

sdmay19-18: Real time Route Optimization

Report 7

April 5 - April 12

Team Members

Junjie Wen — *Backend Developer; Data Analytics Lead*

Zhanghao Wen — *Web Developer*

Yuhang Xie — *Web Developer; UI Lead*

Xinhe Yang — *Web Developer*

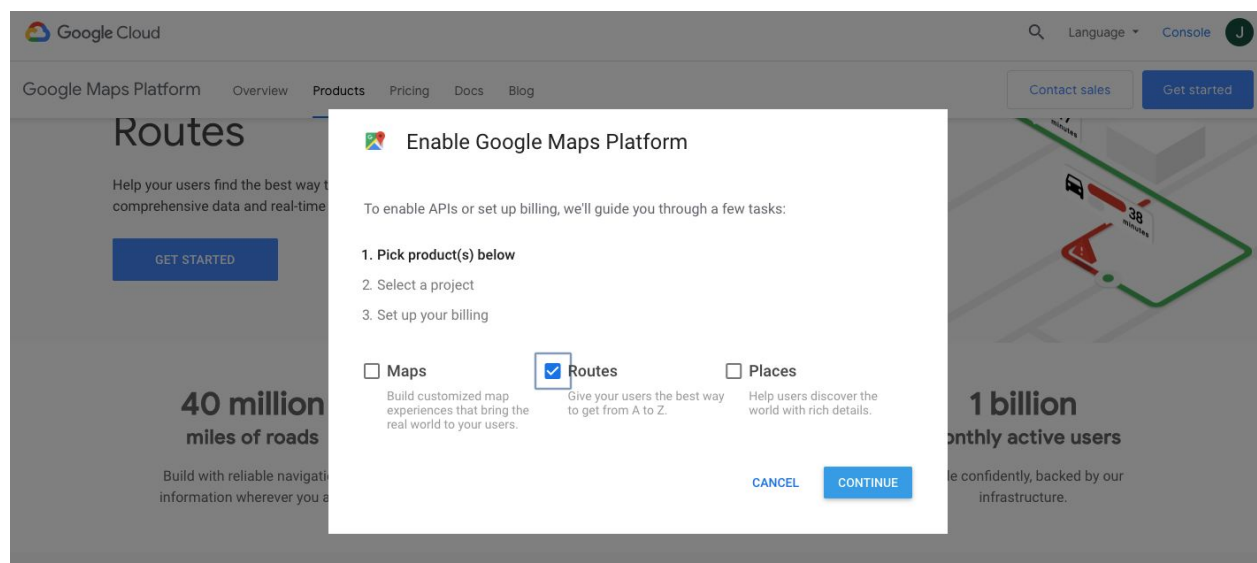
Tianhao Zhao — *Communication Leader; Technical Writing*

Summary of Progress this Report

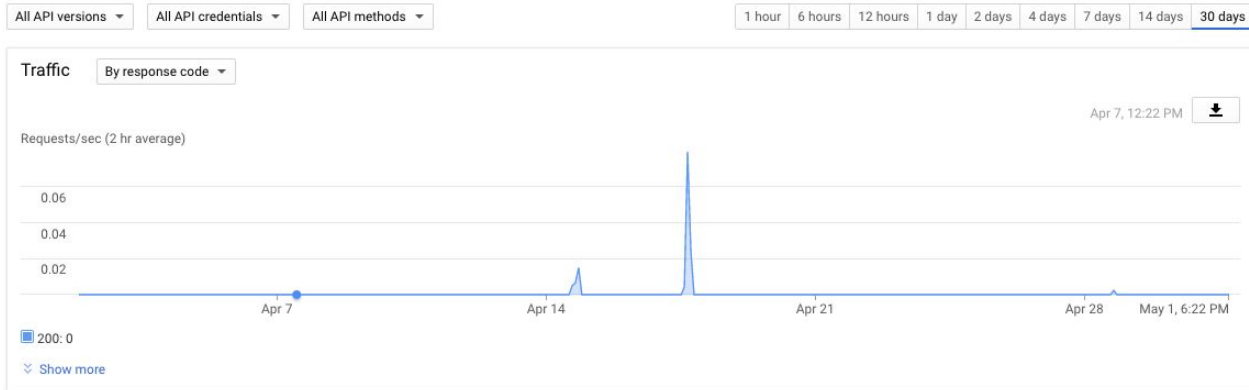
- After meeting with advisor and group meeting discussion, we decide to build a routing module for this project.
- Design the architecture for routing module.
- Implementation of the re-routing module for backend server.
- Build API for front end to do re-routing.

Past Week Accomplishments

First, we register the google routing api.



The Google routing api is free to use, as long as the cost is less than 200 dollars.



```
{
  "geocoded_waypoints" : [
    {
      "geocoder_status": "OK",
      "place_id": "ChIJg3XXhNrX3IARUc0M9bIC_X4",
      "types": [ "establishment", "lodging", "point_of_interest" ]
    },
    {
      "geocoder_status": "OK",
      "place_id": "ChIJzzyJU--woARcZqceSdQ3dM",
      "types": [ "amusement_park", "establishment", "point_of_interest" ]
    }
  ],
  "routes" : [
    {
      "bounds" : {
        "northeast" : {
          "lat" : 34.1358593,
          "lng" : -117.9219984
        },
        "southwest" : {
          "lat" : 33.803575599999999,
          "lng" : -118.3517014
        }
      },
      "copyrights" : "Map data ©2019 Google",
      "legs" : [
        {
          "distance" : {
            "text" : "36.6 mi",
            "value" : 58937
          },
          "duration" : {
            "text" : "54 mins",
            "value" : 3263
          },
          "end_address" : "100 Universal City Plaza, Universal City, CA 91608, USA",
          "end_location" : {
            "lat" : 34.1358593,
            "lng" : -118.3511633
          },
          "start_address" : "1313 Disneyland Dr, Anaheim, CA 92802, USA",
          "start_location" : {
            "lat" : 33.805451700000001,
            "lng" : -117.9242185
          }
        }
      ]
    }
  ]
}
```

After this, we build backend module to use those the google route api, and also pick up the information that is useful to our project. Then, we return those useful information to front end.

← → ↻ Not Secure | ec2-18-191-255-122.us-east-2.compute.amazonaws.com/route?waypoints=42.01285607,-88.13573825|41.0128505,-88.135815299999999

```
{
  "points": [
    { "lat": 42.0128505, "lng": -88.135815299999999 },
    { "lat": 42.0090568, "lng": -88.1373212 },
    { "lat": 42.0043483, "lng": -88.1381792 },
    { "lat": 41.995834, "lng": -88.1144259 },
    { "lat": 41.9962751, "lng": -88.1131092 },
    { "lat": 41.9968114, "lng": -88.1095835 },
    { "lat": 41.9904772, "lng": -88.0416023 },
    { "lat": 41.9859786, "lng": -88.0280307 },
    { "lat": 41.970743600000001, "lng": -88.0251581 },
    { "lat": 41.7383124, "lng": -88.035015 },
    { "lat": 41.709190799999999, "lng": -88.0318415 },
    { "lat": 41.6997433, "lng": -88.0398171 },
    { "lat": 41.2640618, "lng": -88.2454843 },
    { "lat": 41.259599500000001, "lng": -88.247827899999999 },
    { "lat": 41.259423299999999, "lng": -88.2458362 },
    { "lat": 41.2595408, "lng": -88.2435939 },
    { "lat": 41.1143748, "lng": -88.2409211 },
    { "lat": 41.1162626, "lng": -88.1365819 },
    { "lat": 41.0121748, "lng": -88.132287400000001 },
    { "lat": 41.0120574, "lng": -88.1357683 }
  ],
  "distance": { "text": "87.2 mi", "value": 140388 }
}
```

Pending Issues

- Need built unit tests.

Plans for Upcoming Reporting Period

- Implementation of the re-routing module for front page.
-

Individual Contributions

| Team Member | Contribution | Weekly Hours | Total Hours |
|--------------------|--|---------------------|--------------------|
| Junjie Wen | Implementation the backend part of the rerouting module | 11 | 72 |
| Zhanghao Wen | Implement Darksky weather API and show weather conditions given GPS | 10 | 61 |
| Yuhang Xie | Design a reroute logical to show up reroute truck's path on map | 12 | 79 |
| Xinhe Yang | Design an interface so that the front-end can get path data from server | 11 | 75 |
| Tianhao Zhao | Develop test details, planning final implementation details. Prepare poster and final documentation. | 10 | 60 |