Social Media Apps Programming

Google App Engine and

Google Map API

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

2015-12-16
<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Subject/Topics</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2015/09/16</td>
<td>Course Orientation and Introduction to Social Media and Mobile Apps Programming</td>
</tr>
<tr>
<td>2</td>
<td>2015/09/23</td>
<td>Introduction to Android / iOS Apps Programming</td>
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<tr>
<td>3</td>
<td>2015/09/30</td>
<td>Developing Android Native Apps with Java (Android Studio) (MIT App Inventor)</td>
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<td>4</td>
<td>2015/10/07</td>
<td>Developing iPhone / iPad Native Apps with Swift (XCode)</td>
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<td>Mobile Apps using HTML5/CSS3/JavaScript</td>
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<td>6</td>
<td>2015/10/21</td>
<td>jQuery Mobile</td>
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Course Schedule (2/3)

<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Subject/Topics</th>
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</thead>
<tbody>
<tr>
<td>7</td>
<td>2015/10/28</td>
<td>Create Hybrid Apps with Phonegap</td>
</tr>
<tr>
<td>8</td>
<td>2015/11/04</td>
<td>jQuery Mobile/Phonegap</td>
</tr>
<tr>
<td>9</td>
<td>2015/11/11</td>
<td>jQuery Mobile/Phonegap</td>
</tr>
<tr>
<td>10</td>
<td>2015/11/18</td>
<td>Midterm Exam Week (Midterm Project Report)</td>
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<tr>
<td>11</td>
<td>2015/11/25</td>
<td>Invited Talk: Business Intelligent and Analysis in PIXNET, the Dominant Blog Platform in Taiwan [Speaker: Dr. Rick Cheng-Yu Lu, CTO, PIXNET]</td>
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<td>12</td>
<td>2015/12/02</td>
<td>Case Study on Social Media Apps Programming and Marketing in Google Play and App Store</td>
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<tr>
<td>Week</td>
<td>Date</td>
<td>Subject/Topics</td>
</tr>
<tr>
<td>------</td>
<td>----------</td>
<td>----------------</td>
</tr>
<tr>
<td>13</td>
<td>2015/12/09</td>
<td>Google Cloud Platform</td>
</tr>
<tr>
<td>14</td>
<td>2015/12/16</td>
<td>Google App Engine and Google Map API</td>
</tr>
<tr>
<td>15</td>
<td>2015/12/23</td>
<td>Facebook API (Facebook JavaScript SDK) (Integrate Facebook with iOS/Android Apps)</td>
</tr>
<tr>
<td>16</td>
<td>2015/12/30</td>
<td>Twitter API</td>
</tr>
<tr>
<td>17</td>
<td>2016/01/06</td>
<td>Final Project Presentation</td>
</tr>
<tr>
<td>18</td>
<td>2016/01/13</td>
<td>Final Exam Week (Final Project Presentation)</td>
</tr>
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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

Source: https://cloud.google.com/products/
Mobile Apps Backend on Google App Engine

Google Cloud Endpoints Architecture

Source: https://cloud.google.com/appengine/docs/java/endpoints/
Google App Engine, Google Cloud Datastore

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

- **Google App Engine**
  - Google App Engine (Java, Python, Go)
  - Traditional Web applications
  - Perl/CGI
  - PHP
  - Ruby on Rails
  - ASP/JSP

- **Datastore**
  - RDBMS
    - MySQL
    - PostgreSQL
    - SQL Server
    - Oracle

Source: Datastore Introduction, [http://www.youtube.com/watch?v=fQazhzcC-rg](http://www.youtube.com/watch?v=fQazhzcC-rg)
Google Cloud Platform

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

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

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: Taiwan
Account type: Business
Name and address: Business name, Name, Street address

Got $300 to kick start your app.
Sign up for free and get $300 to spend on Google Cloud Platform over the next 60 days.

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.
Try Google Cloud Platform for free

Google Developers Console

Primary contact
Name
Phone number
imydey@gmail.com

What you pay with
Credit or debit card
Card number
MM / YY
Cardholder name

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.

Accept and start free trial
Clear
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 "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
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.

   HelloWorldGoogleAppEngine

2. SELECT YOUR LANGUAGE

Python  | Java
Google App Engine

2. SELECT YOUR LANGUAGE

- Python
- Java
- PHP
- Go

3. EXPLORE THE STARTER CODE

Browse the starter code and see the app running below.

HELLO WORLD - JAVA

```java
package myapp;

import java.io.IOException;
import javax.servlet.ServletException;

public class DemoServlet extends HttpServlet {
    @Override
    public void doGet(HttpServletRequest req, HttpServletResponse resp)
            throws IOException {
        resp.setContentType("text/plain");
    }
}
```
Google App Engine

3 EXPLORE THE STARTER CODE

Browse the starter code and see the app running below.

HELLO WORLD - JAVA

```java
package myapp;

import java.io.IOException;
import javax.servlet.http.*;

public class DemoServlet extends HttpServlet {
    @Override
    public void doGet(HttpServletRequest req, HttpServletResponse resp)
        throws IOException {
        resp.setContentType("text/plain");
        resp.getWriter().println("{ "name": "World" }");
    }
}
```

Hello, World
package myapp;

import java.io.IOException;
import javax.servlet.http.*;

cpyublic class DemoServlet extends HttpServlet {
    @Override
    public void doGet(HttpServletRequest req, HttpServletResponse resp)
        throws IOException {
        resp.setContentType("text/plain");
        resp.getWriter().println("\\name\\: \"World\"");
    }
}
4. INSTALL GOOGLE CLOUD SDK

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

```bash
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:

```bash
gcloud auth login
```

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

```bash
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-tray-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-tray-java
   mvn package
   dev_appserver.sh target/appengine-tray-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.
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`

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

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

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

Source: Datastore Introduction, http://www.youtube.com/watch?v=fQazhzcC-rg
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

Source: Datastore Introduction, http://www.youtube.com/watch?v=fQazhzC-rg
Bigtable Data Model

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

Source: Datastore Introduction, [http://www.youtube.com/watch?v=fQazhzcC-rg](http://www.youtube.com/watch?v=fQazhzcC-rg)
## Google Datastore Basic Operation

Different terms for corresponding concepts

<table>
<thead>
<tr>
<th>Category of object</th>
<th>Google Datastore</th>
<th>Relational Database Management System (RDBMS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>One entry/object</td>
<td>Entity</td>
<td>Row</td>
</tr>
<tr>
<td>Unique identifier of data entry</td>
<td>Key</td>
<td>Primary Key (PK)</td>
</tr>
<tr>
<td>Individual data</td>
<td>Property</td>
<td>Field</td>
</tr>
</tbody>
</table>

Source: Datastore Introduction, [http://www.youtube.com/watch?v=fQazhzcC-rg](http://www.youtube.com/watch?v=fQazhzcC-rg)
Kind, Entity and Key

**BlogEntry**
- Key: 1234
- name: joe@ex.com
- message: xxxxx
- data: 1/1/2012 12:32

**User**
- Key: joe@ex.com
- email: joe@ex.com
- followees: [usr2@ex.com, usr3@ex.com]
- followers: []

- Key: usr2@ex.com
- email: usr2@ex.com
- followees: []
- followers: [joe@ex.com]

Source: Datastore Introduction, [http://www.youtube.com/watch?v=fQazhzcC-rg](http://www.youtube.com/watch?v=fQazhzcC-rg)
Properties and Data Types

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

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

```plaintext
BlogEntry
Key: 1234
name: joe@ex.com
message: xxxxx
data: 1/1/2012 12:32

User
Key: joe@ex.com
email: joe@ex.com
followees: [usr2@ex.com, usr3@ex.com]
followers: []

Key: usr2@ex.com
email: usr2@ex.com
followees: []
followers: [joe@ex.com]
```

Source: Datastore Introduction, [http://www.youtube.com/watch?v=fQazhzC-rg](http://www.youtube.com/watch?v=fQazhzC-rg)
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);

Source: Datastore Introduction, http://www.youtube.com/watch?v=fQazhzC-rg
Google Maps API

Hello Map

https://developers.google.com/maps/
Google Maps API

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.

https://developers.google.com/maps/
Google Maps API Demos

http://www.morethanamap.com/demos/basemaps/new-york
Google Maps API Demos

http://www.morethanamap.com/demos/routing/cycling
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 v3

Getting Started

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

https://developers.google.com/maps/documentation/javascript/tutorial
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](https://developers.google.com/maps/documentation/javascript/tutorial) for instructions.

To create your API key:

1. Visit the APIs Console at [https://code.google.com/apis/console](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**.
Demo:
Integrate
Google Maps JavaScript API
with
jQuery Mobile
Start using the Google APIs console

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

Select services for the project.

<table>
<thead>
<tr>
<th>Service</th>
<th>Status</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ad Exchange Buyer API</td>
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<td>Courtesy limit: 1,000 requests/day</td>
</tr>
<tr>
<td>Ad Exchange Seller API</td>
<td>OFF</td>
<td>Courtesy limit: 10,000 requests/day</td>
</tr>
<tr>
<td>Admin SDK</td>
<td>OFF</td>
<td></td>
</tr>
<tr>
<td>AdSense Host API</td>
<td>REQUEST ACCESS</td>
<td>Courtesy limit: 100,000 requests/day</td>
</tr>
<tr>
<td>AdSense Management API</td>
<td>OFF</td>
<td>Courtesy limit: 10,000 requests/day</td>
</tr>
<tr>
<td>Analytics API</td>
<td>OFF</td>
<td>Courtesy limit: 50,000 requests/day</td>
</tr>
<tr>
<td>Audit API</td>
<td>OFF</td>
<td>Courtesy limit: 10,000 requests/day</td>
</tr>
<tr>
<td>BigQuery API</td>
<td>OFF</td>
<td>Courtesy limit: 10,000 requests/day · Pricing</td>
</tr>
<tr>
<td>Blogger API v3</td>
<td>REQUEST ACCESS</td>
<td>Courtesy limit: 10,000 requests/day</td>
</tr>
<tr>
<td>Books API</td>
<td>OFF</td>
<td>Courtesy limit: 1,000 requests/day</td>
</tr>
<tr>
<td>CalDAV API</td>
<td>OFF</td>
<td>Courtesy limit: 1,000 requests/day</td>
</tr>
<tr>
<td>Calendar API</td>
<td>OFF</td>
<td>Courtesy limit: 100,000 requests/day</td>
</tr>
<tr>
<td>Chrome Web Store API</td>
<td>OFF</td>
<td></td>
</tr>
<tr>
<td>API Name</td>
<td>State</td>
<td>Daily Limit</td>
</tr>
<tr>
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<td>-------</td>
<td>----------------------</td>
</tr>
<tr>
<td>Google Apps Reseller API</td>
<td>OFF</td>
<td>Courtesy limit: 10,000 requests/day</td>
</tr>
<tr>
<td>Google Civic Information API</td>
<td>OFF</td>
<td>Courtesy limit: 25,000 requests/day</td>
</tr>
<tr>
<td>Google Cloud Datastore API</td>
<td>OFF</td>
<td>Courtesy limit: 10,000,000 requests/day</td>
</tr>
<tr>
<td>Google Cloud Messaging for Android</td>
<td>OFF</td>
<td></td>
</tr>
<tr>
<td>Google Cloud Messaging for Chrome</td>
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<td>Courtesy limit: 10,000 requests/day</td>
</tr>
<tr>
<td>Google Cloud SQL</td>
<td>OFF</td>
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<tr>
<td>Google Cloud SQL API</td>
<td>OFF</td>
<td></td>
</tr>
<tr>
<td>Google Cloud Storage</td>
<td>OFF</td>
<td></td>
</tr>
<tr>
<td>Google Cloud Storage JSON API</td>
<td>OFF</td>
<td></td>
</tr>
<tr>
<td>Google Compute Engine</td>
<td>OFF</td>
<td></td>
</tr>
<tr>
<td>Google Contacts CardDAV API</td>
<td>OFF</td>
<td>Courtesy limit: 10,000 requests/day</td>
</tr>
<tr>
<td>Google Maps Android API v2</td>
<td>OFF</td>
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<tr>
<td><strong>Google Maps API v3</strong></td>
<td>OFF</td>
<td>Courtesy limit: 25,000 requests/day</td>
</tr>
<tr>
<td>Google Maps Coordinate API</td>
<td>OFF</td>
<td>Courtesy limit: 1,000 requests/day</td>
</tr>
<tr>
<td>Google Maps Engine API</td>
<td>OFF</td>
<td>Courtesy limit: 10,000 requests/day</td>
</tr>
<tr>
<td>Google Maps Geolocation API</td>
<td>OFF</td>
<td>Courtesy limit: 0 requests/day</td>
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<tr>
<td>Google Maps SDK for iOS</td>
<td>OFF</td>
<td></td>
</tr>
<tr>
<td>Google Maps Tracks API</td>
<td>OFF</td>
<td></td>
</tr>
</tbody>
</table>

[Link to Google APIs Console: https://code.google.com/apis/console/?noredirect&pli=1#project:841318404499:services]
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 018900, 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
Google APIs Console

Active services
Select services for the project.

<table>
<thead>
<tr>
<th>Service</th>
<th>Status</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Google Maps API v3</td>
<td>ON</td>
<td>Courtesy limit: 25,000 requests/day • Pricing</td>
</tr>
</tbody>
</table>
Welcome to Google Cloud Platform

Use the same infrastructure that powers Google's own applications.

- [x] I have read and agree to all Terms of Service for the Google Cloud Platform products.
- [x] I'd like to receive email about Google Cloud Platform updates, special offers, and events.

Continue
Credentials: Public API access
Get Google Maps API Key

API key

https://cloud.google.com/console?redirected=true#/project/.../apiui/credential

Google Developers Console

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.

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.

Key for browser applications

<table>
<thead>
<tr>
<th>API key</th>
<th>xyzYzBk9zQmepC...</th>
</tr>
</thead>
<tbody>
<tr>
<td>Referers</td>
<td>Any referrer allowed</td>
</tr>
</tbody>
</table>
| Activation date | [...]
| Activated by | [email] (you) |

CREATE NEW KEY

CREATE NEW CLIENT ID

Permissions
Settings
Support
Compute Engine
Cloud Storage
Cloud SQL
BigQuery
Cloud Development
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:

```html
<!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">
        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)

For the simple example, there are a few things to note.
<!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>

https://developers.google.com/maps/documentation/javascript/tutorial
Google Maps JavaScript API: Simple Map

https://developers.google.com/maps/documentation/javascript/examples/map-simple
<!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>
        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>

https://developers.google.com/maps/documentation/javascript/examples/map-simple
<div style="position:absolute; height:100%; width:100%;">
  <div id="map-canvas"></div>
</div>

http://mail.tku.edu.tw/myday/app/map.html
<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';
    document.body.appendChild(script);
  }

  window.onload = loadScript;
</script>

http://mail.tku.edu.tw/myday/app/map.html
<html>
<head>
<title>Google Maps</title>
<meta charset=utf-8 />
<meta name=viewport content=device-width, initial-scale=1 />
<script src=js/jquery.js>
<link type=text/css href=css/jquery.mobile-1.3.2.min.css rel=stylesheet />
<script type=javascript src=js/jquery.mobile-1.3.2.min.js></script>
<!-- PhoneGap -->
<link rel=stylesheet type=text/css href=css/index.css />
<!-- PhoneGap -->
<script type=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';
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 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-roles=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>

http://mail.tku.edu.tw/myday/app/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 API Tutorial, http://www.w3schools.com/googleAPI/