



Social Media Apps Programming

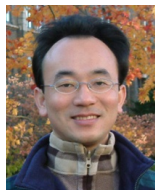
Google App Engine and Google Maps API

1031SMAP11

TLMXM1A (8687) (M2143) (Fall 2014)

(MIS MBA) (2 Credits, Elective) [Full English Course]

Thu 8,9 (15:10-17:00) V201



Min-Yuh Day, Ph.D.

Assistant Professor

Department of Information Management

Tamkang University

<http://mail.tku.edu.tw/myday>



Course Schedule (1/3)

Week	Date	Subject/Topics
• 1	2014/09/17	Course Orientation and Introduction to Social Media and Mobile Apps Programming
• 2	2014/09/24	Introduction to Android / iOS Apps Programming
• 3	2014/10/01	Developing Android Native Apps with Java (Eclipse) (MIT App Inventor)
• 4	2014/10/08	Developing iPhone / iPad Native Apps with Swift / Objective-C (XCode)
• 5	2014/10/15	Mobile Apps Using HTML5/CSS3/JavaScript
• 6	2014/10/22	jQuery Mobile

Course Schedule (2/3)

- | Week | Date | Subject/Topics |
|------|------------|--|
| • 7 | 2014/10/29 | Create Hybrid Apps with Phonegap |
| • 8 | 2014/11/05 | jQuery Mobile/Phonegap |
| • 9 | 2014/11/12 | jQuery Mobile/Phonegap |
| • 10 | 2014/11/19 | Midterm Exam Week
(Midterm Project Report) |
| • 11 | 2014/11/26 | Case Study on Social Media Apps
Programming and Marketing in
Google Play and App Store |
| • 12 | 2014/12/03 | Google Cloud Platform |

Course Schedule (3/3)

- | Week | Date | Subject/Topics |
|------|------------|---|
| • 13 | 2014/12/10 | Invited Talk: Social, Data and Business Model
- Let's see PIXNET
[Invited Speaker: Dr. Rick Cheng-Yu Lu,
Technical Director, PIXNET] |
| • 14 | 2014/12/17 | Google App Engine and Google Maps API |
| • 15 | 2014/12/24 | Facebook API (Facebook JavaScript SDK)
(Integrate Facebook with iOS/Android Apps) |
| • 16 | 2014/01/31 | Twitter API |
| • 17 | 2015/01/07 | Final Project Presentation |
| • 18 | 2015/01/14 | Final Exam Week (Final Project Report) |

Outline

- **Google App Engine**

- **Google Cloud Platform**

- **Google Cloud Datastore**



- **Google Maps API**



Google Cloud Platform

Compute



App Engine



Compute Engine



Container Engine

Storage



Cloud Datastore



Cloud SQL



Cloud Storage

Big Data



Big Query

Services



Cloud Endpoints

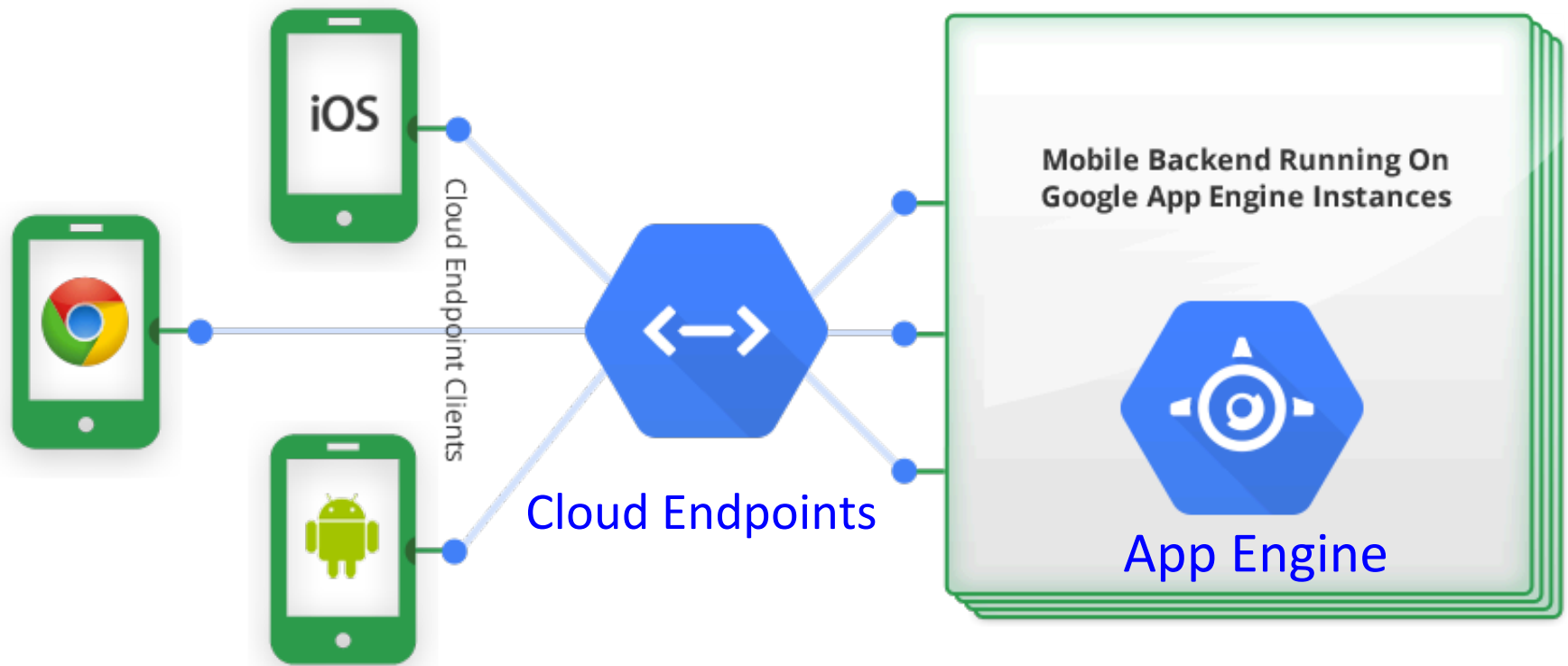


Translate API



Prediction API

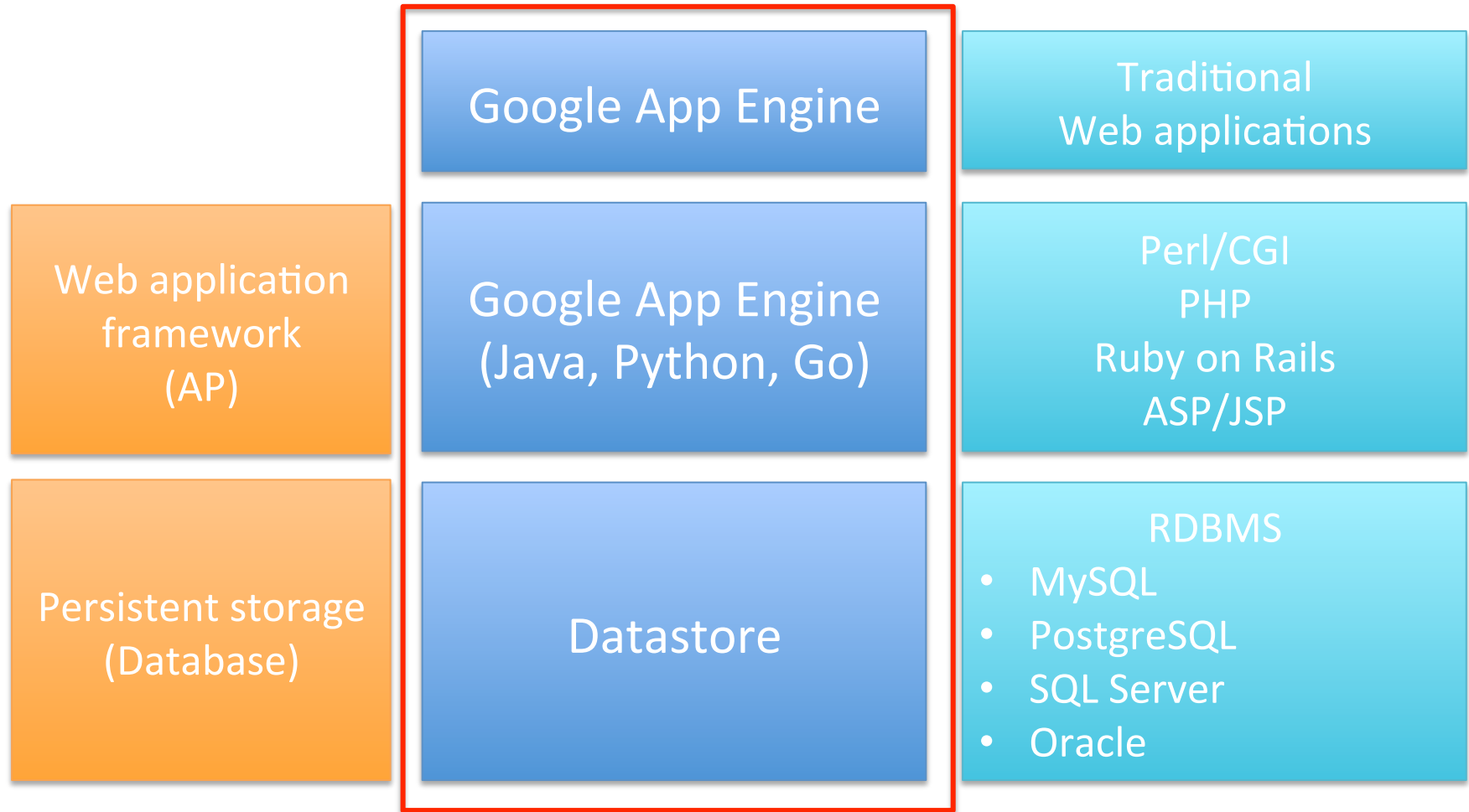
Mobile Apps Backend on Google App Engine



Google Cloud Endpoints Architecture

Google App Engine, Google Cloud Datastore

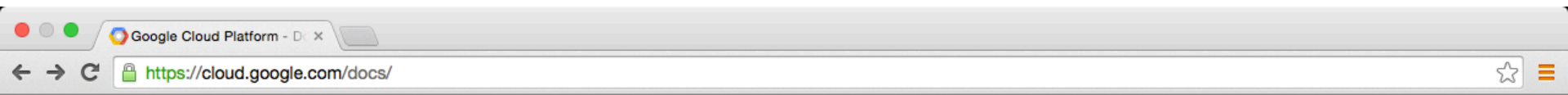
Datastore is a database (persistent storage) for **App Engine**





Google Cloud Platform

<https://cloud.google.com/docs/>



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▼ Compute

- App Engine
- Compute Engine
- Container Engine

▼ Storage

- Cloud SQL
- Cloud Storage
- Cloud Datastore

▼ Networking

- Cloud DNS
- Carrier Interconnect
- Direct Peering
- HTTP Load Balancing Beta
- Network Load Balancing

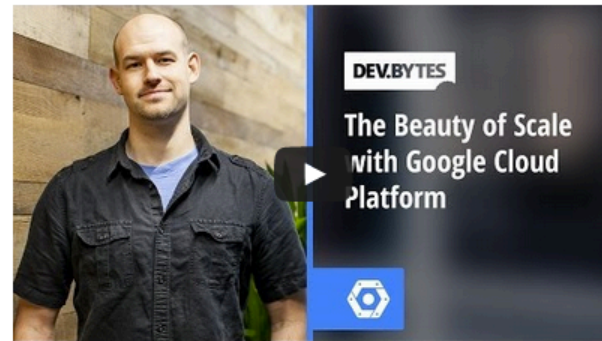
▼ Big Data

- BigQuery
- Hadoop on Google

Google Cloud Platform

With Google Cloud Platform, developers can build, test and deploy applications on Google's highly-scalable and reliable infrastructure for your web, mobile and backend solutions.

Focus on writing code, not on infrastructure, and use the same infrastructure that Google uses for your application, computing and big data needs.



Get started quickly

If you're ready to get started, try these solutions for getting software up and running on our platform!



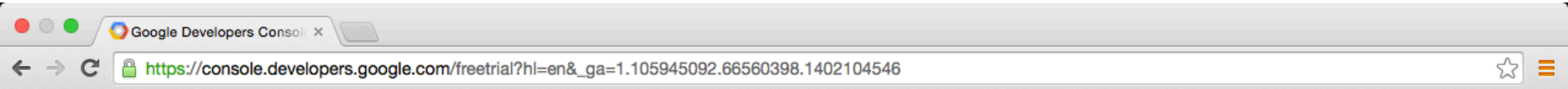
LAMP development stack



Ruby development stack



Try Google Cloud Platform for free



Try Google Cloud Platform for free

Build on top of the infrastructure that powers Google.
Sign up for free and get \$300 to spend over 60 days on all Google Cloud Platform services.

Certain terms and conditions apply. [Learn more](#)


Country


Account type


Business


Individual

Name and address ?

 **Get \$300 to kick start your app.**
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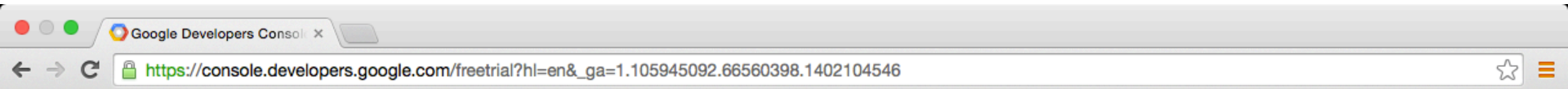
 **Why do you need my billing information?**
We use your billing information to verify that you're a real person. Don't worry, you will not be billed for the free trial.

 **Do I have to pay when my free trial ends?**
No. You're under no obligation to buy anything when the free trial ends. If you want to continue to use Google Cloud Platform, just upgrade before your trial runs out.

 **Questions?**
Check out the [FAQ](#) or [leave us a message](#).



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士林區



台北市


 Check out the [FAQ](#) or [leave us a message](#).

Primary contact


What you pay with

Credit or debit card

VISA  AMEX 

/ 

Credit or debit card address is same as above

Billing communication language 

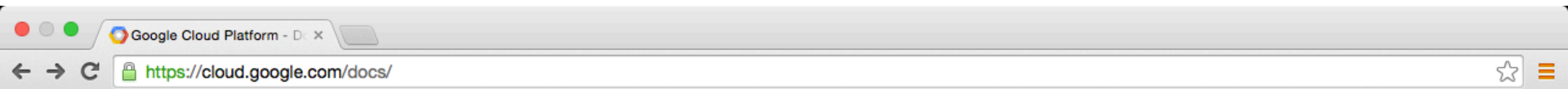
English (United States)

I have read and agree to the Google Cloud Platform Free Trial [Terms of Service](#).



Google Cloud Platform

<https://cloud.google.com/docs/>



- Balancing Beta
- Network Load
- Balancing
- ▼ **Big Data**
- BigQuery
- Hadoop on Google Cloud Platform
- ▼ **Services**
- Cloud Endpoints
- Cloud Pub/Sub
- Cloud Monitoring
- Prediction API
- Translate API
- ▼ **Management**
- Deployment Manager
- ▼ **Tools**
- Overview
- Cloud SDK
- ▶ Android Studio
- Eclipse Plugin
- Cloud Repositories
- Source Code Tools
- Release Pipelines
- Cloud Debugger
- Cloud Trace
- Cloud Playground
- ▶ Cloud Logging
- ▼ **Click-to-Deploy**

Get started quickly

If you're ready to get started, try these solutions for getting software up and running on our platform!



LAMP development stack

LAMP (an acronym for Linux, Apache, MySQL, and PHP) is the archetypal open-source web development stack for many developers, and it runs great on Compute Engine!



Ruby development stack

Ruby on Rails is one of the most popular frameworks for developing web applications, powering sites like Github, Basecamp and Shopify. Rapidly create new features, easily maintain code, and take advantage of the many open source contributions to Ruby on Rails, running on Compute Engine.



Quickstart for WordPress

Set up a project, download a zip, change your config file, and deploy -and you'll have a working WordPress project running on Google Cloud Platform, with App Engine as your hosting environment.



App Engine "Hello World" starter

Start editing a working "Hello World" app right now, in the browser. This gives you a good starting point and a feel for what it's like editing a working App Engine application.

Documentation

Use the following section or the left-hand navigation to access the various sets of documentation that cover Google Cloud Platform. Choose from [computing and hosting](#), [storage](#), [big data](#), [management](#), [services](#), and [developer tools](#).

Computing and hosting



App Engine



Compute Engine



Google App Engine

App Engine "Hello World" starter

<https://console.developers.google.com/start/appengine>

Deploy your first app in five minutes

- Start editing a working "Hello World" app right now, in the browser.
- This gives you a good starting point and a feel for what it's like editing a working App Engine application.

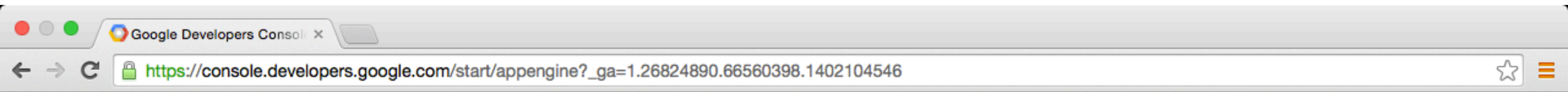


Try Google App Engine Now

1. NAME YOUR PROJECT
2. SELECT YOUR LANGUAGE
3. EXPLORE THE STARTER CODE
4. INSTALL GOOGLE CLOUD SDK
5. RUN YOUR APP LOCALLY
6. CREATE YOUR PROJECT AND DEPLOY



Google App Engine



- 1. NAME YOUR PROJECT
- 2. SELECT YOUR LANGUAGE
- 3. EXPLORE THE STARTER CODE
- 4. INSTALL GOOGLE CLOUD SDK
- 5. RUN YOUR APP LOCALLY
- 6. CREATE YOUR PROJECT AND DEPLOY

Try Google App Engine Now

Creating an App Engine app is easy, and it's free to start. Upload your app and share it with users right away, at no charge and with no commitment required.

1 NAME YOUR PROJECT

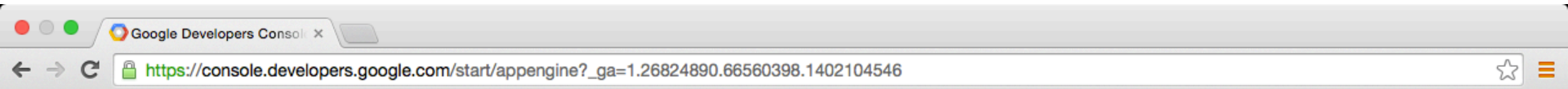
You use your project to manage all of the Google Cloud Platform resources for your app, including deployment, access control, billing, and services. You can change your project name later.

2 SELECT YOUR LANGUAGE

Python **Java**



Google App Engine



Google Developers Console

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2 SELECT YOUR LANGUAGE



1. NAME YOUR PROJECT
2. SELECT YOUR LANGUAGE
3. EXPLORE THE STARTER CODE
4. INSTALL GOOGLE CLOUD SDK
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3 EXPLORE THE STARTER CODE

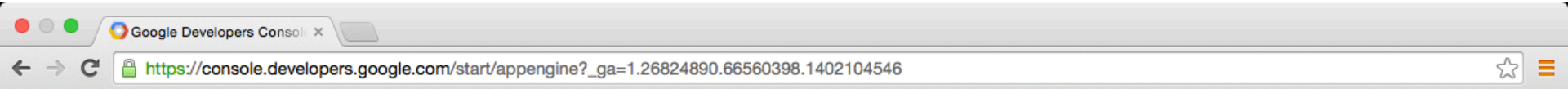
Browse the starter code and see the app running below.

HELLO WORLD - JAVA

```
build.xml      1 package myapp;
pom.xml        2
src/main/java/myapp/D 3 import java.io.IOException;
src/main/webapp/WEB-INF 4 import javax.servlet.http.*;
src/main/webapp/WEB-INF 5
src/main/webapp/WEB-INF 6 public class DemoServlet extends HttpServlet {
src/main/webapp/WEB-INF 7     @Override
src/main/webapp/WEB-INF 8     public void doGet(HttpServletRequest req, HttpServletResponse resp)
src/main/webapp/WEB-INF 9         throws IOException {
src/main/webapp/WEB-INF 10        resp.setContentType("text/plain");
```




Google App Engine



3 EXPLORE THE STARTER CODE

Browse the starter code and see the app running below.

- 1. NAME YOUR PROJECT
- 2. SELECT YOUR LANGUAGE
- 3. EXPLORE THE STARTER CODE
- 4. INSTALL GOOGLE CLOUD SDK
- 5. RUN YOUR APP LOCALLY
- 6. CREATE YOUR PROJECT AND DEPLOY

HELLO WORLD - JAVA

```
build.xml 1 package myapp;
pom.xml    2
src/main/java/myapp/D 3 import java.io.IOException;
4 import javax.servlet.http.*;
5
src/main/webapp/WEB-INF 6 public class DemoServlet extends HttpServlet {
7     @Override
src/main/webapp/WEB-INF 8     public void doGet(HttpServletRequest req, HttpServletResponse resp)
src/main/webapp/WEB-INF 9         throws IOException {
10         resp.setContentType("text/plain");
11         resp.getWriter().println("{ \"name\": \"World\" }");
12     }
13 }
14
```



Hello, World



Google App Engine

HELLO WORLD - JAVA

```
build.xml      1 package myapp;
pom.xml        2
src/main/java/myapp/D 3 import java.io.IOException;
src/main/webapp/WEB-INF 4 import javax.servlet.http.*;
src/main/webapp/WEB-INF 5
src/main/webapp/WEB-INF 6 public class DemoServlet extends HttpServlet {
src/main/webapp/WEB-INF 7     @Override
src/main/webapp/WEB-INF 8     public void doGet(HttpServletRequest req, HttpServletResponse resp)
src/main/webapp/WEB-INF 9         throws IOException {
src/main/webapp/index.t 10         resp.setContentType("text/plain");
11         resp.getWriter().println("{ \"name\": \"World\" }");
12     }
13 }
14
```

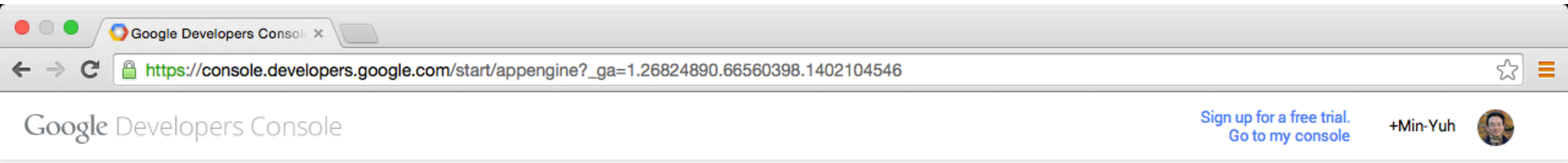


Hello, World

[Download this code](#)



Google App Engine



4 INSTALL GOOGLE CLOUD SDK

Mac OS X/Linux

1. Download and install Google Cloud SDK by running the following command in your shell or Terminal:

```
curl https://sdk.cloud.google.com/ | bash
```

Follow the prompts to install the **Java** App Engine package.

2. Restart your shell or Terminal to pick up environment changes.
3. Sign in to Google Cloud Platform using this command:

```
gcloud auth login
```

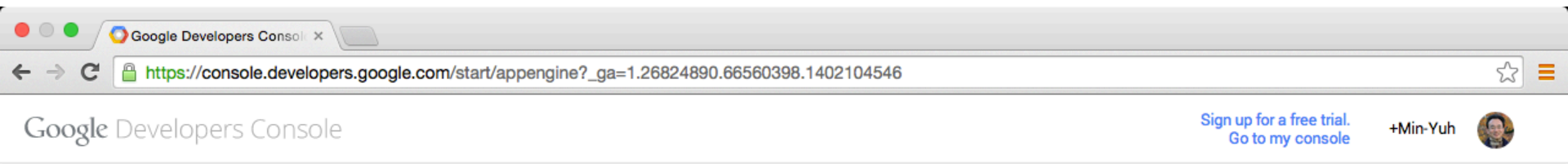
4. Install the App Engine package for Java using this command:

```
gcloud components update gae-java
```

5 RUN YOUR APP LOCALLY



Google App Engine



5 RUN YOUR APP LOCALLY

Note: App Engine supports Java 7. Make sure you have the [Java 7 JDK](#) installed.

1. Download [appengine-try-java.zip](#) and unpack it. This creates your project directory, including `src/` and `war/` subdirectories.
2. Download and install [Apache Maven](#) version 3.0 or later. The starter app includes an Apache Maven build file.
3. Build and run the sample locally using the following commands:

```
cd appengine-try-java
mvn package
dev_appserver.sh target/appengine-try-java-1.0
```

You can stop the server by pressing Ctrl-C in the command window.

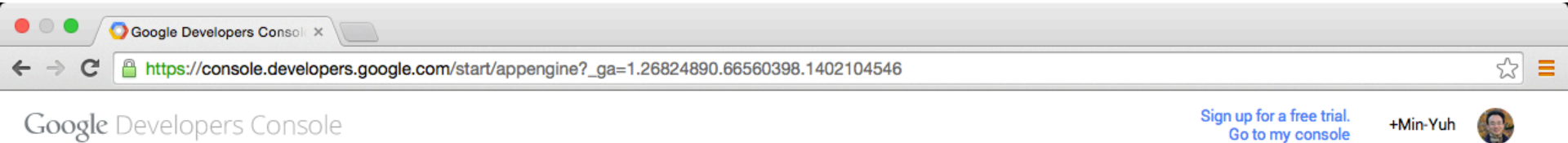
4. Visit the locally running app in your browser: <http://localhost:8080>

6 CREATE YOUR PROJECT AND DEPLOY

Now that you've seen your app running on your local machine, you're ready to create and deploy your project, HelloWorldGoogleAppEngine.



Google App Engine



5 RUN YOUR APP LOCALLY

Note: App Engine supports Java 7. Make sure you have the [Java 7 JDK](#) installed.

1. Download [appengine-try-java.zip](#) and unpack it. This creates your project directory, including `src/` and `war/` subdirectories.
2. Download and install [Apache Maven](#) version 3.0 or later. The starter app includes an Apache Maven build file.
3. Build and run the sample locally using the following commands:

```
cd appengine-try-java
mvn package
dev_appserver.sh target/appengine-try-java-1.0
```

You can stop the server by pressing Ctrl-C in the command window.

4. Visit the locally running app in your browser: <http://localhost:8080>

6 CREATE YOUR PROJECT AND DEPLOY

Now that you've seen your app running on your local machine, you're ready to create and deploy your project, HelloWorldGoogleAppEngine.

1. NAME YOUR PROJECT
2. SELECT YOUR LANGUAGE
3. EXPLORE THE STARTER CODE
4. INSTALL GOOGLE CLOUD SDK
5. RUN YOUR APP LOCALLY
6. CREATE YOUR PROJECT AND DEPLOY



Google App Engine

Google Developers Console

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```
mvn package
dev_appserver.sh target/appengine-try-java-1.0
```

1. NAME YOUR PROJECT
2. SELECT YOUR LANGUAGE
3. EXPLORE THE STARTER CODE
4. INSTALL GOOGLE CLOUD SDK
5. RUN YOUR APP LOCALLY
6. CREATE YOUR PROJECT AND DEPLOY

4. Visit the locally running app in your browser: <http://localhost:8080>

6 CREATE YOUR PROJECT AND DEPLOY

Congratulations! Your project is ready. Your unique project ID is **psychic-outcome-783**.

Deploy your app from your local dev environment using this command:

```
appcfg.sh -A psychic-outcome-783 update target/appengine-try-java-1.0
```

After deploying your app, you can visit it with your browser at this URL:

psychic-outcome-783.appspot.com

That's it! You're running on Google App Engine. Go to your project dashboard to see how your app is performing.

[View your project dashboard](#)

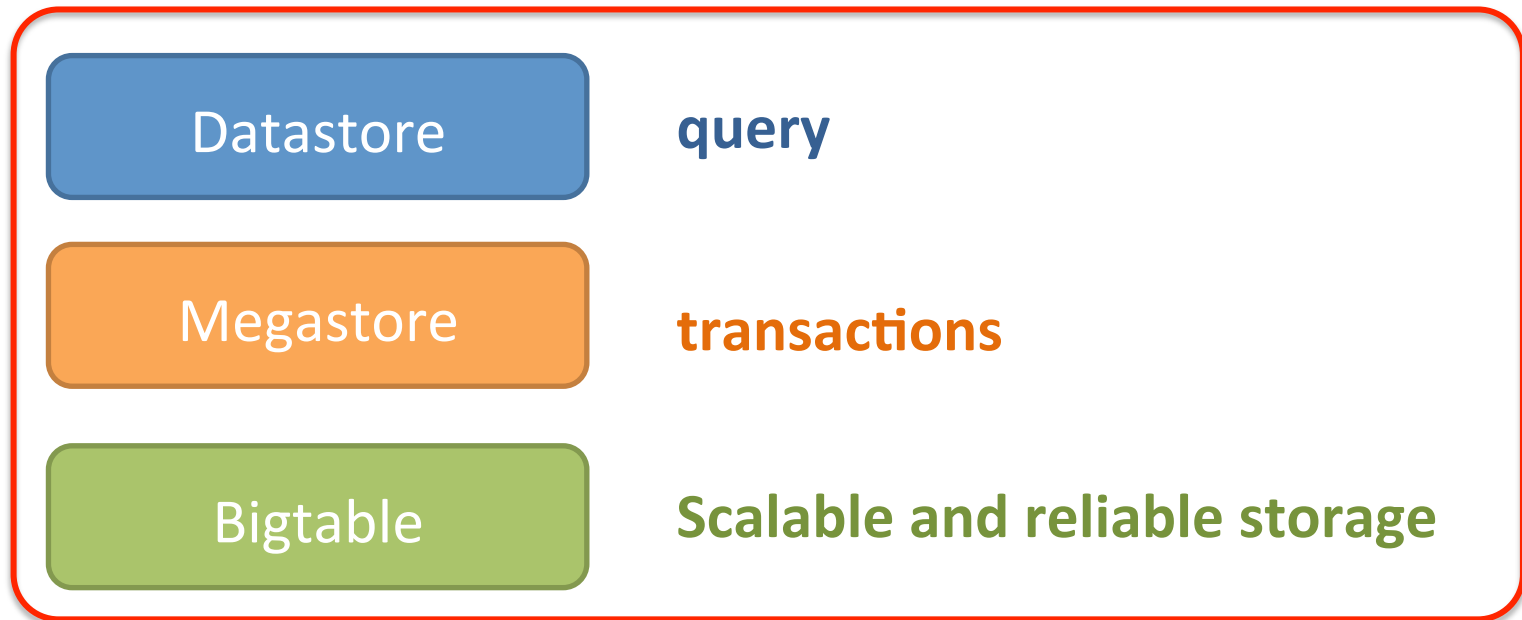
Activities (Idle)

Create Project: HelloWorldGoogleAppEngine

[See all activity](#)

Datastore Internals

- Based on Bigtable
 - high scalability
 - High availability
 - synchronous writes on multiple datacenters



What is Bigtable?

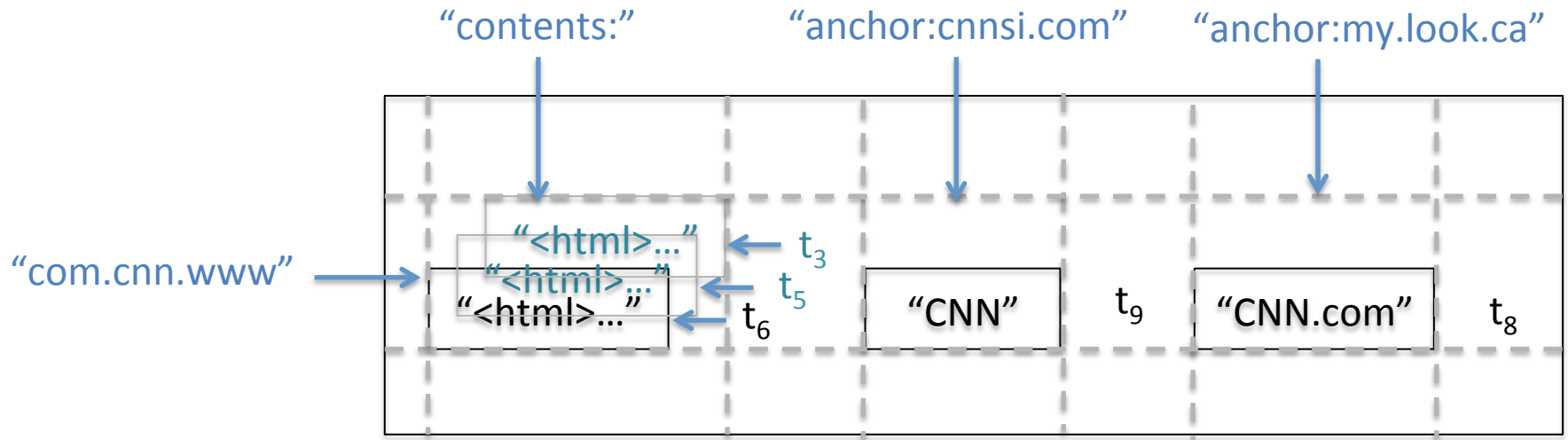
- Scalable, distributed, highly-available and structured storage
 - Bigtable is not database by itself (it doesn't support query)
- Google usage
 - In production since April 2005
 - Web Search, YouTube, Earth, Analytics

Bigtable

Scalable and reliable storage

Bigtable Data Model

- A row has a Key and Columns
- Sorted by Key
 - In lexical order
 - Enables range query by application

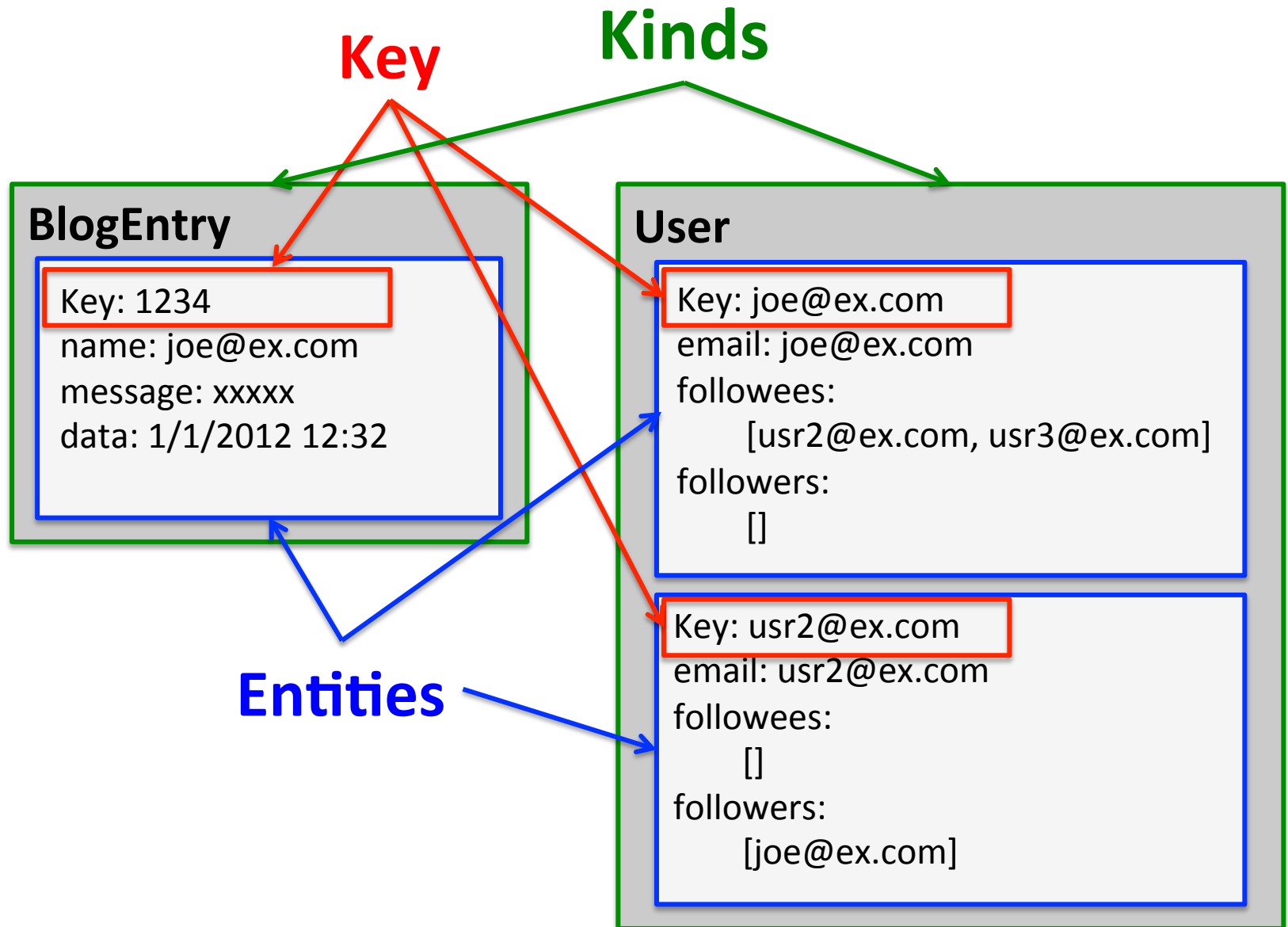


Google Datastore Basic Operation

Different terms for corresponding concepts

	Google Datastore	Relational Database Management System (RDBMS)
Category of object	Kind	Table
One entry/object	Entity	Row
Unique identifier of data entry	Key	Primary Key (PK)
Individual data	Property	Field

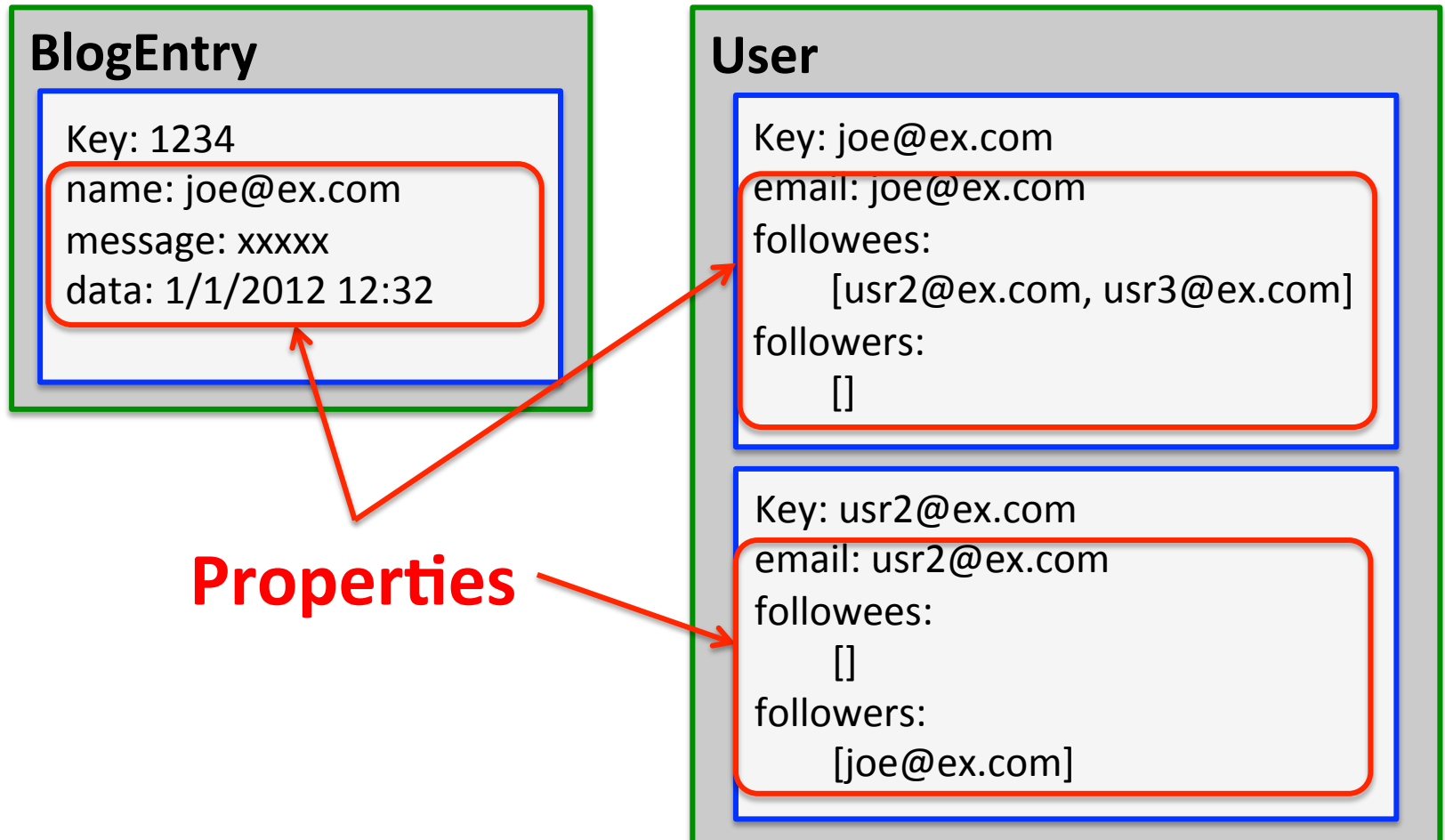
Kind, Entity and Key



Properties and Data Types

Each entity has one or more **named properties**

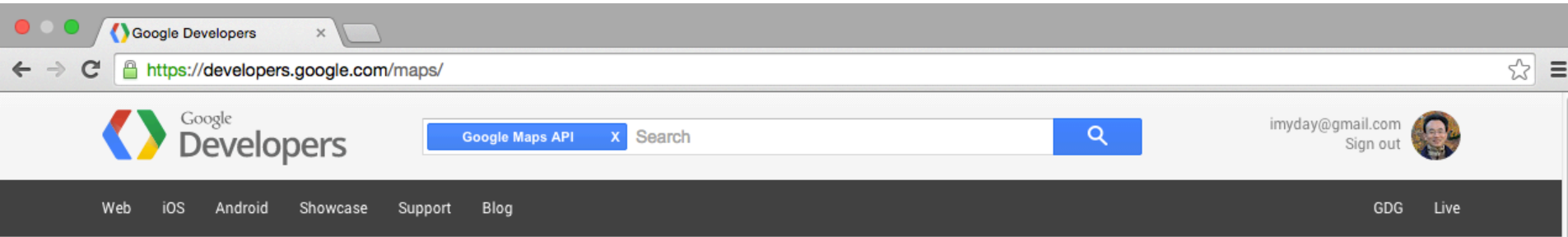
- Variety of datatypes (int, float, boolean, String, Date,...)
- Can be multi-valued



Creating an Entity with Java Low-level API

```
DatastoreService datastore =  
DatastoreServiceFactory.getDatastoreService();  
  
Entity employee = new Entity("Employee");  
employee.setProperty("name", "Antonio Saliery");  
employee.setProperty("hireDate", new Date());  
employee.setProperty("attendedHrTraining", true);  
datastore.put(employee);
```

Google Maps API



Hello Map



<https://developers.google.com/maps/>

Google Maps API

Google Developers

<https://developers.google.com/maps/>

Google Maps, available on every screen

55 million downloads can't be wrong. Bring the popularity of Google Maps to your app with the [Google Maps SDK for iOS](#).

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Connaught Rd C

德輔道

Man Yee Ln

上海商業銀行
西環分行
Shanghai Commercial Bank
Point Branch

上海商業銀行大廈
Shanghai Commercial Bank Bldg

堅尼地城消防局
Kennedy Town Fire Station

吉席街

順興大廈
Shun Hing Bldg

Map data ©2013 AutoNa

iOS Android Web Everywhere

<https://developers.google.com/maps/>

Google Maps API Demos

The screenshot shows the homepage of the Google Maps API Demos website. At the top, there is a navigation bar with the Google Maps API logo and four menu items: HOME, DEMOS, DEVELOPER STORIES, and LEARN MORE. The main content area is a large grid of images showcasing various map features, including street views, satellite imagery, 3D buildings, and interactive elements. A central text box on the right side of the grid contains the following text:

More than a Map

The Google Maps API is more than a map for your apps. Explore demos of unique features that you can use in your apps today!

[Go to the demos](#)

Below the grid, there are three columns of links:

- Learn More**: Build your own apps with the Google Maps API. [Read more](#)
- Developer Stories**: Visit Google Maps developers from around the world. [Read more](#)
- #morethanamap on Google+** and [Map of the Week blog](#)

www.morethanamap.com/#

<http://www.morethanamap.com/>

Google Maps API Demos

Google Maps API

HOME DEMOS DEVELOPER STORIES LEARN MORE

Demos

- Base Maps
- Satellite
- Street View
- Places
- Routing
- Data Visualization

www.morethanamap.com/demos

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<http://www.morethanamap.com/demos>

Google Maps API Demos

Google Maps API

HOME DEMOS DEVELOPER STORIES LEARN MORE

Base Maps

For the last decade, we've obsessed over building great maps—maps that are comprehensive, accurate, and easy to use.

Base Maps **Styled Maps**

GO FURTHER

New York

Hong Kong

Search

www.morethanamap.com/demos/basemaps

Map data ©2014 Google

<http://www.morethanamap.com/demos/basemaps/new-york>

Google Maps API Demos

Google Maps API

HOME DEMOS DEVELOPER STORIES LEARN MORE

Routing

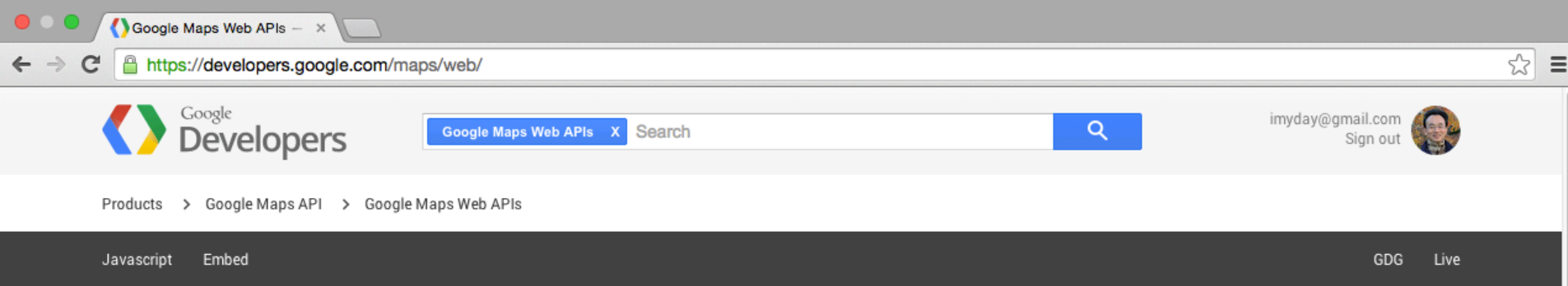
In a car, on a bike, on foot, or riding a subway, help users find the best route. Use elevation profiles and live traffic to guide the way.

SHOW ME:

- Cycling through Stockholm
- Public Transit in Sydney
- Elevation in San Francisco

Map data ©2014 Google Terms of Use Report a map error

Google Maps JavaScript API v3



Google Maps JavaScript API v3

Build highly customisable maps with your own content and imagery

Create rich applications and stunning visualisations of your data, leveraging the comprehensiveness, accuracy, and usability of Google Maps and a modern web platform that scales as you grow.

In only a few lines of JavaScript code, build and style a map to call your own. With plenty of Google libraries and services at your disposal (including Geocoding, Directions, Street View and more) your imagination is truly the limit.

[Get Started with the JavaScript API v3](#)

Google Maps Embed API

Make places easily discoverable with interactive maps built for your users

<https://developers.google.com/maps/web/>

Google Maps JavaScript API

Getting Started - Google M x

https://developers.google.com/maps/documentation/javascript/tutorial

Google Developers

Google Maps JavaScri... X Search

imyday@gmail.com Sign out

Products > Google Maps API > Google Maps JavaScript API v3

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Google Maps JavaScript API v3 g+1 507

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- Developer's Guide
 - Getting Started**
 - Usage Limits and Billing
 - Concepts
 - Signed-in Maps
 - Map Types
 - Styles
 - Controls
 - ▶ Drawing on the Map
 - ▶ Layers
 - Events
 - ▶ Services
 - ▶ Libraries
 - ▶ API Reference

Getting Started

- [Audience](#)
- [Obtaining an API Key](#)
- [Hello, World](#)
- [Declaring Your Application as HTML5](#)
- [Loading the Google Maps API](#)
- [Map DOM Elements](#)
- [Map Options](#)
- [The Map Object](#)
- [Loading the Map](#)
- [Troubleshooting](#)

Audience

This documentation is designed for people familiar with [JavaScript](#) programming and object-oriented programming concepts. You should also be familiar with [Google Maps](#) from a user's point of view. There are many [JavaScript tutorials](#) available on the Web.

This conceptual documentation is designed to let you quickly start exploring and developing applications with the Google Maps API. We also

Obtaining an Google Maps API Key

Getting Started - Google M x

← → ↻ <https://developers.google.com/maps/documentation/javascript/tutorial> ☆ ☰

More Resources

- Blog
- Support
- FAQ
- API Picker

Google Maps API for Work

▶ Maps API Web Services

Google Places API

Static Maps API

Street View Image API

Earth API Deprecated

Obtaining an API Key

All Maps API applications* should load the Maps API using an API key. Using an API key enables you to monitor your application's Maps API usage, and ensures that Google can contact you about your application if necessary. If your application's Maps API usage exceeds the [Usage Limits](#), you must load the Maps API using an API key in order to purchase additional quota.

* **Google Maps API for Work** developers must *not* include a key in their requests. Please refer to [Loading the Google Maps JavaScript API](#) for instructions.

To create your API key:

1. Visit the APIs Console at <https://code.google.com/apis/console> and log in with your Google Account.
2. Click the **Services** link from the left-hand menu.
3. Activate the **Google Maps JavaScript API v3** service.
4. Click the **API Access** link from the left-hand menu. Your API key is available from the **API Access** page, in the **Simple API Access** section.

Maps API applications use the **Key for browser apps**.

API Access

To prevent abuse, Google places limits on API requests. Using a valid OAuth token or API key allows you to exceed anonymous limits by connecting requests back to your project.

Authorized API Access

OAuth 2.0 allows users to share specific data with you (for example, contact lists) while keeping their usernames, passwords, and other information private. [Learn more](#)

[Create an OAuth 2.0 client ID...](#)

Simple API Access

Use API keys to identify your project when you do not need to access user data. [Learn more](#)

Key for browser apps (with referers)

API key: **R9WAsyA1c42oB4D_hhT12e1lc4ZRwofCcyelNU**

Referers: Any Referer allowed

Activated on: Nov 3, 2010 12:57 PM

Activated by: @gmail.com - you

[Generate new key...](#)
[Edit allowed referers...](#)
[Delete key...](#)

[Create new Server key...](#) [Create new Browser key...](#)

**Demo:
Integrate
Google Maps JavaScript API
with
jQuery Mobile**

Start using the Google APIs console



Google APIs Console

https://code.google.com/apis/console/?noredirect&pli=1

Search Images Maps Play YouTube News Gmail Drive More ▼

imyday@gmail.com ▼ | Settings ▼ | Help | Sign out

Google apis

Start using the Google APIs console
to manage your API usage



Creating an **APIs project** will let you:

- Use Google APIs **beyond anonymous limits**.
- **Monitor** API usage and **control** API access.
- **Share** API management with a team.

Create project...

[Code Home](#) - [Privacy Policy](#)

<https://code.google.com/apis/console>

<https://code.google.com/apis/console/?noredirect&pli=1>

Send Feedback

Google APIs Console

Google APIs Console

https://code.google.com/apis/console/?noredirect&pli=1#project:841318404499:services

Search Images Maps Play YouTube News Gmail Drive More

imyday@gmail.com | Settings | Help | Sign out

Google apis

We are improving the experience. Try the new [Cloud Console](#).

API Project

All (71) Active (0) Inactive (71) Google Cloud Platform

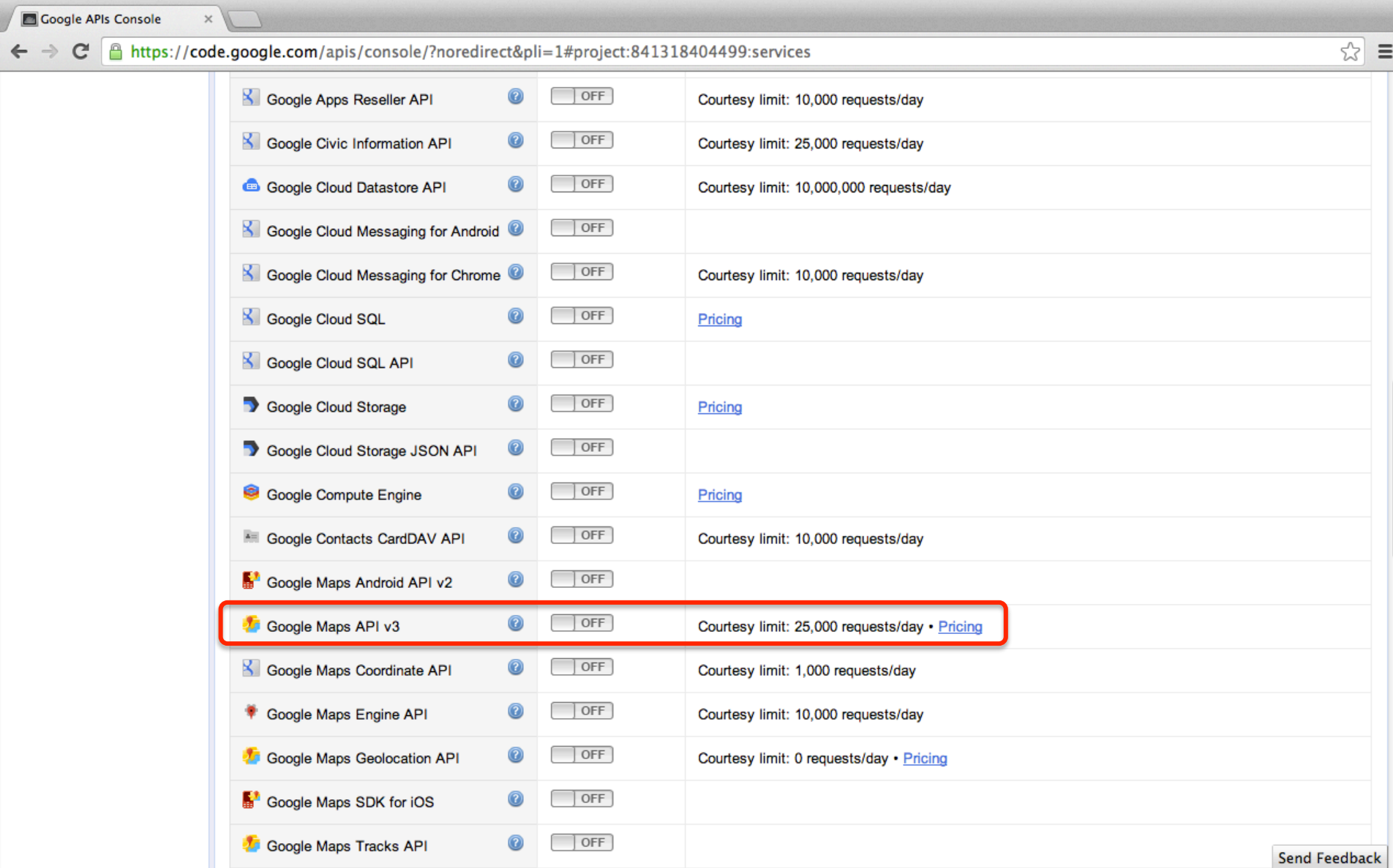
All services

Select services for the project.





































Service	Status	Notes
Ad Exchange Buyer API	<input type="checkbox"/> OFF	Courtesy limit: 1,000 requests/day
Ad Exchange Seller API	<input type="checkbox"/> OFF	Courtesy limit: 10,000 requests/day
Admin SDK	<input type="checkbox"/> OFF	
AdSense Host API	Request access...	Courtesy limit: 100,000 requests/day
AdSense Management API	<input type="checkbox"/> OFF	Courtesy limit: 10,000 requests/day
Analytics API	<input type="checkbox"/> OFF	Courtesy limit: 50,000 requests/day
Audit API	<input type="checkbox"/> OFF	Courtesy limit: 10,000 requests/day
BigQuery API	<input type="checkbox"/> OFF	Courtesy limit: 10,000 requests/day • Pricing
Blogger API v3	Request access...	Courtesy limit: 10,000 requests/day
Books API	<input type="checkbox"/> OFF	Courtesy limit: 1,000 requests/day
CalDAV API	<input type="checkbox"/> OFF	Courtesy limit: 1,000,000 requests/day
Calendar API	<input type="checkbox"/> OFF	Courtesy limit: 100,000 requests/day
Chrome Web Store API	<input type="checkbox"/> OFF	

Send Feedback

Google APIs Console



The screenshot shows the Google APIs Console interface. The browser address bar displays the URL: `https://code.google.com/apis/console/?noredirect&pli=1#project:841318404499:services`. The main content area is a table listing various Google APIs. Each row includes an API icon, the API name, a help icon, a status toggle (all are 'OFF'), and a 'Courtesy limit' or 'Pricing' link. The 'Google Maps API v3' row is highlighted with a red border.

	Google Apps Reseller API		<input type="checkbox"/> OFF	Courtesy limit: 10,000 requests/day
	Google Civic Information API		<input type="checkbox"/> OFF	Courtesy limit: 25,000 requests/day
	Google Cloud Datastore API		<input type="checkbox"/> OFF	Courtesy limit: 10,000,000 requests/day
	Google Cloud Messaging for Android		<input type="checkbox"/> OFF	
	Google Cloud Messaging for Chrome		<input type="checkbox"/> OFF	Courtesy limit: 10,000 requests/day
	Google Cloud SQL		<input type="checkbox"/> OFF	Pricing
	Google Cloud SQL API		<input type="checkbox"/> OFF	
	Google Cloud Storage		<input type="checkbox"/> OFF	Pricing
	Google Cloud Storage JSON API		<input type="checkbox"/> OFF	
	Google Compute Engine		<input type="checkbox"/> OFF	Pricing
	Google Contacts CardDAV API		<input type="checkbox"/> OFF	Courtesy limit: 10,000 requests/day
	Google Maps Android API v2		<input type="checkbox"/> OFF	
	Google Maps API v3		<input type="checkbox"/> OFF	Courtesy limit: 25,000 requests/day • Pricing
	Google Maps Coordinate API		<input type="checkbox"/> OFF	Courtesy limit: 1,000 requests/day
	Google Maps Engine API		<input type="checkbox"/> OFF	Courtesy limit: 10,000 requests/day
	Google Maps Geolocation API		<input type="checkbox"/> OFF	Courtesy limit: 0 requests/day • Pricing
	Google Maps SDK for iOS		<input type="checkbox"/> OFF	
	Google Maps Tracks API		<input type="checkbox"/> OFF	

Send Feedback

Google APIs Console

Google APIs Console

https://code.google.com/apis/console/?noredirect&pli=1#project:841318404499:services

Search Images Maps Play YouTube News Gmail Drive More

imyday@gmail.com | Settings | Help | Sign out

Google apis

We are improving the experience. Try the new [Cloud Console](#).

Review terms of service

Print

Google Maps/Google Earth APIs Terms of Service

Last Updated: May 10, 2013

1. Your relationship with Google.

1.1 Use of the Service is Subject to these Terms. Your use of any of the Google Maps/Google Earth APIs (referred to in this document as the "**Maps API(s)**" or the "**Service**") is subject to the terms of a legal agreement between you and Google (the "**Terms**"). "Google" means either (a) Google Ireland Limited, with offices at Gordon House, Barrow Street, Dublin 4, Ireland, if Customer's billing address is in any country within Europe, the Middle East, or Africa ("**EMEA**"); (b) Google Asia Pacific Pte. Ltd., with offices at 8 Marina View Asia Square 1 #30-01 Singapore 018960, if Customer's billing address is in any country within the Asia Pacific region ("**APAC**"); or (c) Google Inc., with offices at 1600 Amphitheatre Parkway, Mountain View, California 94043, USA, if Customer's billing address is in any country in the world other than those in EMEA and APAC.

1.2 The Terms include Google's Legal Notices and Privacy Policy.

(a) Unless otherwise agreed in writing with Google, the Terms will include the following:

- (i) the terms and conditions set forth in this document (the "**Maps APIs Terms**");
- (ii) the [Legal Notices](#); and
- (iii) the [Privacy Policy](#).

I agree to these terms.

Accept Decline

[Code Home](#) - [Privacy Policy](#)

Send Feedback

Google APIs Console

The screenshot shows the Google APIs Console interface. At the top, there is a navigation bar with the Google logo and 'apis' text. A yellow banner message reads: "We are improving the experience. Try the new [Cloud Console](#)." Below this, the main content area is titled "Active services" and includes the instruction "Select services for the project." A table lists the active services:

Service	Status	Notes
Google Maps API v3 ?	<input checked="" type="checkbox"/>	Courtesy limit: 25,000 requests/day • Pricing

The left sidebar contains navigation links: Overview, Services, Team, API Access, Billing, Reports, and Quotas. The bottom of the page features a footer with links for "Code Home" and "Privacy Policy".

Send Feedback

Google Developers Console

Google Cloud Platform

The screenshot shows the Google Developers Console interface. A modal dialog box is centered on the screen, titled "Welcome to Google Cloud Platform". The dialog contains the following text and elements:

- Header: "Welcome to Google Cloud Platform"
- Text: "Use the same infrastructure that powers Google's own applications."
- Two checked checkboxes:
 - I have read and agree to all [Terms of Service](#) for the Google Cloud Platform products.
 - I'd like to receive email about Google Cloud Platform updates, special offers, and events.
- A blue "Continue" button, which is highlighted with a red rectangular box.
- A "Learn more" link next to the "Continue" button.

The background of the console shows a list of APIs with their status. The "API Project" sidebar is visible on the left, and the user's email "imyday@gmail.com" and "Sign out" link are in the top right corner.

NAME	STATUS
Google M	ON
Ad Excha	OFF
Ad Excha	OFF
Admin SD	OFF
AdSense	OFF
AdSense	OFF
Analytics API	OFF
Audit API	OFF
BigQuery API	OFF
Blogger API v3	OFF
Books API	OFF
CalDAV API	OFF
Calendar API	OFF
Chrome Web Store API	OFF

Google Maps API v3

The screenshot shows the Google Developers Console interface. At the top, there are two browser tabs: "Google APIs Console" and "Google Developers Console". The address bar shows the URL: https://cloud.google.com/console?redirected=true#/project/841318404499/apiui/api/maps_backend. The page header includes the "Google Developers Console" logo and the user email "imyday@gmail.com | Sign out".

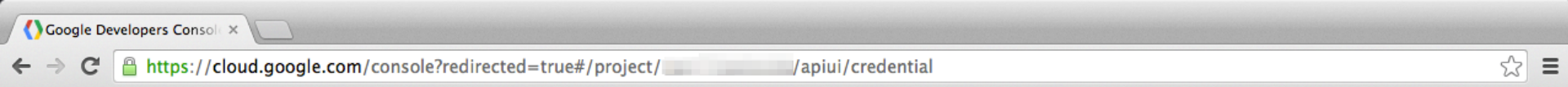
The main content area is titled "API Project" and features a sidebar with navigation options: Overview, APIs & auth (with "APIs" selected), Credentials, Consent screen, Notification endpoints, Permissions, Settings, Support, Compute Engine, Cloud Storage, Cloud SQL, BigQuery, and Cloud Development.

The main content area displays "Google Maps API v3" with a green "ON" toggle button, and links for "Quota" and "Reports". Below this, a description states: "The Google Maps API lets you embed Google Maps in your own web pages with Javascript. [Learn more](#)". A red rounded rectangle highlights the "ON" toggle and the description text.

At the bottom right, there are links for "Return to original console", "Send feedback", "Follow us", and "Privacy & Terms".

Credentials: Public API access

Get Google Maps API Key



< API Project

Overview

APIs & auth

APIs

Credentials

Consent screen

Notification endpoints

Permissions

Settings

Support

Compute Engine

Cloud Storage

Cloud SQL

BigQuery

Cloud Development

OAuth

OAuth 2.0 allows users to share specific data with you (for example, contact lists) while keeping their usernames, passwords, and other information private.

[Learn more](#)

CREATE NEW CLIENT ID

API key

Public API access

Use of this key does not require any user action or consent, does not grant access to any account information, and is not used for authorization.

[Learn more](#)

CREATE NEW KEY

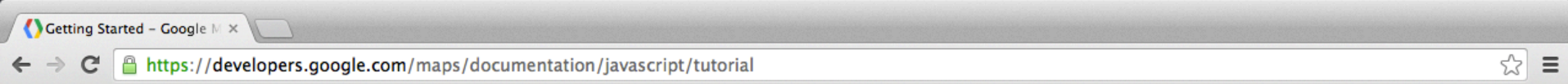
Key for browser applications

API key	AIzaSyBk9zQmepC
Referers	Any referer allowed
Activation date	
Activated by	@gmail.com (you)

[Edit allowed referers](#) [Regenerate key](#) [Delete](#)

Google Map JavaScript API

Hello, World



Hello, World

The easiest way to start learning about the Google Maps API is to see a simple example. The following web page displays a map centered on Sydney, New South Wales, Australia:

```
<!DOCTYPE html>
<html>
  <head>
    <meta name="viewport" content="initial-scale=1.0, user-scalable=no" />
    <style type="text/css">
      html { height: 100% }
      body { height: 100%; margin: 0; padding: 0 }
      #map-canvas { height: 100% }
    </style>
    <script type="text/javascript"
      src="https://maps.googleapis.com/maps/api/js?key={API_KEY}&sensor=SET_TO_TRUE_OR_FALSE">
    </script>
    <script type="text/javascript">
      function initialize() {
        var mapOptions = {
          center: new google.maps.LatLng(-34.397, 150.644),
          zoom: 8
        };
        var map = new google.maps.Map(document.getElementById("map-canvas"),
          mapOptions);
      }
      google.maps.event.addDomListener(window, 'load', initialize);
    </script>
  </head>
  <body>
    <div id="map-canvas" />
  </body>
</html>
```

[View example \(map-simple.html\)](#)

Even in this simple example, there are a few things to note:
<https://developers.google.com/maps/documentation/javascript/tutorial>

Google Map JavaScript API

Hello, World

API key

```
<!DOCTYPE html>
<html>
  <head>
    <meta name="viewport" content="initial-scale=1.0, user-scalable=no" />
    <style type="text/css">
      html { height: 100% }
      body { height: 100%; margin: 0; padding: 0 }
      #map-canvas { height: 100% }
    </style>
    <script type="text/javascript"
      src="https://maps.googleapis.com/maps/api/js?key=API_KEY&sensor=SET_TO_TRUE_OR_FALSE">
    </script>
    <script type="text/javascript">
      function initialize() {
        var mapOptions = {
          center: new google.maps.LatLng(-34.397, 150.644),
          zoom: 8
        };
        var map = new google.maps.Map(document.getElementById("map-canvas"),
          mapOptions);
      }
      google.maps.event.addDomListener(window, 'load', initialize);
    </script>
  </head>
  <body>
    <div id="map-canvas"/>
  </body>
</html>
```

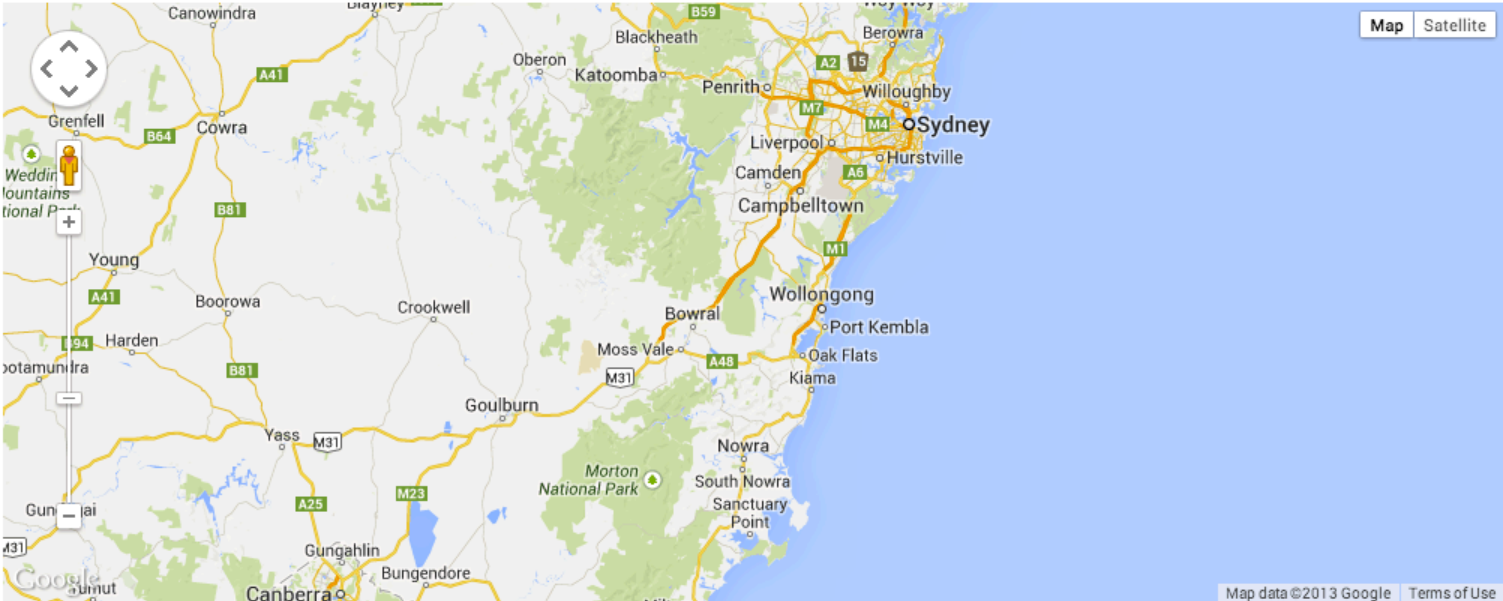
Google Maps JavaScript API: Simple Map

Simple Map - Google Maps

← → ↻ <https://developers.google.com/maps/documentation/javascript/examples/map-simple> ☆ ☰

- Developer's Guide
- API Reference
- Code Samples
 - Basics
 - Simple map**
 - Visual Refresh
 - Showing pixel and tile coordinates
 - Geolocation
 - Localizing the map
 - Right-to-left languages
 - Asynchronous loading
 - Custom map projections
 - Events
 - Controls
 - Styles
 - Drawing on the Map
 - Layers
 - MapTypes
 - Services
 - Libraries
 - Demo Gallery
 - More Resources

Simple Map



View this example [full screen](#).

JavaScript JavaScript + HTML

```
<!DOCTYPE html>
<html>
  <head>
    <title>Simple Map</title>
    <meta name="viewport" content="initial-scale=1.0, user-scalable=no">
    <meta charset="utf-8">
    <style>
      html, body, #map-canvas {
        height: 100%;
```

Google Maps JavaScript API Example JavaScript + HTML

```
<!DOCTYPE html>
<html>
<head>
  <title>Simple Map</title>
  <meta name="viewport" content="initial-scale=1.0, user-scalable=no">
  <meta charset="utf-8">
  <style>
    html, body, #map-canvas {
      height: 100%;
      margin: 0px;
      padding: 0px
    }
  </style>
  <script src="https://maps.googleapis.com/maps/api/js?v=3.exp&sensor=false"></script>
  <script>
var map;
function initialize() {
  var mapOptions = {
    zoom: 8,
    center: new google.maps.LatLng(-34.397, 150.644)
  };
  map = new google.maps.Map(document.getElementById('map-canvas'),
    mapOptions);
}

google.maps.event.addDomListener(window, 'load', initialize);

  </script>
</head>
<body>
  <div id="map-canvas"></div>
</body>
</html>
```

```
<div style="position:absolute; height:100%; width:100%;">  
  <div id="map-canvas"></div>  
</div>
```



<http://mail.tku.edu.tw/myday/app/map.html>

Google Maps JavaScript API

```
<style>
  #map-canvas {
    height: 100%;
    margin: 0px;
    padding: 0px
  }
</style>
```

```
<script>
  function initialize() {
    var mapOptions = {
      zoom: 15,
      center: new google.maps.LatLng(25.174738, 121.450381)
    };

    var map = new google.maps.Map(document.getElementById('map-canvas'),
      mapOptions);
  }

  function loadScript() {
    var script = document.createElement('script');
    script.type = 'text/javascript';
    script.src = 'https://maps.googleapis.com/maps/api/js?v=3.exp&sensor=true&callback=initialize';
    document.body.appendChild(script);
  }

  window.onload = loadScript;
</script>
```

```

<!DOCTYPE html>
<html>
<head>
<title>Google Maps</title>
<meta charset=utf-8 />
<meta name="viewport" content="width=device-width, initial-scale=1" />

<script src="js/jquery.js"></script>
<link type="text/css" href="css/jquery.mobile-1.3.2.min.css" rel="stylesheet" />
<script type="text/javascript" src="js/jquery.mobile-1.3.2.min.js"></script>

<!--PhoneGap-->
<link rel="stylesheet" type="text/css" href="css/index.css" />
<!--
<script type="text/javascript" src="phonegap.js"></script>
-->
<script type="text/javascript" src="js/index.js"></script>
<!--/PhoneGap-->
<script type="text/javascript">
    app.initialize();
</script>

<style>
#map-canvas {
    height: 100%;
    margin: 0px;
    padding: 0px;
}
</style>

<script>
function initialize() {
    var mapOptions = {
        zoom: 15,
        center: new google.maps.LatLng(25.174738, 121.450381)
    };

    var map = new google.maps.Map(document.getElementById('map-canvas'),
        mapOptions);
}

function loadScript() {
    var script = document.createElement('script');
    script.type = 'text/javascript';
    script.src = 'https://maps.googleapis.com/maps/api/js?v=3.exp&sensor=true&callback=initialize';
    document.body.appendChild(script);
}

window.onload = loadScript;
</script>

</head>

```

```

<body>

<div data-role="page" id="googlemaps" data-theme="b">
<div data-role="header" data-position="inline" data-theme="b">
    <a data-icon="back" data-rel="back" back-btn="true">Back</a>
    <h1>Google Maps</h1>
    <a href="index.html#MyHome" rel="external" data-icon="home">Home</a>
</div><!-- /header -->

<div style="position:absolute; height:100%; width:100%;">
<div id="map-canvas"></div>
</div>

<div data-role="footer" data-position="fixed" data-theme="b">
<div data-role="navbar">
    <ul>
        <li><a href="index.html#MyHome" rel="external" class="ui-btn-active ui-state-persist"
data-transition="fade" data-icon="home">Home</a></li>
        <li><a href="index.html#Research" rel="external" class="ui-btn-active ui-state-persist"
data-transition="fade" data-icon="star">Research</a></li>
        <li><a href="index.html#Teaching" rel="external" class="ui-btn-active ui-state-persist"
data-transition="fade" data-icon="check">Teaching</a></li>
        <li><a href="index.html#More" rel="external" class="ui-btn-active ui-state-persist"
data-transition="fade" data-icon="bars">More</a></li>
        <li><a href="index.html#About" rel="external" class="ui-btn-active ui-state-persist"
data-transition="fade" data-icon="grid">About</a></li>
    </ul>
</div>
</div><!-- /footer -->
</div><!-- /page Google Map -->
</body>
</html>

```

map.html

Google Maps JavaScript API + jQuery Mobile



<http://mail.tku.edu.tw/myday/app/map.html>

Summary

- **Google App Engine**

- **Google Cloud Platform**



- **Google Cloud Datastore**



- **Google Maps API**

References

- Google Cloud Platform,
<https://cloud.google.com/>
- Google App Engine,
<https://cloud.google.com/appengine/>
- Google Cloud Datastore,
<https://cloud.google.com/datastore/>
- Google Cloud Endpoints,
<https://cloud.google.com/endpoints/>
- Google Maps API,
<https://developers.google.com/maps/>
- Google Maps JavaScript API v3 Tutorial,
<https://developers.google.com/maps/documentation/javascript/tutorial>
- Google Maps API Tutorial,
<http://www.w3schools.com/googleAPI/>