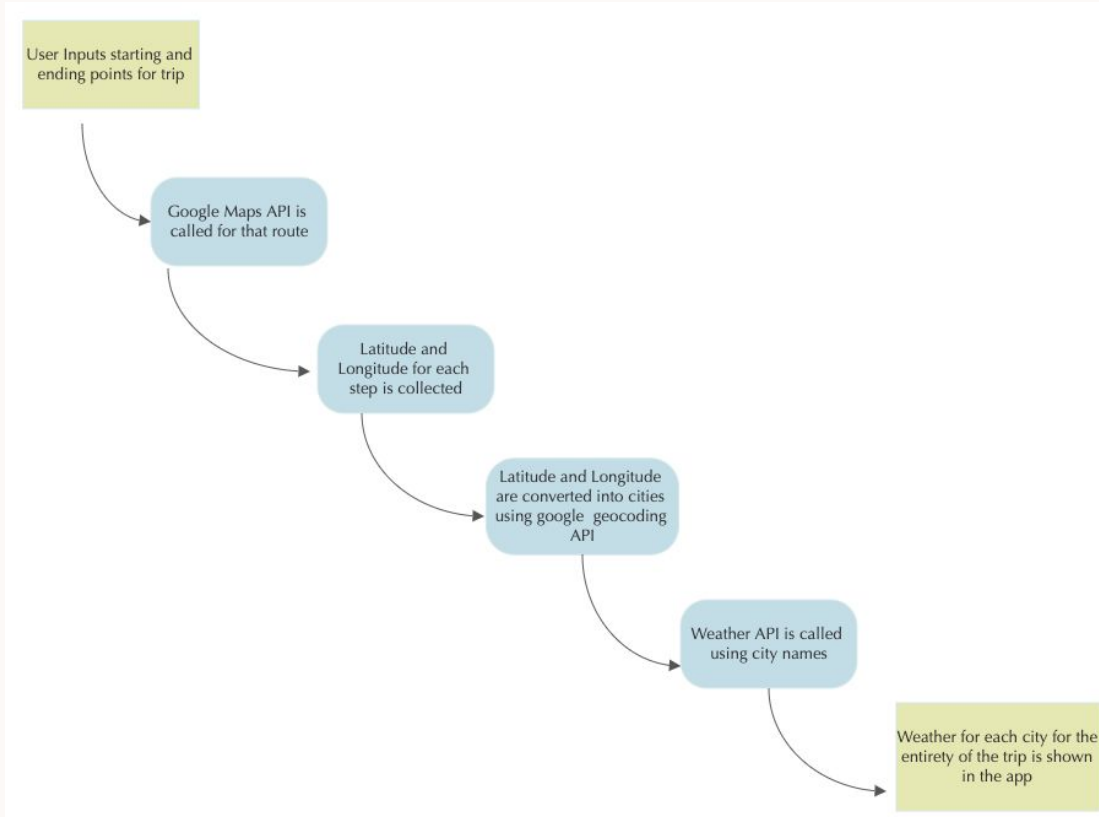
Using reverse geo coordinates to get city names from API call

03

Open Weather

Getting weather info for each city from the final API call

Data Pipeline



Map API Pipeline

Legs

- End Address Location
- Start Address Location

Steps

- End Location for Each Step

```
{
  "routes": [
    {
      "bounds": {
        "northeast": {
          "lat": 41.1475653,
          "lng": -95.98519539999999
        },
        "southwest": {
          "lat": 40.8191362,
          "lng": -96.6823862
        }
      },
      "copyrights": "Map data ©2021",
      "legs": [
        {
          "distance": {
            "text": "50.7 mi",
            "value": 81666
          },
          "duration": {
            "text": "58 mins",
            "value": 3501
          },
          "end_address": "2930 T St, Lincoln, NE 68503, USA",
          "end_location": {
            "lat": 40.8191362,
            "lng": -96.6790367
          },
          "start_address": "4714 Lake Forest Dr, Papillion, NE 68133, USA",
          "start_location": {
            "lat": 41.1337753,
            "lng": -95.98519539999999
          },
          "steps": [
            {
              "distance": {
                "text": "0.2 mi",
                "value": 389
              },
              "duration": {
                "text": "1 min",
                "value": 44
              },
              "end_location": {
                "lat": 41.13210979999999,
                "lng": -95.9890408
              },
              "html_instructions": "Head \u003cb\u003esouthwest\u003c/b\u003e on \u003cb\u003eLake Forest Dr  
\u003c/b\u003e toward \u003cb\u003eWindcrest Dr\u003c/b\u003e",
              "polyline": {
                "points": "c)zFnbzhQFDDb|e-@NNHDBHRHTh#Fz@\\@b?z#FdBz#hA`EZlAd#zA"
              },
              "start_location": {
                "lat": 41.1337753,
                "lng": -95.98519539999999
              },
              "travel_mode": "DRIVING"
            }
          ]
        }
      ]
    }
  ]
}
```

Map API Pipeline

City Name

Found in the third "long_name" instance

```
{'address_components': [{'long_name': '11015',  
  'short_name': '11015',  
  'types': ['street_number']},  
  {'long_name': 'South 48th Street',  
  'short_name': 'S 48th St',  
  'types': ['street']},  
  {'long_name': 'Papillion',  
  'short_name': 'Papillion',  
  'types': ['locality', 'political']},  
  {'long_name': 'Bellevue Second II',  
  'short_name': 'Bellevue Second II',  
  'types': ['administrative_area_level_3', 'political']},  
  {'long_name': 'Sarpy County',  
  'short_name': 'Sarpy County',  
  'types': ['administrative_area_level_2', 'political']},  
  {'long_name': 'Nebraska',  
  'short_name': 'NE',  
  'types': ['administrative_area_level_1', 'political']},  
  {'long_name': 'United States',  
  'short_name': 'US',  
  'types': ['country', 'political']},  
  {'long_name': '68133', 'short_name': '68133', 'types': ['postal_code']}],  
  'formatted_address': '11015 S 48th St, Papillion, NE 68133, USA',  
  'geometry': {'location': {'lat': 41.148305, 'lng': -95.9861743},  
    'location_type': 'ROOFTOP',  
    'viewport': {'northeast': {'lat': 41.1496539802915,  
      'lng': -95.98482531970849},  
      'southwest': {'lat': 41.1469560197085, 'lng': -95.98752328029151}}},  
  'place_id': 'ChIJPdzYACGKk4cRBj5YiFOXEWm',  
  'plus_code': {'compound_code': '42X7+8G Papillion, NE, USA',  
    'global_code': '86H642X7+8G'},  
  'types': ['street_address']},  
  {'address_components': [{'long_name': '4708',  
    'short_name': '4708'}
```

Weather API Pipeline

```
{
  "cod": "200",
  "message": 0,
  "cnt": 40,
  "list": [
    {
      "dt": 1639699200,
      "main": {
        "temp": 39.54,
        "feels_like": 39.54,
        "temp_min": 36.73,
        "temp_max": 39.54,
        "pressure": 1017,
        "sea_level": 1017,
        "grnd_level": 982,
        "humidity": 50,
        "temp_kf": 1.56
      },
      "weather": [
        {
          "id": 800,
          "main": "Clear",
          "description": "clear sky",
          "icon": "01n"
        }
      ],
      "clouds": {
        "all": 1
      },
      "wind": {
        "speed": 2.57,
        "deg": 6,
        "gust": 2.62
      },
      "visibility": 10000,
      "pop": 0,
      "sys": {
        "pod": "n"
      },
      "dt_txt": "2021-12-17 00:00:00"
    },
    {
      "dt": 1639710000,
      "main": {
        "temp": 38.05,
        "feels_like": 34.95,
        "temp_min": 35.08,
        "temp_max": 38.05,
        "pressure": 1018,
        "sea_level": 1018,
        "grnd_level": 983,
        "humidity": 48,
        "temp_kf": 1.65
      },
      "weather": [
        {
          "id": 800,
          "main": "Clear",
          "description": "clear sky",
          "icon": "01n"
        }
      ],
      "clouds": {
        "all": 10
      },
      "wind": {
        "speed": 4.12,
        "deg": 119,
        "gust": 4.05
      },
      "visibility": 10000,
      "pop": 0,
      "sys": {
        "pod": "n"
      },
      "dt_txt": "2021-12-17 03:00:00"
    },
    {
      "dt": 1639720800,
      "main": {
        "temp": 35.96,
        "feels_like": 30.43,
        "temp_min": 34.16,
        "temp_max": 35.96,
        "pressure": 1020,
        "sea_level": 1020,
        "grnd_level": 983,
        "humidity": 48,
        "temp_kf": 1
      },
      "weather": [
        {
          "id": 802,
          "main": "Clouds",
          "description": "scattered clouds",
          "icon": "03n"
        }
      ],
      "clouds": {
        "all": 39
      },
      "wind": {
        "speed": 6.76,
        "deg": 129,
        "gust": 10.36
      },
      "visibility": 10000,
      "pop": 0,
      "sys": {
        "pod": "n"
      },
      "dt_txt": "2021-12-17 06:00:00"
    },
    {
      "dt": 1639731600,
      "main": {
        "temp": 32.77,
        "feels_like": 26.28,
        "temp_min": 32.77,
        "temp_max": 32.77,
        "pressure": 1021,
        "sea_level": 1021,
        "grnd_level": 983,
        "humidity": 53,
        "temp_kf": 0
      },
      "weather": [
        {
          "id": 804,
          "main": "Clouds",
          "description": "overcast",
          "icon": "04n"
        }
      ],
      "clouds": {
        "all": 100
      },
      "wind": {
        "speed": 7.22,
        "deg": 130,
        "gust": 11.11
      },
      "visibility": 10000,
      "pop": 0,
      "sys": {
        "pod": "n"
      },
      "dt_txt": "2021-12-17 09:00:00"
    }
  ]
}
```

Visibility

Temperature

Wind Speed and Gust

Weather API Pipeline

```
{
  "cod": "200",
  "message": 0,
  "cnt": 40,
  "list": [
    {
      "dt": 1639699200,
      "main": {
        "temp": 39.54,
        "feels_like": 39.54,
        "temp_min": 36.73,
        "temp_max": 39.54,
        "pressure": 1017,
        "sea_level": 1017,
        "grnd_level": 982,
        "humidity": 50,
        "temp_kf": 1.56
      },
      "weather": [
        {
          "id": 800,
          "main": "Clear",
          "description": "clear sky",
          "icon": "01n"
        }
      ],
      "clouds": {
        "all": 1
      },
      "wind": {
        "speed": 2.57,
        "deg": 6,
        "gust": 2.62
      },
      "visibility": 10000,
      "pop": 0,
      "sys": {
        "pod": "n"
      },
      "dt_txt": "2021-12-17 00:00:00"
    },
    {
      "dt": 1639710000,
      "main": {
        "temp": 38.05,
        "feels_like": 34.95,
        "temp_min": 35.08,
        "temp_max": 38.05,
        "pressure": 1018,
        "sea_level": 1018,
        "grnd_level": 983,
        "humidity": 48,
        "temp_kf": 1.65
      },
      "weather": [
        {
          "id": 800,
          "main": "Clear",
          "description": "clear sky",
          "icon": "01n"
        }
      ],
      "clouds": {
        "all": 10
      },
      "wind": {
        "speed": 4.12,
        "deg": 119,
        "gust": 4.05
      },
      "visibility": 10000,
      "pop": 0,
      "sys": {
        "pod": "n"
      },
      "dt_txt": "2021-12-17 03:00:00"
    },
    {
      "dt": 1639720800,
      "main": {
        "temp": 35.96,
        "feels_like": 30.43,
        "temp_min": 34.16,
        "temp_max": 35.96,
        "pressure": 1020,
        "sea_level": 1020,
        "grnd_level": 983,
        "humidity": 48,
        "temp_kf": 1
      },
      "weather": [
        {
          "id": 802,
          "main": "Clouds",
          "description": "scattered clouds",
          "icon": "03n"
        }
      ],
      "clouds": {
        "all": 39
      },
      "wind": {
        "speed": 6.76,
        "deg": 129,
        "gust": 10.36
      },
      "visibility": 10000,
      "pop": 0,
      "sys": {
        "pod": "n"
      },
      "dt_txt": "2021-12-17 06:00:00"
    },
    {
      "dt": 1639731600,
      "main": {
        "temp": 32.77,
        "feels_like": 26.28,
        "temp_min": 32.77,
        "temp_max": 32.77,
        "pressure": 1021,
        "sea_level": 1021,
        "grnd_level": 983,
        "humidity": 53,
        "temp_kf": 0
      },
      "weather": [
        {
          "id": 800,
          "main": "Clear",
          "description": "clear sky",
          "icon": "01n"
        }
      ],
      "clouds": {
        "all": 0
      },
      "wind": {
        "speed": 2.57,
        "deg": 6,
        "gust": 2.62
      },
      "visibility": 10000,
      "pop": 0,
      "sys": {
        "pod": "n"
      },
      "dt_txt": "2021-12-17 09:00:00"
    }
  ]
}
```

Detailed Weather Description

Brief Weather Description

App Demo

161	Ankeny	10000	2021-12-17T18:00:00	28.0900	12.5300	1
200	Stewartville	10000	2021-12-17T18:00:00	15.1000	5.5500	1
201	Stewartville	10000	2021-12-17T18:00:00	18.7000	7.0200	1
240	West Des Moines	10000	2021-12-17T15:00:00	24.7500	8.9500	1
241	West Des Moines	10000	2021-12-17T18:00:00	28.9200	12.9500	1

Weather Description

	Name	Date + Time	Weather Category	Weather Description
0	Albert	2021-12-17T15:00:00	Clouds	overcast clouds
1	Albert	2021-12-17T18:00:00	Clouds	broken clouds
40	Rochester	2021-12-17T15:00:00	Clouds	few clouds
41	Rochester	2021-12-17T18:00:00	Clouds	few clouds
80	Lincoln	2021-12-17T15:00:00	Clear	clear sky
81	Lincoln	2021-12-17T18:00:00	Clouds	scattered clouds
120	Waverly	2021-12-17T15:00:00	Clear	clear sky
121	Waverly	2021-12-17T18:00:00	Clear	clear sky
160	Ankeny	2021-12-17T15:00:00	Clear	clear sky
161	Ankeny	2021-12-17T18:00:00	Clouds	scattered clouds

Wind Data

	Name	Date + Time	Wind Speed	Wind Gust
0	Albert	2021-12-17T15:00:00	11.0300	23.7600
1	Albert	2021-12-17T18:00:00	13.0000	27.7800
40	Rochester	2021-12-17T15:00:00	18.9900	33.1500
41	Rochester	2021-12-17T18:00:00	17.8100	26.2800
80	Lincoln	2021-12-17T15:00:00	9.6400	26.4600
81	Lincoln	2021-12-17T18:00:00	11.8300	14.8300
120	Waverly	2021-12-17T15:00:00	10.0200	17.4500
121	Waverly	2021-12-17T18:00:00	8.3400	11.3000
160	Ankeny	2021-12-17T15:00:00	8.6800	17.7400
161	Ankeny	2021-12-17T18:00:00	12.5300	17.7400

Visibility and Chance of Rain

	Name	Date + Time	Visibility	Chance of Rain for 3 Hours
0	Albert	2021-12-17T15:00:00	10000	<NA>
1	Albert	2021-12-17T18:00:00	10000	<NA>
40	Rochester	2021-12-17T15:00:00	10000	<NA>

Next Steps

01

Visualizations

- Map Overview of Directions
- Weather Icons

02

Adding Time Delay

For help determining when to leave

03

Adding Stops + Time Delays

For trips that require an overnight or extended stop

Questions?

