

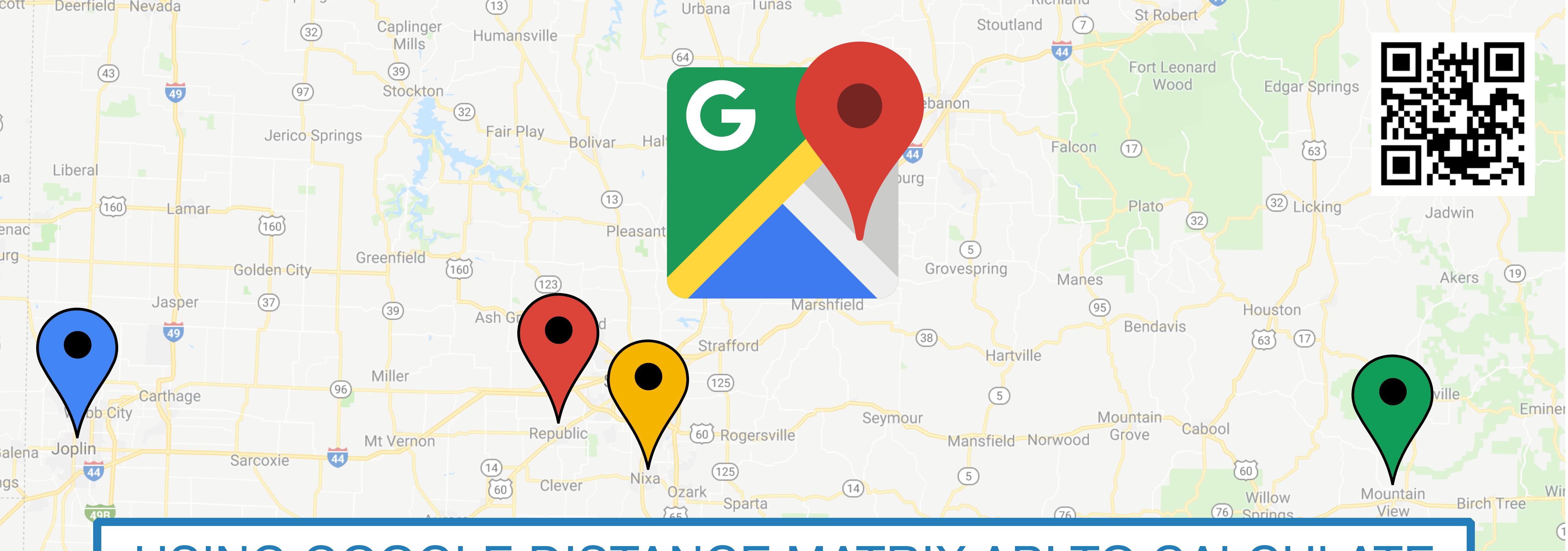


The logo features the word "DevFest" in a large, red, cursive font. Above "DevFest" is the text "GOOGLE DEVELOPERS GROUP" in a smaller, blue, sans-serif font. Below "DevFest" is the text ". SPRINGFIELD, MISSOURI, USA ." in a blue, sans-serif font.

# DevFest

GOOGLE DEVELOPERS GROUP

. SPRINGFIELD, MISSOURI, USA .

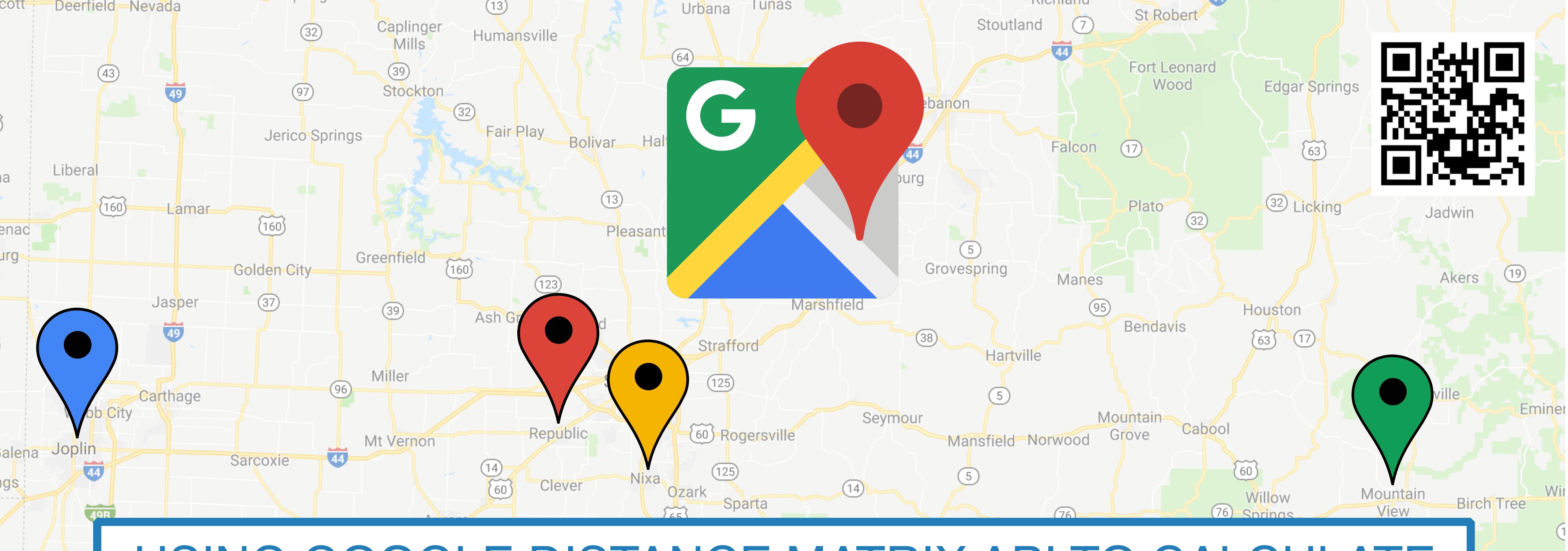


# USING GOOGLE DISTANCE MATRIX API TO CALCULATE MEAN TIME TO LUNCH (MTTL)

Google DevFest Springfield 2019

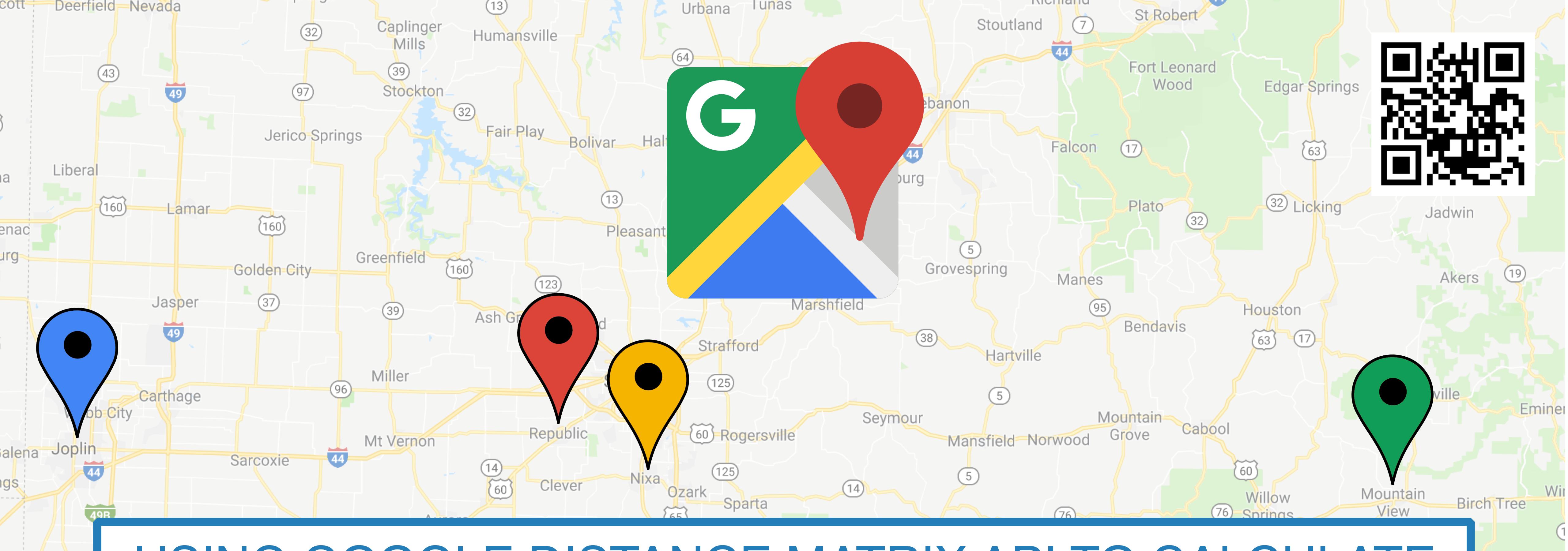
Presented by Jason Klein (@JasnK)

Working code samples are available on GitHub (<https://github.com/jason-klein>)



## USING GOOGLE DISTANCE MATRIX API TO CALCULATE MEAN TIME TO LUNCH (MTTL)

Our 250+ member IT association had outgrown the monthly space and were considering new locations. Learn how I used the Distance Matrix API to calculate MTTL (Mean Time To Lunch) from 213 member addresses to 5 potential locations.



## USING GOOGLE DISTANCE MATRIX API TO CALCULATE MEAN TIME TO LUNCH (MTTL)

We will discuss how to prepare your addresses, how to interact with the Google Distance Matrix API, and how to analyze the responses to calculate the MTTL (Mean Time To Lunch) for each potential lunch location.



## Jason Klein (@JasnK) Logic Forte

I have experience in IT, Hosting, and Software. I focus on backend development and automation in my role as Chief Innovation Officer at Logic Forte, a SaaS that provides managed data reporting services to multi-unit restaurant franchisees.

Favorite things: family, technology, music, cycling, Springfield, and Oktoberfest  
Community: MATA, Hack 4 Good, FWD/SGF, Devs, AWS, Data Science



## FOR DEVELOPMENT PURPOSES ONLY

Google Maps is no longer free. You have to associate a credit card so that you can get billed if your site has requests that exceed the \$200 credit they give you monthly for free. That is why you get these watermarked maps.

# Create Account on Google Maps Platform



Create Account



Billing



API Credentials

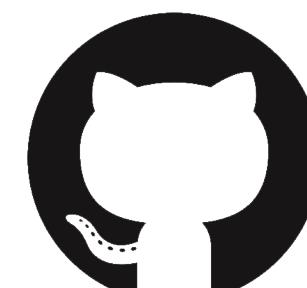


Dashboard



Code

The screenshot shows the Google Maps Platform homepage. At the top, there's a navigation bar with the Google Cloud logo, a search icon, and a "Sign in" button. Below the navigation, a banner features a city skyline at night with a prominent orange tower and a blue location pin. The main heading "Welcome to Google Maps Platform" is displayed in large, bold, black font. Below it, a subtext reads "Explore where real-world insights and immersive location experiences can take your business". A blue "GET STARTED" button is centered below the subtext. The bottom section is a blue banner containing three pieces of information: "99% coverage of the world", "25 million updates daily", and "1 billion monthly active users".



# Create Account on Google Maps Platform



Create Account



Billing



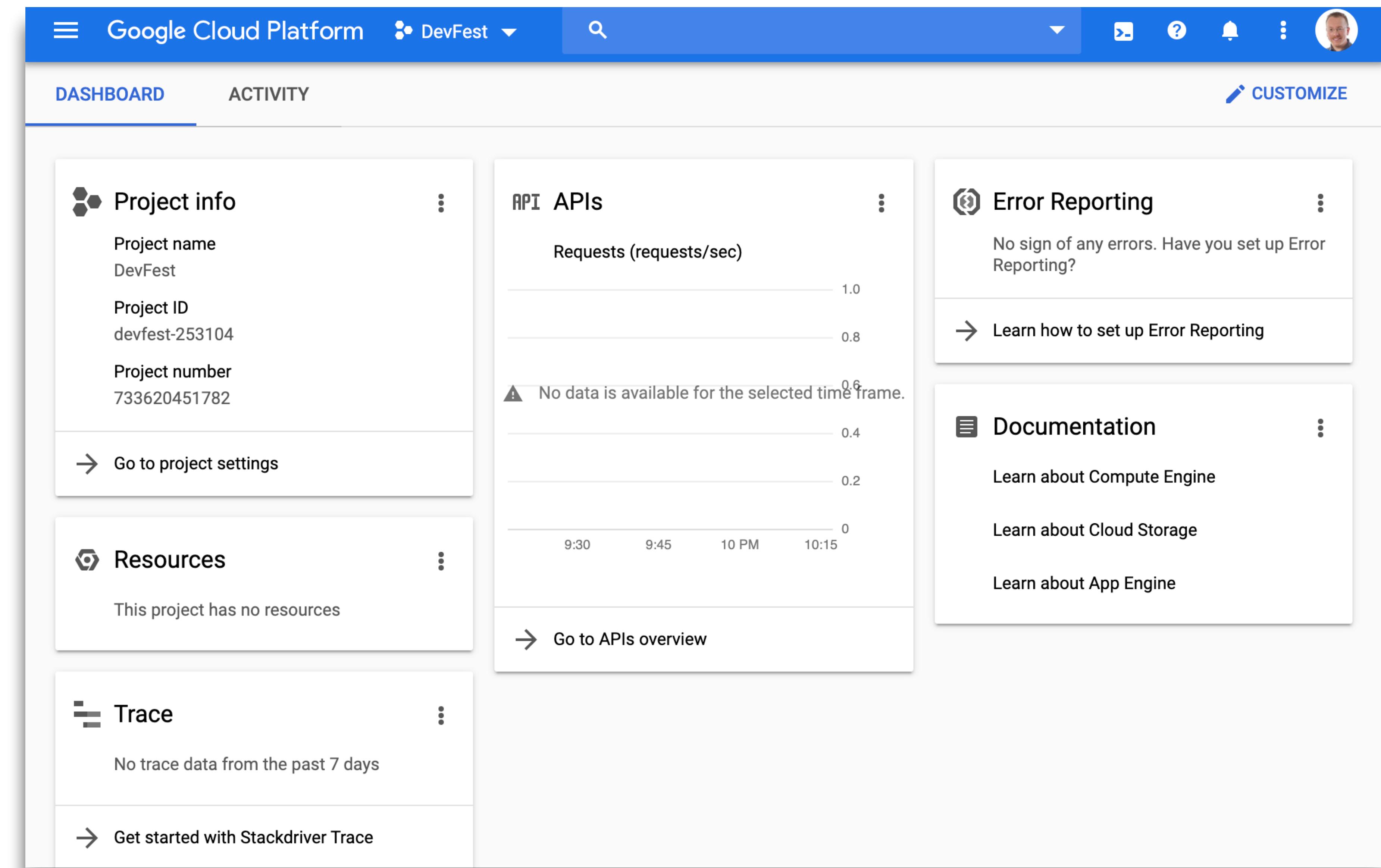
API Credentials



Dashboard



Code



The screenshot shows the Google Cloud Platform Dashboard for a project named "DevFest". The dashboard includes sections for Project info, APIs, Error Reporting, Resources, Documentation, and Trace. The APIs section shows a chart of requests per second over time, indicating no data available for the selected time frame. The Documentation section links to Compute Engine, Cloud Storage, and App Engine. The Trace section indicates no data from the past 7 days.

Google Cloud Platform DevFest

DASHBOARD ACTIVITY CUSTOMIZE

**Project info**

Project name: DevFest  
Project ID: devfest-253104  
Project number: 733620451782

→ Go to project settings

**API APIs**

Requests (requests/sec)

No data is available for the selected time frame.

→ Go to APIs overview

**Error Reporting**

No sign of any errors. Have you set up Error Reporting?

→ Learn how to set up Error Reporting

**Resources**

This project has no resources

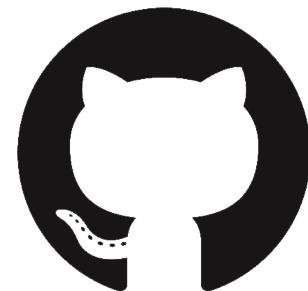
**Documentation**

Learn about Compute Engine  
Learn about Cloud Storage  
Learn about App Engine

**Trace**

No trace data from the past 7 days

→ Get started with Stackdriver Trace



# Setup Billing on Google Maps Platform



Create Account



Billing



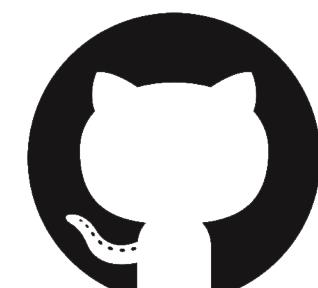
API Credentials



Dashboard



Code



The screenshot shows the Google Cloud Platform dashboard with the 'Billing' option selected in the sidebar. The main content area displays a chart titled 'API APIs' showing 'Requests (requests/sec)' over time. A callout box points to a button labeled 'Go to APIs overview'. To the right, there are sections for 'Error Reporting' (with a note about no errors), 'Documentation' (links to Compute Engine, Cloud Storage, and App Engine), and a 'CUSTOMIZE' button.

Google Cloud Platform DevFest

Home

Marketplace

Billing

API & Services

Support

IAM & admin

Getting started

Security

COMPUTE

App Engine

Compute Engine

Kubernetes Engine

Cloud Functions

API APIs

Requests (requests/sec)

12:45 1 AM 1:15

0.0175  
0.0170  
0.0165  
0.0160  
0.0155

Requests: 0.017

Go to APIs overview

Error Reporting

No sign of any errors. Have you set up Error Reporting?

Learn how to set up Error Reporting

Documentation

Learn about Compute Engine

Learn about Cloud Storage

Learn about App Engine

CUSTOMIZE

<https://console.cloud.google.com/billing?authuser=2&project=devfest-252104&supportedpurview=project>

# API Credentials on Google Maps Platform



Create Account



Billing



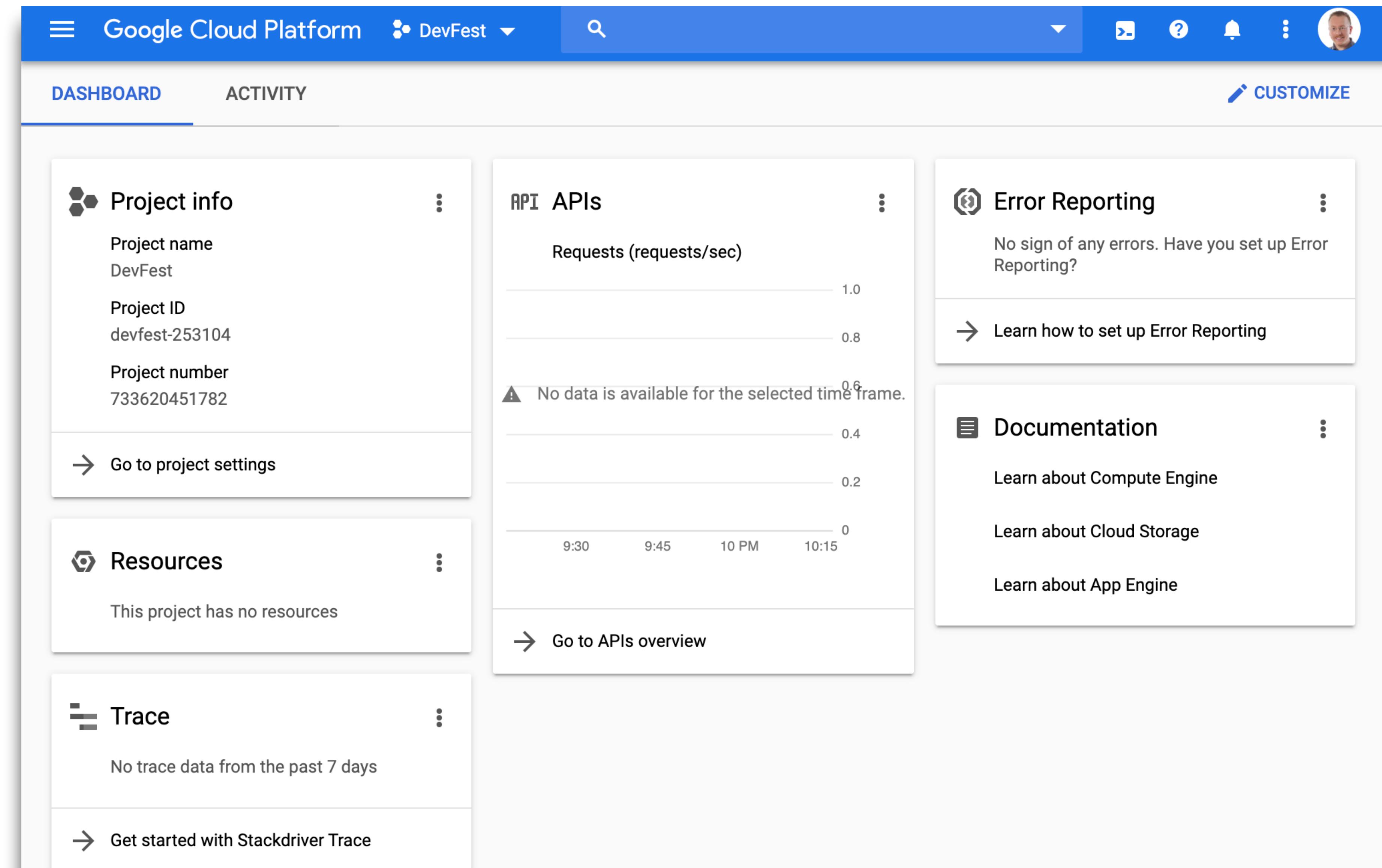
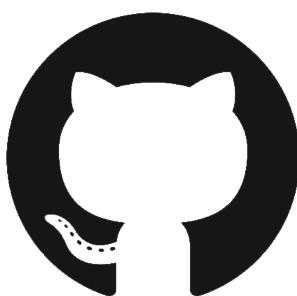
API Credentials



Dashboard



Code



The screenshot shows the Google Cloud Platform Dashboard for a project named 'DevFest'. The dashboard includes sections for Project info, APIs, Error Reporting, Resources, Documentation, and Trace. The APIs section displays a chart of requests per second over time, showing no data available for the selected frame. The Documentation section links to Compute Engine, Cloud Storage, and App Engine. The Trace section indicates no data from the past 7 days.

Google Cloud Platform DevFest

DASHBOARD ACTIVITY CUSTOMIZE

Project info

Project name: DevFest

Project ID: devfest-253104

Project number: 733620451782

Go to project settings

API APIs

Requests (requests/sec)

No data is available for the selected time frame.

Go to APIs overview

Error Reporting

No sign of any errors. Have you set up Error Reporting?

Learn how to set up Error Reporting

Documentation

Learn about Compute Engine

Learn about Cloud Storage

Learn about App Engine

Resources

This project has no resources

Trace

No trace data from the past 7 days

Get started with Stackdriver Trace

# API Credentials on Google Maps Platform



Create Account



Billing



API Credentials

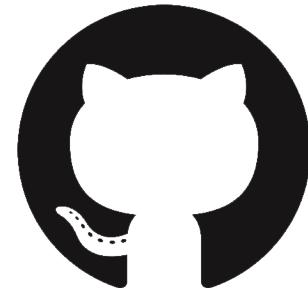


Dashboard



Code

The screenshot shows the Google Cloud Platform API APIs dashboard. The main area displays a chart titled "Requests (requests/sec)" with a single data point at 0.0175. A tooltip indicates "Requests: 0.017". Below the chart, a button says "Go to APIs overview". To the left, a sidebar lists various services: Home, Marketplace, Billing, APIs & Services (with a dropdown menu showing "Dashboard", "Library", "Credentials", "OAuth consent screen", "Domain verification", and "Page usage agreements"), Support, IAM & admin, Getting started, Security, COMPUTE (with App Engine, Compute Engine, Kubernetes Engine, and Cloud Functions), and Cloud Functions. On the right, there are sections for Error Reporting (no errors found) and Documentation (links to Compute Engine, Cloud Storage, and App Engine). The top navigation bar includes "Google Cloud Platform", "DevFest", a search bar, and user account information.



# API Credentials on Google Maps Platform



Create Account



Billing



API Credentials



Dashboard

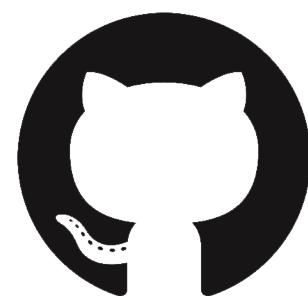


Code

The screenshot shows the Google Cloud Platform API & Services section. The left sidebar has 'Credentials' selected. The main area displays an API key named 'DevFest 2019' created on Sep 15, 2019. The key has restrictions for IP addresses and 1 API, and its value is shown as a long string of characters.

Name	Creation date	Restrictions	Key
DevFest 2019	Sep 15, 2019	IP addresses, 1 API	AlzaSyDVrwMGUaT5_VLgnFauhP7v1EAvlqPJAZA

Below the table, there is a URL bar with the address https://console.cloud.google.com/apis/credentials?authuser=12.



# API Credentials on Google Maps Platform



Create Account



Billing



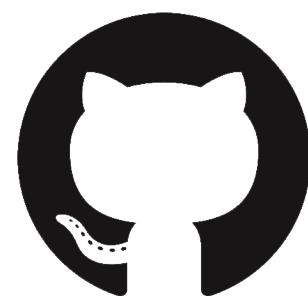
API Credentials



Dashboard



Code



Google Cloud Platform DevFest ▾

API Restrict and rename API key REGENERATE KEY DELETE

Name \* DevFest 2019

API Key AIzaSyDVrwMGUaT5\_VLgnFauhP7v1EAviqPJAZA

Key restrictions

Restrictions help prevent unauthorized use and quota theft. [Learn more ↗](#)

Application restrictions

An application restriction controls which websites, IP addresses, or applications can use your API key. You can set one application restriction per key.

None  
 HTTP referrers (web sites)  
 IP addresses (web servers, cron jobs, etc.)  
 Android apps  
 iOS apps

Accept requests from these server IP addresses

Specify one IPv4 or IPv6 or a subnet using CIDR notation (e.g. 192.168.0.0/22). Examples: 192.168.0.1, 172.16.0.0/12, 2001::ff:0:1, or 2001::ff:0:1/64

Creation date September 15, 2019 at 11:37:48 PM GMT-5  
Created by jason.klein@logicforte.com (you)  
Total usage (last 30 days) 11,662

# API Credentials on Google Maps Platform



Create Account



Billing



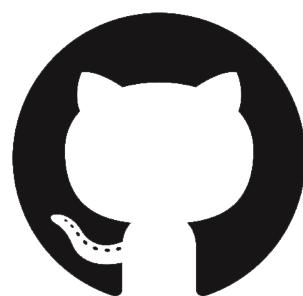
API Credentials



Dashboard



Code



Google Cloud Platform DevFest ▾

REGENERATE KEY DELETE

Examples: 192.168.0.1, 172.16.0.0/12, 2001:db8::1 or 2001:db8::/64

34.192.34.196

34.197.138.176

ADD AN ITEM

**API restrictions**

API restrictions specify the enabled APIs that this key can call

Don't restrict key  
This key can call any API

Restrict key

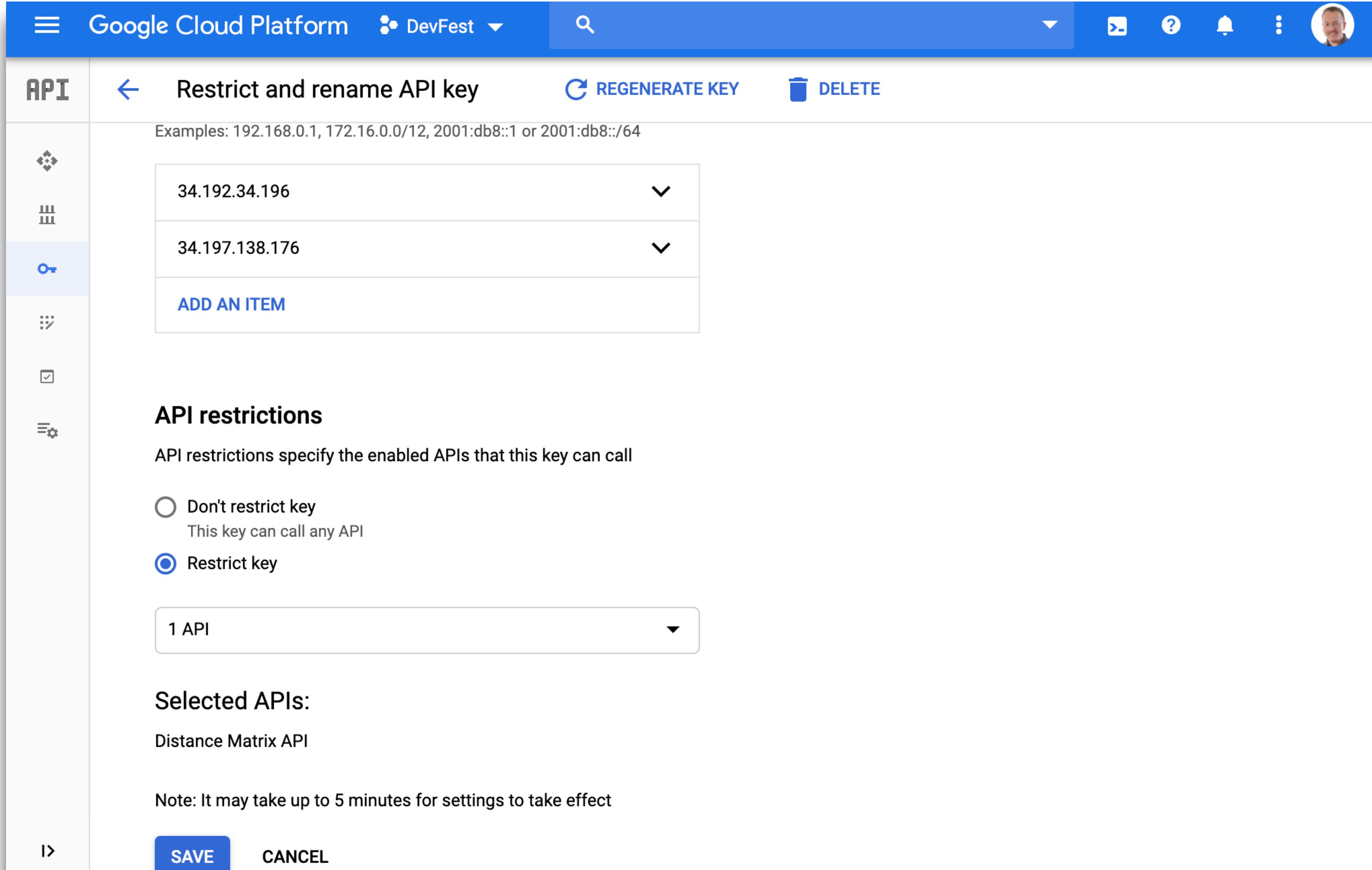
1 API

**Selected APIs:**

Distance Matrix API

Note: It may take up to 5 minutes for settings to take effect

SAVE CANCEL



# Dashboard on Google Maps Platform



Create Account



Billing



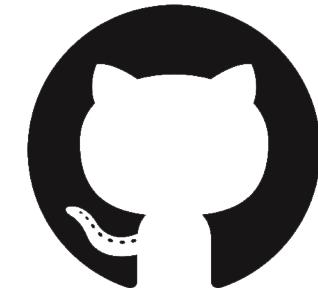
API Credentials



Dashboard



Code



The screenshot shows the Google Cloud Platform API Services dashboard. On the left, a sidebar lists various services: Home, Marketplace, Billing, APIs & Services (with a dropdown menu showing Dashboard, Library, Credentials, OAuth consent screen, Domain verification, and Page usage agreements), Support, IAM & admin, Getting started, Security, COMPUTE (with App Engine, Compute Engine, Kubernetes Engine, and Cloud Functions), and Error Reporting, Documentation, and Learn sections on the right.

The main area displays a chart titled "API APIs" showing "Requests (requests/sec)" over time from 9:45 to 10:15. The chart shows a single data series starting at 1.0 requests/sec at 9:45, dropping to 0.8 at 10:00, and then fluctuating between 0.4 and 0.6. A callout button "Go to APIs overview" is located at the bottom right of the chart area.

The URL at the bottom of the page is <https://console.cloud.google.com/apis/dashboard?authuser=2&project=devfest-252104>.

# Dashboard on Google Maps Platform



Create Account



Billing



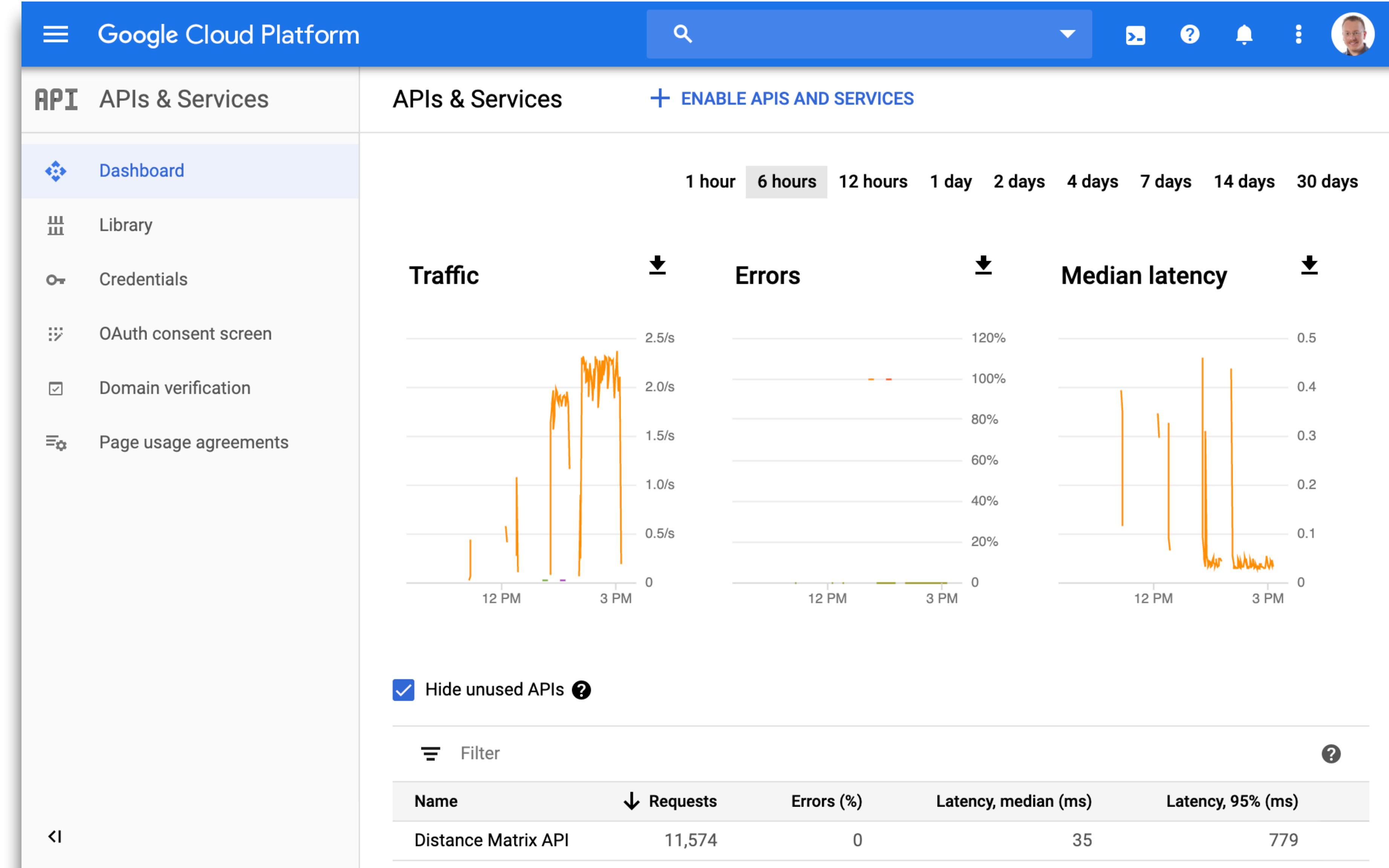
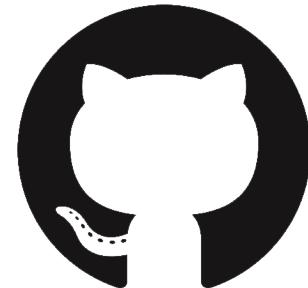
API Credentials



Dashboard



Code



# Sample Code (example-request.py)



Create Account



Billing



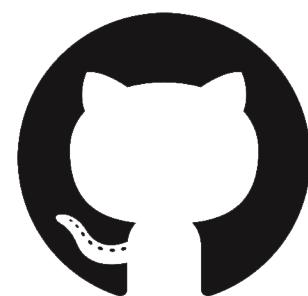
API Credentials



Dashboard



Code



```
1 import urllib.request
2 import json
3
4 file = open('key.txt', 'r')
5 key = file.read().strip()
6
7 origin = '2500+E+Kearney+Springfield+MO+65898'
8 destination = '405+N+Jefferson+Ave+Springfield+MO+65806'
9
10 url = ('https://maps.googleapis.com/maps/api/distancematrix/json'
11         + '?language=en-US&units=imperial'
12         + '&origins={}'
13         + '&destinations={}'
14         + '&key={}'
15         ).format(origin, destination, key)
16
17 response = urllib.request.urlopen(url)
18 response_json = json.loads(response.read())
19 distance_meters = response_json['rows'][0]['elements'][0]['duration']['value']
20 distance_minutes = response_json['rows'][0]['elements'][0]['duration']['value'] / 60
21
22 print("Origin: %s\nDestination: %s\nDistance (Meters): %s\nDistance (Seconds): %s"
23       % (origin, destination, distance_meters, round(distance_minutes, 2)))
24
```

# Sample Code (example-request.py)



Create Account



Billing



API Credentials

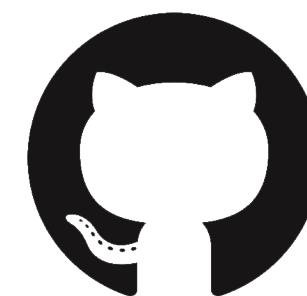


Dashboard



Code

```
$ python example-request.py
Origin: 2500+E+Kearney+Springfield+MO+65898
Destination: 405+N+Jefferson+Ave+Springfield+MO+65806
Distance (Meters): 748
Distance (Seconds): 12.47
```



# Sample Code (example-request.py)



Create Account



Billing



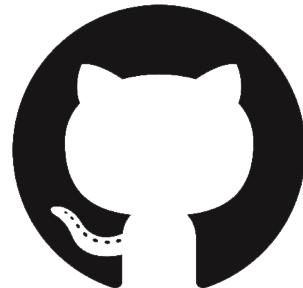
API Credentials



Dashboard



Code



```
1  {
2      "destination_addresses": [
3          "405 N Jefferson Ave, Springfield, MO 65806, USA" ],
4      "origin_addresses": [
5          "2500 E Kearney St, Springfield, MO 65803, USA" ],
6      "rows": [
7          {
8              "elements": [
9                  {
10                     "distance": {
11                         "text": "4.3 mi",
12                         "value": 6847
13                     },
14                     "duration": {
15                         "text": "12 mins",
16                         "value": 748
17                     },
18                     "status": "OK"
19                 }
20             ]
21         },
22         {
23             "status": "OK"
24         }
25     ]
26 }
```

# Sample Member Location Data



Create Account



Billing



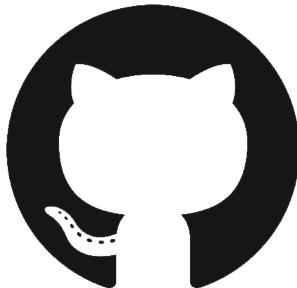
API Credentials



Dashboard



Code



## SAMPLE MEMBER LOCATION DATA

**Bass Pro Shops** | (417) 873-5000 | 2500 E. Kearney, Springfield, MO 65898 | [www.basspro.com](http://www.basspro.com)  
**Hotels.com, a division of Expedia, Inc.** | (417) 521-1760 | 5000 W. Kearney, Springfield  
**Jack Henry & Associates** | (417) 888-4900 | 3725 E. Battlefield, Springfield, MO 65809 | [www.jackhenry.com](http://www.jackhenry.com)  
**JMARK Business Solutions, Inc.** | (417) 863-1700 | 601 N. National, Suite 102, Springfield  
**KPM Technology, LLC** | (417) 875-1100 | 1445 E. Republic, Springfield, MO 65804 | [www.kpmtech.com](http://www.kpmtech.com)  
**Logic Forte** | (417) 720-2325 | P.O. Box 358, Nixa, MO 65714 | [logicforte.com/about/our-office](http://logicforte.com/about/our-office)  
**Missouri State University efactory** | (417) 837-2600 | 901 S. National, Springfield, MO 65807  
**Mostly Serious Interactive Agency** | (417) 501-6552 | 4064 S Lone Pine Ave, Springfield,  
**Ozarks Technical Community College** | 1001 E. Chestnut Expressway, Springfield, MO 65807  
**Pearson-Kelly Technology** | (417) 877-0003 | 2013 W. Woodland, Springfield, MO 65807 | [www.pearson-kelly.com](http://www.pearson-kelly.com)  
**Pitt Technology Group, LLC** | (417) 831-7077 | 1900 LeCompte, Building 15, Springfield, MO 65807

# Sample Event Location Data



Create Account



Billing



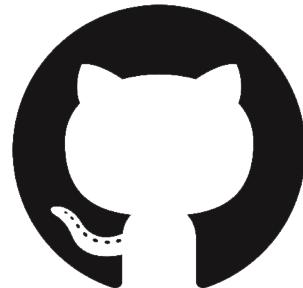
API Credentials



Dashboard



Code



## SAMPLE EVENT LOCATION DATA

**202 S John Q Hammons Parkway, Springfield, MO 65806**

**2340 W Grand St, Springfield, MO 65802**

**2431 N Glenstone Ave, Springfield, MO 65803**

**405 N Jefferson Ave, Springfield, MO 65806**

**4155 S Nature Center Way, Springfield, MO 65804**

**305 E Walnut St, Springfield, MO 65806**

**1111 E Brookside Dr, Springfield, MO 65807**

**600 W Sunshine, Springfield, MO 65807**

# Sample Distance Data



Create Account



Billing



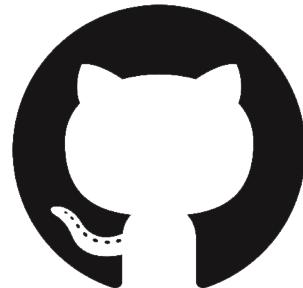
API Credentials



Dashboard



Code



## SAMPLE OUTPUT DATA

Origin|202 S John Q Hammons Parkway, Springfield, MO 65806|2340 W Grand St, Springfield, MO 65806|2500 E. Kearney, Springfield, MO 65898|751|1091|415|748|1037|858|780|881|779|1078|5000 W. Kearney, Springfield, MO 65803|1077|811|798|946|1347|1038|1003|1279|1105|1037|3725 E. Battlefield, Springfield, MO 65809|937|1135|894|978|492|1088|974|841|965|906|601 N. National, Suite 102, Springfield, MO 65802|172|557|420|215|919|323|221|302|214|1445 E. Republic, Springfield, MO 65804|846|860|1181|977|178|964|902|620|854|673|901 S. National, Springfield, MO 65897|208|515|711|378|943|307|272|295|216|441|4064 S Lone Pine Ave, Springfield, MO 65804|1028|1060|1192|1138|371|1122|1083|802|1001 E. Chestnut Expressway, Springfield, MO 65802|204|511|478|169|985|278|201|378|2013 W. Woodland, Springfield, MO 65807|787|420|1051|671|595|643|733|585|795|330|1900 LeCompte, Building 15, Springfield, MO 65802|737|1063|488|720|703|830|774|861|

# Sample Distance Table



Create Account



Billing



API Credentials



Dashboard



Code

	A	B	C	D	E	F	G	H	I	J	K
1	Origin	202 S Jol	2340 W G	2431 N G	405 N Jef	4155 S Na	305 E Wa	521 E St I	1111 E Br	333 S Jol	600 W Su
2	2500 E. Kearney	751	1091	415	748	1037	858	780	881	779	1078
3	5000 W. Kearney	1077	811	798	946	1347	1038	1003	1279	1105	1097
4	3725 E. Battlefield	937	1135	894	978	492	1088	974	841	965	901
5	601 N. National,	172	557	420	215	919	323	221	302	200	500
6	1445 E. Republic	846	860	1181	977	178	964	902	620	854	673
7	901 S. National,	208	515	711	378	943	307	272	295	216	441
8	4064 S Lone Pin	1028	1060	1192	1138	371	1122	1083	802	1036	862
9	1001 E. Chestnut	204	511	478	169	985	278	201	378	233	576
10	2013 W. Woodlawn	787	420	1051	671	595	643	733	585	795	330
11	1900 LeCompte,	737	1063	488	720	703	830	774	861	765	884
12	MTTL (minutes)	11.25	13.37	12.71	11.57	12.62	12.42	11.57	11.41	11.58	12.24

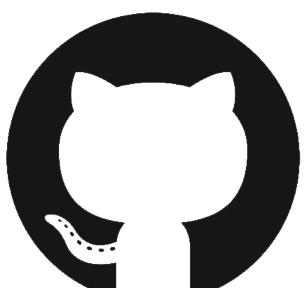


Lowest Mean Time To Lunch (MTTL)

2.12 minute difference in average travel time

2.12 minutes x 10 members = 21.2 minutes saved

What about average travel time for hundreds of members?



# Case Study: Chamber Member Directory



Create Account



Billing



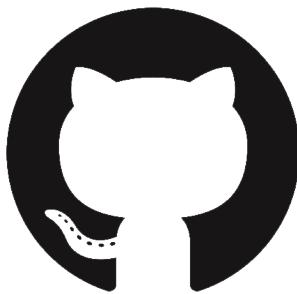
API Credentials



Dashboard



Code



The screenshot shows the homepage of the Springfield Area Chamber of Commerce. The page features a large aerial photograph of a city street with buildings and trees. Overlaid on the image is the text "Welcome to the Springfield Area Chamber of Commerce" and a subtitle about driving initiatives for business growth. At the top, there is a navigation bar with links for HOME, ABOUT, CALENDAR, OUR FOCUS, MEMBERSHIP, RESOURCES, LOGIN, and JOIN. A dropdown menu is open under the MEMBERSHIP link, showing options for MEMBER DIRECTORY, MEMBER NEWS, LOGIN, and JOIN THE CHAMBER. The URL https://business.springfieldchamber.com/directory is visible at the bottom of the page.

# Case Study: Chamber Member Directory



Create Account



Billing



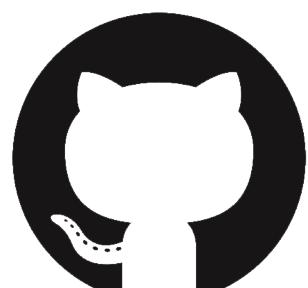
API Credentials



Dashboard



Code



The screenshot shows a web browser displaying the Springfield Area Chamber of Commerce membership directory at [business.springfieldchamber.com/directory](https://business.springfieldchamber.com/directory). The page features a blue header bar with the text "Membership Directory". Below the header is a search bar labeled "Keyword & Category" with options for "Advanced" and "Search". A navigation menu includes links for HOME, ABOUT, CALENDAR, OUR FOCUS, MEMBERSHIP, RESOURCES, LOGIN, and JOIN. The main content area lists categories of businesses:

- Advertising, Marketing & Media**: Advertising & Marketing, Advertising Specialties, Media, Photography & Videography, Printing, Publishing
- Business & Professional Services**: Attorneys & Legal Services, Business Services, Call Centers, Consultants, Heating & Air Services, Mailing & Shipping, Office Equipment & Services, Pest Control, Security & Safety, Uniforms
- Community, Civic & Charitable Organizations**: Associations, Labor Organizations, Not-for-Profit Organizations
- Arts, Culture & Entertainment**: Arts, Attractions, Entertainment, Golf/Private Clubs, Libraries & Museums, Sports & Recreation, Theaters
- Communications & Technology**: Audio-Visual Equipment & Services, Computer Networking, Hardware & Software, Data Management, Information Technology Services, Telecommunications, Website & App Developers
- Construction & Real Estate**: Apartments, Architects & Design Services, Commercial Construction, Commercial Real Estate Services, Construction & Maintenance Services

A URL in the address bar indicates a search for businesses starting with the letter 'L': <https://business.springfieldchamber.com/directory/FindStartsWith?term=L>.

# Case Study: Chamber Member Directory



Create Account



Billing



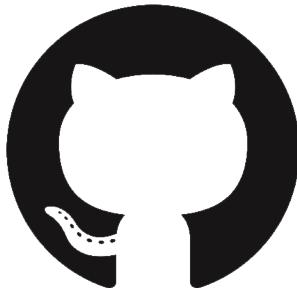
API Credentials



Dashboard



Code



The screenshot shows a web browser displaying the Springfield Area Chamber of Commerce member directory. The page features a header with the Springfield Area Chamber of Commerce logo and navigation links for HOME, ABOUT, CALENDAR, OUR FOCUS, MEMBERSHIP, RESOURCES, LOGIN, and JOIN. Below the header, there are four business entries, each represented by a small building icon:

- Loehr Chiropractic & Acupuncture** | (417) 887-8075  
3021 E. Sunshine, Springfield, MO 65804  
[www.loehrchiro.com](http://www.loehrchiro.com)  
[Learn More](#)
- Logic Forte** | (417) 720-2325  
PO Box 358, Nixa, MO 65714  
[logicforte.com/about/our-office/](http://logicforte.com/about/our-office/)  
[Learn More](#)
- Long Life Ministries, Inc.** | (417) 886-2063  
2040 E. Sunshine, Springfield, MO 65804  
[www.longlifeministry.org](http://www.longlifeministry.org)  
[Learn More](#)
- LongHorn SteakHouse** | (417) 883-5025  
3121 S. Glenstone, Springfield, MO 65804  
[www.longhornsteakhouse.com](http://www.longhornsteakhouse.com)

The URL in the browser's address bar is <https://business.springfieldchamber.com/directory/FindStartsWith?term=L>.

# Case Study: Chamber Member Directory



Create Account



Billing



API Credentials



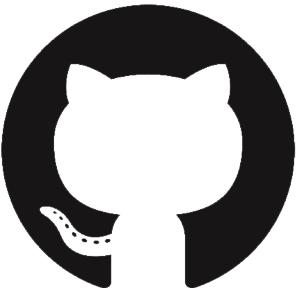
Dashboard



Code

The screenshot shows a browser window with the title "Directory - Springfield Area Ch" and the URL "view-source:business.springfieldchamber.com/directory/FindStartsWith?term=L". The page content is a block of HTML code, line-numbered from 2589 to 2641. The code describes a business listing for "Logic Forte". It includes details like the company name, address (PO Box 358), city (Nixa), state (MO), zip code (65714), website (logicforte.com/about/our-office/), and a "Learn More" button.

```
2589  
2590  
2591  
2592  
2593  
2594  
2595  
2596  
2597  
2598  
2599  
2600 <div class="mn-row-inner Rank1">  
2601   <div class="mn-col-1-5 mn-directory-list-item" contacttype="2">  
2602     <div class="mn-block mn-img-placeholder"></div>  
2603   </div>  
2604   <div class="mn-col-4-5">  
2605     <div class="mn-block mn-listing-title">  
2606       <a class="mn-main-heading" href="//business.springfieldchamber.com/directory/Details/logic-forte-708107">Logic Forte</a>  
2607       <span>  
2608         <span class="mn-divider-pipe"> | </span>  
2609         <span class="mn-sub-heading"><a href="tel:4177202325">(417) 720-2325</a></span>  
2610       </span>  
2611     </div>  
2612     <div class="mn-block mn-listing-address">  
2613       <div class="mn-text"><div class="mn-block mn-address">  
2614         <span class="mn-street">PO Box 358,</span>  
2615       </div>  
2616       <span class="mn-city">Nixa,</span>  
2617       <span class="mn-state">MO</span>  
2618       <span class="mn-zip">65714</span></div>  
2619     </div>  
2620   </div>  
2621   <div class="mn-block mn-listing-website">  
2622     <div class="mn-text"><a href="http://logicforte.com/about/our-office/">logicforte.com/about/our-office/</a></div>  
2623   </div>  
2624   <div class="mn-block mn-action">  
2625     <a class="mn-button" href="//business.springfieldchamber.com/directory/Details/logic-forte-708107">Learn More</a>  
2626   </div>  
2627 </div>  
2628 </div>  
2629 </div>  
2630 </div>  
2631 </div>  
2632 </div>  
2633  
2634  
2635  
2636  
2637  
2638  
2639  
2640  
2641
```



# Case Study: Chamber Distance Table



Create Account



Billing



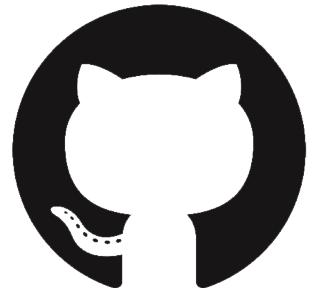
API Credentials



Dashboard

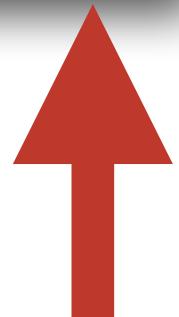


Code



	A	B	C	D	E	F	G	H	I	J	K
1	<b>Origin</b>	<b>202 S Jol</b>	<b>2340 W G</b>	<b>2431 N G</b>	<b>405 N Jef</b>	<b>4155 S Na</b>	<b>305 E Wa</b>	<b>521 E St I</b>	<b>1111 E Br</b>	<b>333 S Jol</b>	<b>600 W Su</b>
2	3211 E. Chestnut	569	953	660	611	641	721	607	693	597	822
3	2111 S. Eastgate	825	1146	783	867	596	976	863	729	853	790
4	3025 W. Republic	1195	721	1458	1078	589	1050	1141	993	1202	737
5	412 South Avenue	231	400	706	205	1005	47	179	356	238	329
6	2140 S. Campbell	535	487	937	493	720	420	481	314	543	129
7	1722-V S. Glenstone	555	782	718	665	646	649	613	361	563	434
8	2525-B E. Livingston	718	1012	292	716	854	826	748	849	746	1046
9	5398 W. Chestnut	930	640	748	799	1130	884	856	1109	958	926
10	2552-B S. Campbell	643	566	1045	600	695	527	589	422	651	237
1223	204 W. Primrose	955	612	1243	863	566	839	901	734	962	522
1224	2144 E. Republic	1023	918	1186	1133	121	1116	1081	793	1030	794
1225	1839-K E. Independence	901	956	1174	1032	267	995	957	675	909	756
1226	1736 E. Sunshine	528	720	722	669	520	622	584	303	536	363
1227	5337-B S. Campbell	1143	931	1470	1101	501	1028	1089	878	1151	737
1228	3525 S. Campbell	824	735	1232	782	533	709	770	604	832	418
1229	1731 N. Glenstone	382	722	289	380	921	489	411	512	410	710
1230	3220 E. Sunshine	691	881	672	756	476	785	746	464	699	525
1231	3534 E. Sunshine	755	1076	713	797	572	906	793	659	783	720
1232	<b>MTTL (minutes)</b>	<b>12.34</b>	<b>13.16</b>	<b>15.14</b>	<b>12.62</b>	<b>11.90</b>	<b>12.71</b>	<b>12.38</b>	<b>11.10</b>	<b>12.60</b>	<b>11.03</b>

MTTL: 4.11 minute difference = 84 hours saved



# Download Code to Reproduce Case Study



Create Account



Billing



API Credentials

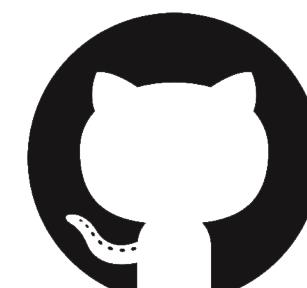


Dashboard



Code

The screenshot shows Jason Klein's GitHub profile. At the top, there is a navigation bar with links for Pull requests, Issues, Marketplace, and Explore. Below the navigation bar, there is a search bar and a user statistics summary: Overview (52), Repositories (52), Projects (0), Packages (0), Stars (81), Followers (12), and Following (79). A large profile picture of Jason Klein is displayed, along with a "Set status" button. Below the profile, his name is listed as Jason Klein (@jason-klein) with a "Edit profile" button. His bio states: "Developer primarily using Laravel and Vue.js on AWS." He is also associated with the handle @logicforte, located in Springfield, Missouri, and has a website at <https://jrklein.com/>. Two of his repositories are prominently displayed: "google-distance-matrix-api-example" and "aws-serverless-security-workshop". The "google-distance-matrix-api-example" repository is described as a "Google Distance Matrix API example demonstrated at DevFest Springfield 2019" and was updated 13 hours ago. The "aws-serverless-security-workshop" repository is described as being forked from "aws-samples/aws-serverless-security-workshop" and is a "serverless application built with AWS Lambda, Amazon API Gateway and RDS Aurora. We will cover AWS services and features you can leverage to ...". Both repositories have a "Star" button next to their names.





# THANK YOU! QUESTIONS?

Jason Klein (@JasnK)

Demo Source Code

<https://github.com/jason-klein/google-distance-matrix-api-example>

GOOGLE DEVELOPERS GROUP

# DevFest

• SPRINGFIELD, MISSOURI, USA •