



Google Cloud

Google Cloud Platform Intro and Workshop



Neal Goyal

Google Cloud Platform Student Innovator |
@nealgoyal

What is Google Cloud Platform?



Google Cloud

What is Google Cloud Platform?

Compute



Compute Engine



App Engine



Kubernetes Engine



GPU



Cloud Functions



Container-Optimized OS

Big Data



BigQuery



Cloud Dataflow



Cloud Dataproc



Cloud Dataprep



Cloud Datalab



Cloud Pub/Sub



Genomics



Data Studio

Identity & Security



Cloud IAM



Cloud Resource Manager



Cloud Security Scanner



Key Management Service



BeyondCorp



Data Loss Prevention API



Identity-Aware Proxy



Security Key Enforcement

Internet of Things



Cloud IoT Core

Machine Learning



Cloud Machine Learning



Cloud Vision API



Cloud Speech API



Cloud Video Intelligence API



Cloud Natural Language API



Cloud Translation API



Cloud Jobs API



Advanced Solutions Lab

Storage & Databases



Cloud Storage



Cloud Bigtable



Cloud Datastore



Transfer Appliance



Cloud SQL



Cloud Spanner



Persistent Disk

What is Google Cloud Platform?

Compute

Big Data

Identity & Security

Internet of Things

Machine Learning

Storage & Databases



Cloud
Translation
API

- Build and deploy web applications to the Cloud - “Platform as a Service”
- Fully abstracts away infrastructure so you can focus on your code
- Python, Node.js, Ruby, Java, PHP, Go, .NET



- **Cloud Storage**
 - store structured data (image/text/audio files)
- **Cloud SQL**
 - relational databases MySQL and PostgreSQL
- **Datastore**
 - Google Cloud Platform's NoSQL database

- Acquired by Google in 2014
- Mobile development platform (but can used for web apps too!)
 - Firebase realtime database
 - Firebase authentication
 - Firebase hosting (static websites - HTML/CSS/Javascript)





hawaii



Sat, Feb 3



Sat, Jan 20






 Search your photos

 United States

 San Jose

 California



 Videos

 Movies

 Animations

 Collages

[SHOW MORE](#)

 Morgan Hill

“Ok Google”



All

Images

Maps

Shopping

More

Settings

Your location: Westwood, Los Angeles, CA



SORT BY: DEFAULT ▾

MY SHORTLIST (0) ▾

Sponsored ⓘ

Show only

Available nearby



New items



Price

Up to \$30



\$30 – \$70



\$70 – \$200



Over \$200



\$ _____ to

\$ _____

GO

Brand

Searches related to cat



cat tree



cat shirt



cat plush



cat toys



cat shoes



cat print



Frisco 72-Inch Cat Tree, Brown

\$67.99 from Chewy.com **99% positive** (405,457)

★★★★★ 5,316 product reviews

Frisco 72-Inch **Cat** Tree, Brown; The Frisco 72-Inch Brown **Cat** Tree is the ultimate all-in one spot for your kitty to do all the ...

Frisco · Playhouse

Other options: [Brown - 52 Inch \(\\$37\)](#) [Cream - 68 Inch \(\\$61\)](#)

Google Cloud Machine Learning APIs

- Gain insights from data using Google Cloud's pre-trained machine learning models
- Leverage same technology that powers Google products like Google Photos and Assistant
- Require ZERO knowledge of machine learning



Google Cloud Machine Learning APIs



Vision



Video
Intelligence



Speech



Natural
Language



Translation

Running your apps on Google Cloud Platform



Compute Engine
(Virtual Machines)



Kubernetes Engine
(Containers)



App Engine
(Applications)



Cloud
Functions
(Code)

Highly customisable

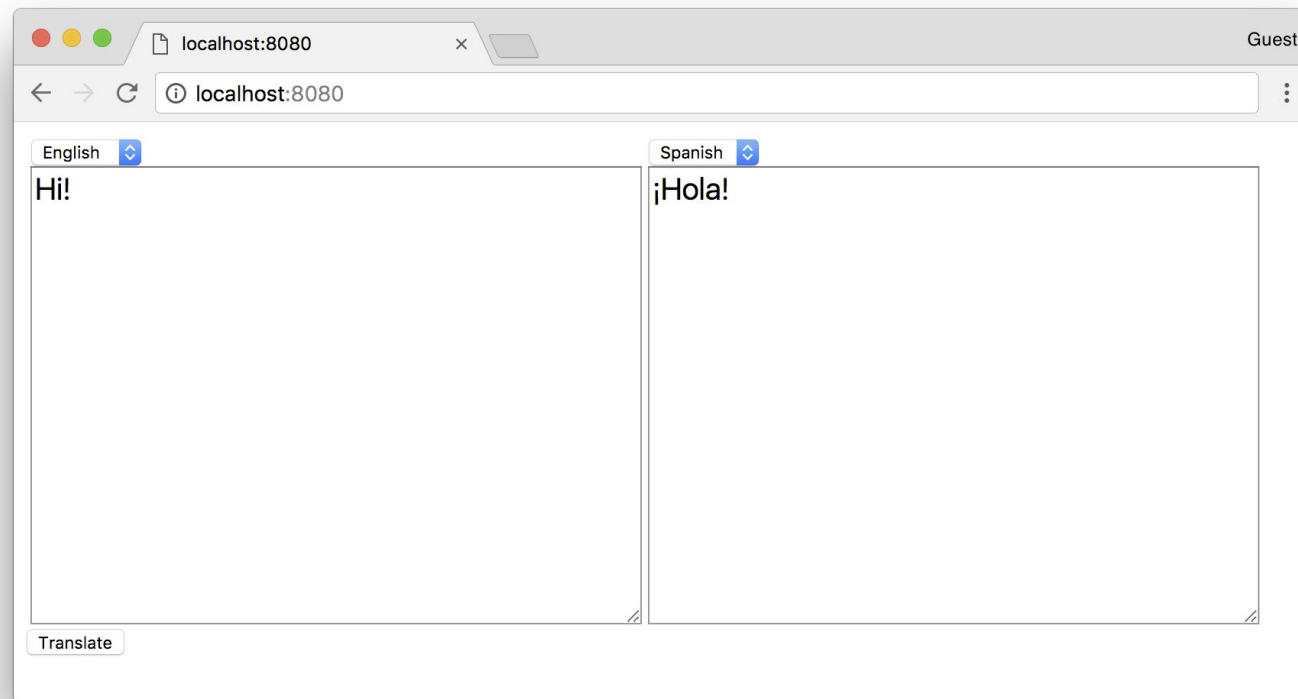
Highly managed



WORKSHOP: Translation Service on Google App Engine with Node.js

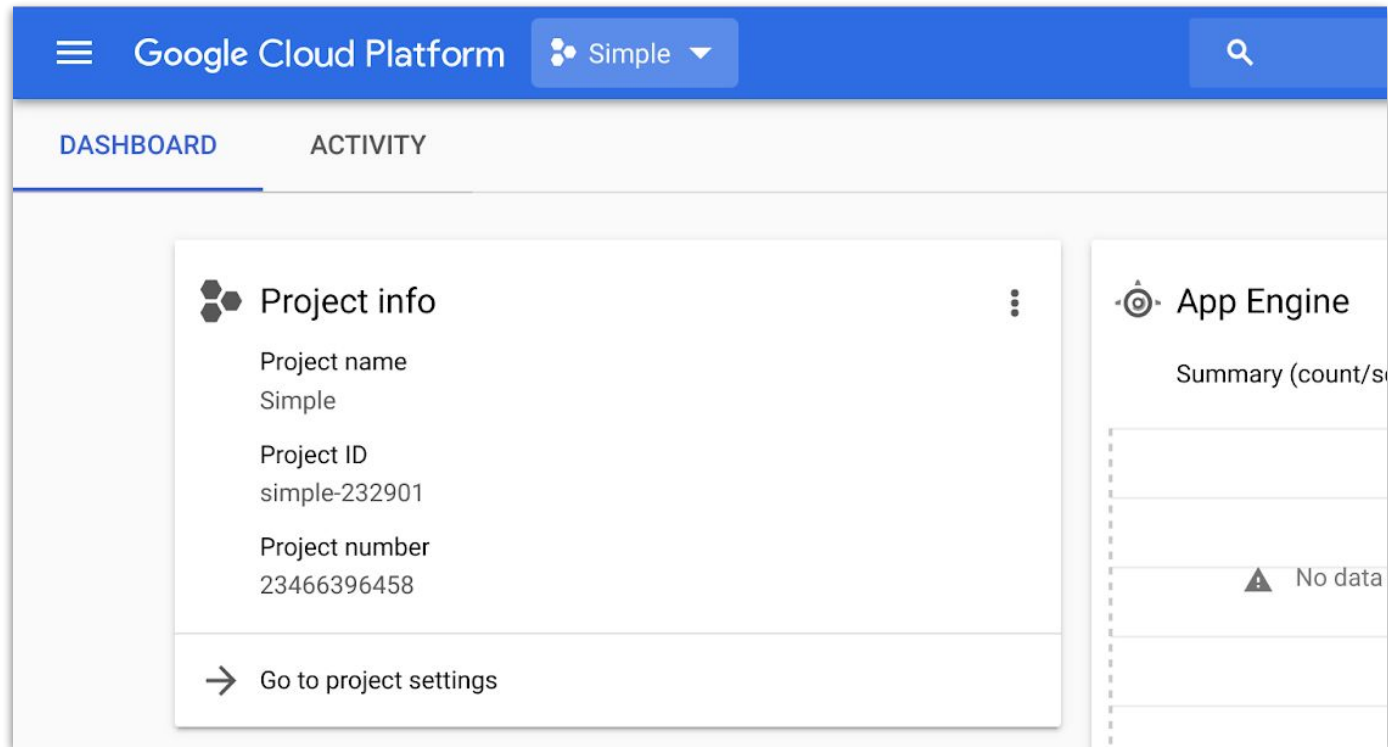
goo.gl/8n4zHV

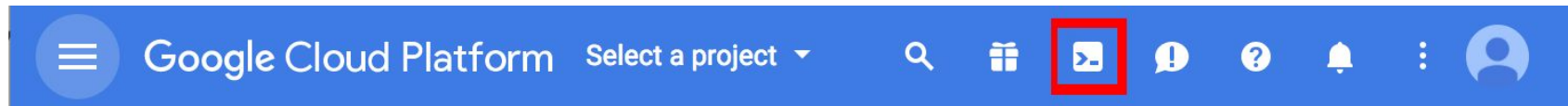
What You Will Be Making!



Let's Go to Google Cloud's Console!

console.cloud.google.com



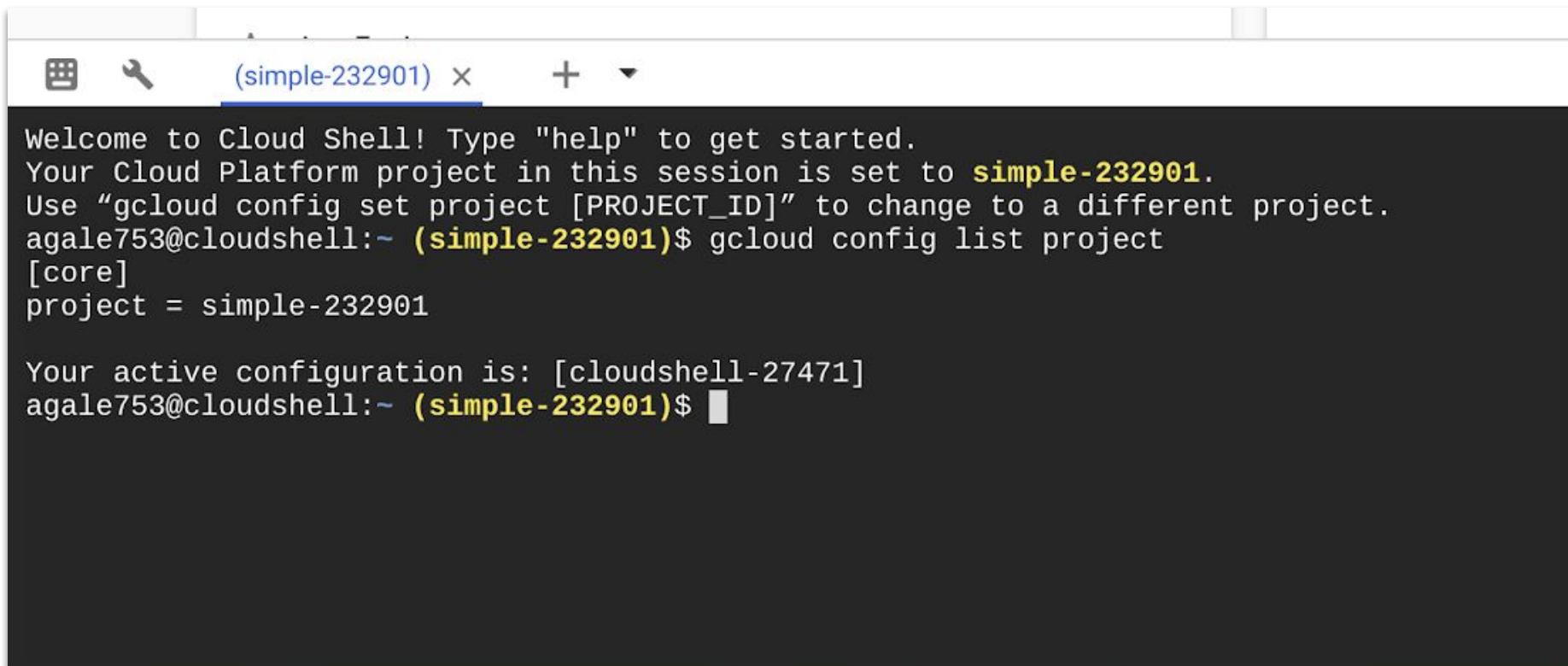


Try Out Some Commands

```
gcloud config list project
```

```
gcloud config set project  
    <PROJECT_ID>
```

Cloud Shell



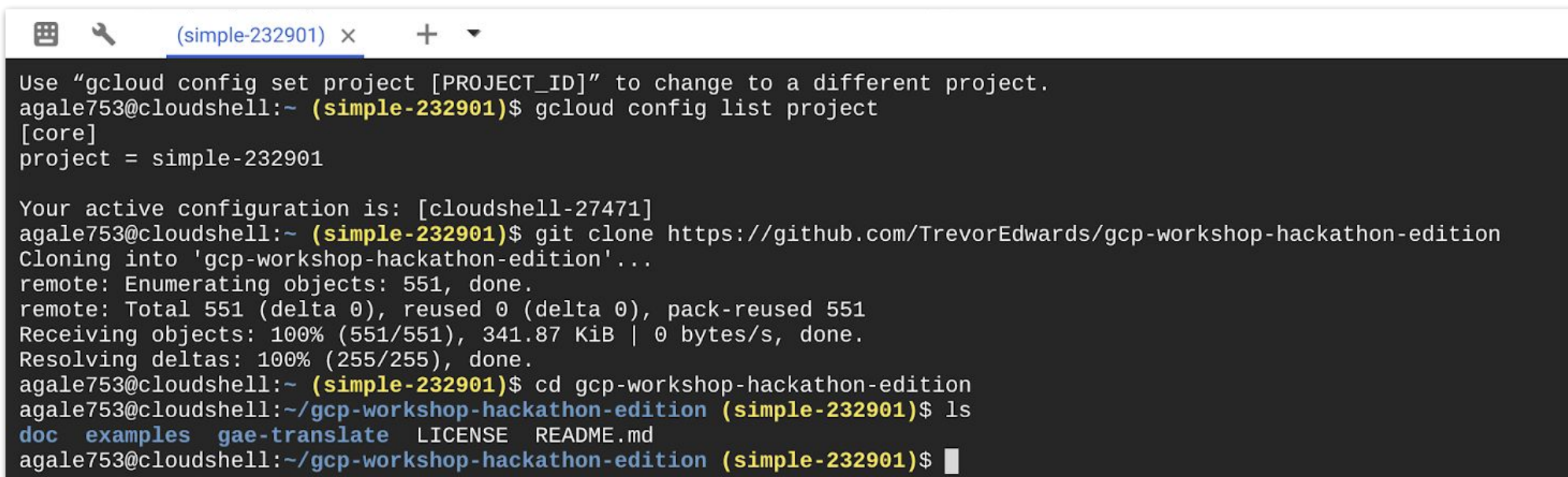
```
(simple-232901) x + ▾  
Welcome to Cloud Shell! Type "help" to get started.  
Your Cloud Platform project in this session is set to simple-232901.  
Use "gcloud config set project [PROJECT_ID]" to change to a different project.  
agale753@cloudshell:~ (simple-232901)$ gcloud config list project  
[core]  
project = simple-232901  
  
Your active configuration is: [cloudshell-27471]  
agale753@cloudshell:~ (simple-232901)$
```

Installing the source code

```
git clone
```

```
https://github.com/TrevorEdwards/  
gcp-workshop-hackathon-edition
```

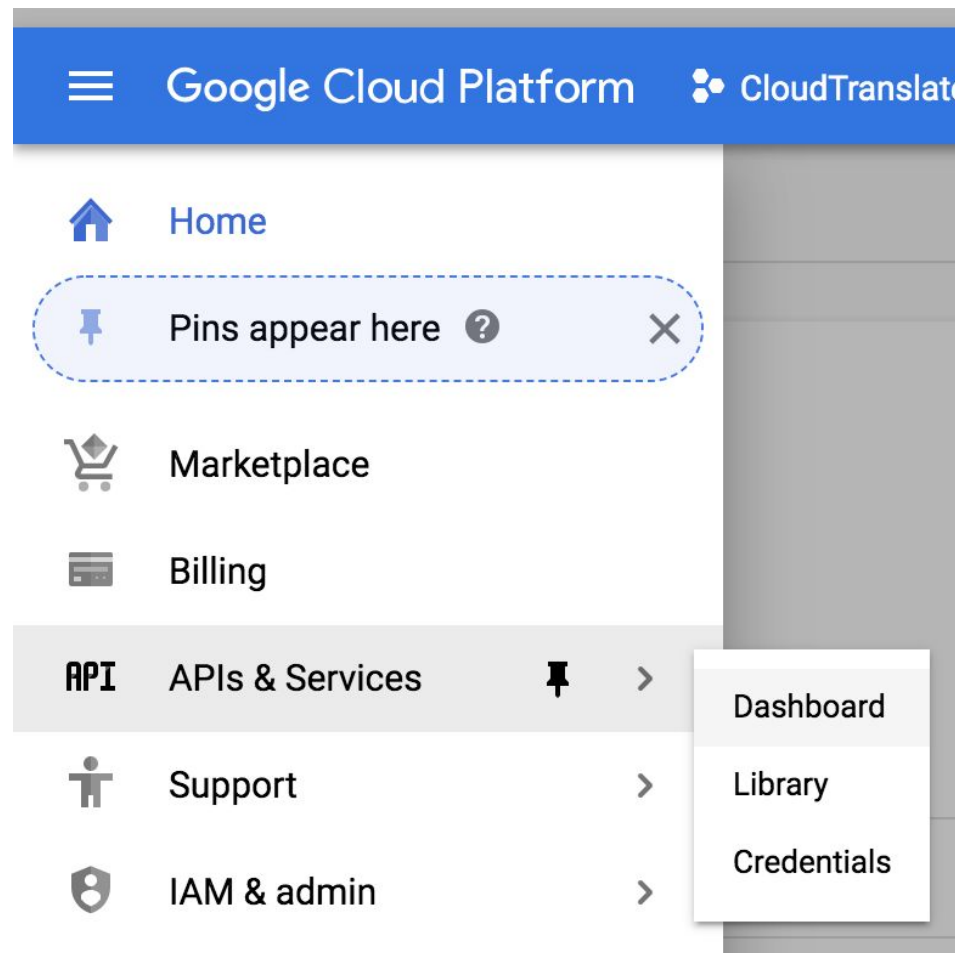
What It Looks Like!

A terminal window titled '(simple-232901) x' with a search icon and a plus sign. The terminal shows a Google Cloud Shell session for user 'agale753'. It starts with a message about changing projects, followed by 'gcloud config list project' showing 'project = simple-232901'. Then it shows the active configuration, followed by cloning a repository from GitHub. The cloning process shows progress for enumerating objects, total objects, receiving objects, and resolving deltas. Finally, it shows the user navigating into the cloned directory and listing its contents: 'doc', 'examples', 'gae-translate', 'LICENSE', and 'README.md'.

```
Use "gcloud config set project [PROJECT_ID]" to change to a different project.
agale753@cloudshell:~ (simple-232901)$ gcloud config list project
[core]
project = simple-232901

Your active configuration is: [cloudshell-27471]
agale753@cloudshell:~ (simple-232901)$ git clone https://github.com/TrevorEdwards/gcp-workshop-hackathon-edition
Cloning into 'gcp-workshop-hackathon-edition'...
remote: Enumerating objects: 551, done.
remote: Total 551 (delta 0), reused 0 (delta 0), pack-reused 551
Receiving objects: 100% (551/551), 341.87 KiB | 0 bytes/s, done.
Resolving deltas: 100% (255/255), done.
agale753@cloudshell:~ (simple-232901)$ cd gcp-workshop-hackathon-edition
agale753@cloudshell:~/gcp-workshop-hackathon-edition (simple-232901)$ ls
doc  examples  gae-translate  LICENSE  README.md
agale753@cloudshell:~/gcp-workshop-hackathon-edition (simple-232901)$
```


Enable APIs: Cloud Translate & App Engine Flexible Environment



Create a Cloud Service Account

- 1 `gcloud iam service-accounts create my-service-account`
- 2 `gcloud iam service-accounts keys create key.json
--iam-account=my-service-account@${GOOGLE_CLOUD_PROJECT}.iam.
gserviceaccount.com`
- 3 `export GOOGLE_APPLICATION_CREDENTIALS="${PWD}/key.json"`
- 4 `gcloud auth login`

What It Looks Like!

```
(cloudtranslateworkshop) x + - x
ngoya001@cloudshell:~/gcp-workshop-hackathon-edition (cloudtranslateworkshop)$ gcloud iam service-accounts create my-service-account
Created service account [my-service-account].
ngoya001@cloudshell:~/gcp-workshop-hackathon-edition (cloudtranslateworkshop)$ gcloud iam service-accounts keys create key.json --iam-account=my-service-account@$(GOOGLE_CLOUD_PROJECT).iam.gserviceaccount.com
created key [d93b6e2b1f3aaa2c1061c0a4c3296b8d10cadffb] of type [json] as [key.json] for [my-service-account@cloudtranslateworkshop.iam.gserviceaccount.com]
ngoya001@cloudshell:~/gcp-workshop-hackathon-edition (cloudtranslateworkshop)$ export GOOGLE_APPLICATION_CREDENTIALS="$(PWD)/key.json"
ngoya001@cloudshell:~/gcp-workshop-hackathon-edition (cloudtranslateworkshop)$ gcloud auth login

You are already authenticated with gcloud when running
inside the Cloud Shell and so do not need to run this
command. Do you wish to proceed anyway?

Do you want to continue (Y/n)? Y

Go to the following link in your browser:

https://accounts.google.com/o/oauth2/auth?redirect_uri=urn%3Aietf%3Aaws%3Aoauth%3A2.0%3Aaob&prompt=select_account&response_type=code&client_id=32555940559.apps.googleusercontent.c
om&scope=https%3A%2F%2Fwww.googleapis.com%2Fauth%2Fuserinfo.email+https%3A%2F%2Fwww.googleapis.com%2Fauth%2Fcloud-platform+https%3A%2F%2Fwww.googleapis.com%2Fauth%2Fappengine.admin+h
ttps%3A%2F%2Fwww.googleapis.com%2Fauth%2Fcompute+https%3A%2F%2Fwww.googleapis.com%2Fauth%2Faccounts.reauth&access_type=offline

Enter verification code: 4/OQE-p0tecvN3egHYt6ZzY1Hg2tUxd9n_cqJ8SXa2dCuqZxxUUhxwQo0
WARNING: `gcloud auth login` no longer writes application default credentials.
If you need to use ADC, see:
  gcloud auth application-default --help

You are now logged in as [ngoya001@ucr.edu].
```

Node.js

- Node.js: JavaScript runtime on the server
- Makes **node** and **npm** available in your command line
- Use **node my-file.js** to run a JavaScript file
- Use **npm init** to create **package.json**, the configuration file for your Node project

```
$ node
> const str = 'hello world!' // you can write any plain JavaScript
undefined
> str.toUpperCase()
'HELLO WORLD!'
> █ // Ctrl+C twice to exit.
```



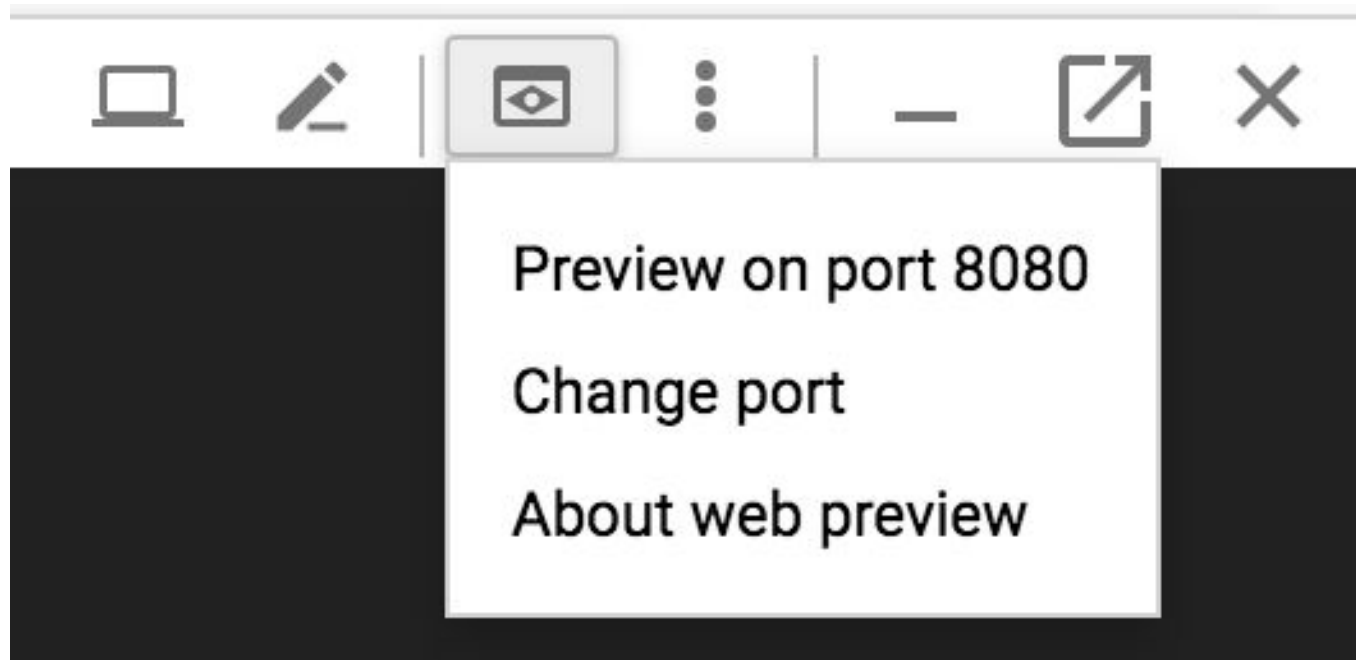
Start server!

1 `cd gae-translate`

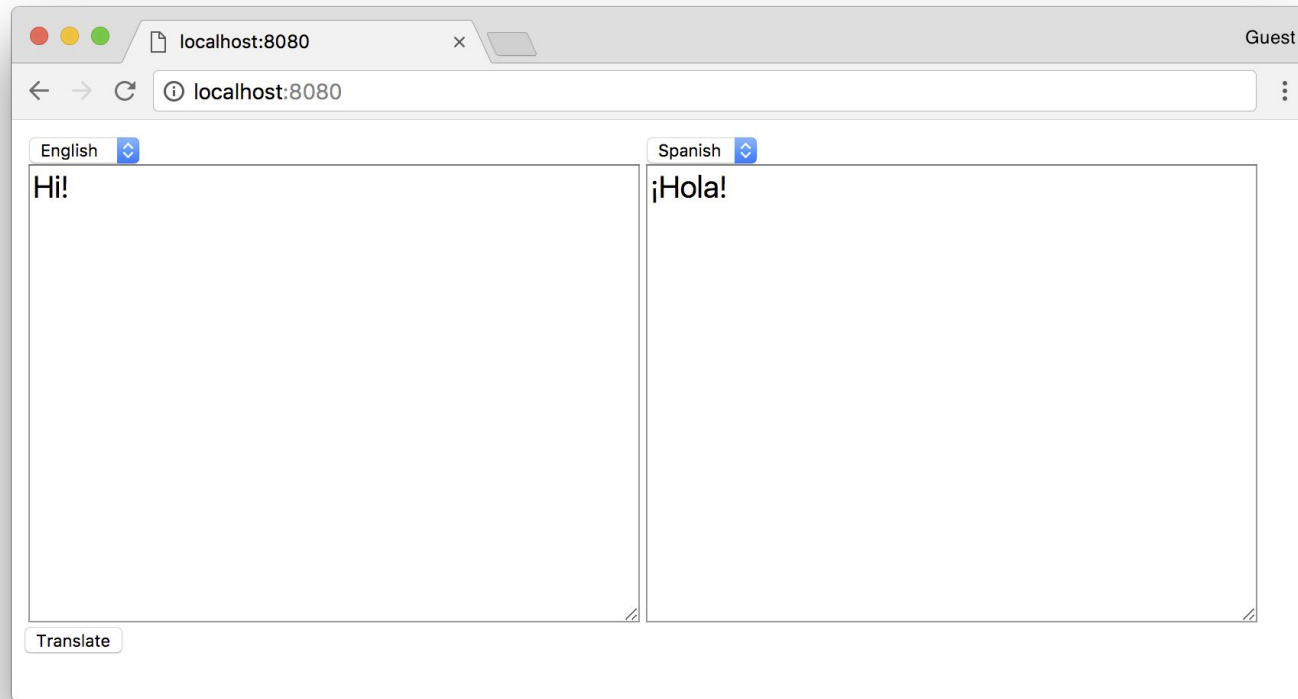
2 `install npm`

3 `node server.js`

Let's see what we made



DEMO



Deploy it on Google App Engine

```
$ gcloud app deploy
```



Running your apps on Google Cloud Platform



Compute Engine
(Virtual Machines)



Kubernetes Engine
(Containers)



App Engine
(Applications)



Cloud
Functions
(Code)

Highly customisable

Highly managed

How To Use Your Credits

Billing

You have multiple billing accounts

Billing account "My Billing Account" is linked to this project

[Go to linked billing account](#)

or

[Manage billing accounts](#)

goo.gl/8n4zHV

Best Use of Google Cloud Platform - 4 Google Cloud prize packs

Use any Google Cloud Platform product (see cloud.google.com/products) or Firebase to qualify

\$100 GCP Credit Coupons - Visit the Google or MLH table!

Questions about GCP? - Visit the Google table or Slack!

