Social Media Apps Programming

Google Cloud Platform

1031SMAP10
TLMXM1A (8687) (M2143) (Fall 2014)
(MIS MBA) (2 Credits, Elective) [Full English Course]
Thu 8,9 (15:10-17:00) V201

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Tamkang University

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2014-12-03
## Course Schedule (1/3)

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<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Subject/Topics</th>
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<td>1</td>
<td>2014/09/17</td>
<td>Course Orientation and Introduction to Social Media and Mobile Apps Programming</td>
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<tr>
<td>2</td>
<td>2014/09/24</td>
<td>Introduction to Android / iOS Apps Programming</td>
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<td>3</td>
<td>2014/10/01</td>
<td>Developing Android Native Apps with Java (Eclipse) (MIT App Inventor)</td>
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<td>4</td>
<td>2014/10/08</td>
<td>Developing iPhone / iPad Native Apps with Swift / Objective-C (XCode)</td>
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<tr>
<td>5</td>
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<td>Mobile Apps Using HTML5/CSS3/JavaScript</td>
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<tr>
<td>Week</td>
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<td>Create Hybrid Apps with Phonegap</td>
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<td>Midterm Exam Week (Midterm Project Report)</td>
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<td>12</td>
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<td>Google Cloud Platform</td>
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## Course Schedule (3/3)

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<th>Week</th>
<th>Date</th>
<th>Subject/Topics</th>
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</thead>
<tbody>
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<td>13</td>
<td>2014/12/10</td>
<td>Invited Talk: Social, Data and Business Model - Let’s see PIXNET</td>
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<td>[Invited Speaker: Dr. Rick Cheng-Yu Lu, Technical Director, PIXNET]</td>
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<td>Google App Engine and Google Map API</td>
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<td>Final Project Presentation</td>
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<tr>
<td>18</td>
<td>2015/01/14</td>
<td>Final Exam Week (Final Project Report)</td>
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</tbody>
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Outline

• Google Cloud Platform
  – Google App Engine
  – Google Cloud Datastore
  – Google Cloud Endpoints

• Mobile App with Google Cloud Platform
Google Cloud Platform

https://cloud.google.com/

Build at the speed of Google

Get $300 in credit towards a 60-day free trial.
This trial is absolutely free and you will not be billed unless you decide to upgrade to a paid account.

Start your free trial or See the FAQ

Watch the keynote address from Google Cloud Platform Live

Learn about our new products, including Google Container Engine and Google Cloud Interconnect, as well as Firebase, a powerful API to store and sync data in realtime.

Watch the event
Google Cloud Platform

- Google Cloud Platform is a set of modular cloud-based services that allow you to create anything from simple websites to complex applications.

Source: https://cloud.google.com/
Google Cloud Platform

Hosting + Compute

Storage

Big Data

Services

Source: https://cloud.google.com/products/
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/
Why Google Cloud Platform

Google Cloud Platform enables developers to build, test and deploy applications on Google's highly-scalable and reliable infrastructure. Choose from computing, storage and application services for your web, mobile and backend solutions.

Run on Google’s infrastructure

Build on the same infrastructure that allows Google to return billions of search results in milliseconds, serve 6 billion hours of YouTube video per month and provide storage for 425 million Gmail users.

Global network

Google has one of the largest and most advanced computer networks. Google's backbone network has thousands of miles of fiber optic cable, uses advanced software-defined networking and has edge caching services to deliver fast, consistent and scalable performance. In fact, we even laid our own fiber optic cable under the Pacific Ocean.

Redundancy

"[Google's] ability to build, organize, and operate a huge network of servers and fiber-optic cables with an efficiency and speed that rocks physics on its heels...This is what makes Google
Why Google

Run on Google's infrastructure

Build on the same infrastructure that allows Google to return billions of search results in milliseconds, serve 6 billion hours of YouTube video per month and provide storage for 425 million Gmail users.

Find out more

Focus on your product

Rapidly develop, deploy and iterate your applications without worrying about system administration. Google manages your application, database and storage servers so you don't have to.

Find out more

Mix and match services


Find out more

Scale to millions of users

Applications hosted on Cloud Platform can automatically scale up to handle the most demanding Internet-scale workloads and scale down when traffic subsides. You pay only for what you use.

Find out more

Performance you can count on

Every millisecond of latency matters. Google's compute infrastructure gives you consistent CPU, memory and disk performance. Our network and edge cache serve responses rapidly to your users across the world.

Find out more

Get the support you need

With our worldwide community of users, partner ecosystem and premium support packages, Google provides a full range of resources to help you get started and grow.

Find out more

Source: https://cloud.google.com/
Customers of Google Cloud Platform

Snapchat

“App Engine enabled us to focus on developing the application. We wouldn’t have gotten here without the ease of development that App Engine gave us.”

Bobby Murphy  CTO and co-Founder

Read Snapchat’s story

Webfilings

“Google App Engine has the breadth and the depth to grow with you. Every 6 months, it gets better. The Google App Engine team knows what you need to make a competitive application.”

Brett Harper  Director of Product Development

Read Webfilings’ story

Khan Academy

“If we didn’t have Google App Engine, we’d be spending a lot more time figuring out server setup and working on routers. Our ability to focus on the actual product is the benefit of Google App Engine.”

Ben Kamens  Lead Developer

Read Khan Academy’s story

Rovio

“Google App Engine allows us to launch games very quickly with teams of one or two developers per game. Because Google manages all the servers, there is little required of us in terms of maintenance.”

Stefan Hauk  lead server developer for web games

Read Rovio’s story

MAG Interactive

“Our rapid growth to 5M Puzzle players in less than six months required a highly scalable server solution. Google App Engine transformed this huge challenge into a picnic.”

Read MAG Interactive’s story

Interactions Marketing

"We are always looking for ways to maximize return and minimize investment. BigQuery is the perfect combination. It’s an on-demand, scalable resource.”

Source: https://cloud.google.com/customers/
‘Angry Birds’ Soars Online with Google App Engine

Rovio, creator of the blockbuster “Angry Birds” game series, turned to Google App Engine when it came time to adapt its mobile apps for web browsers. The Finland-based company needed a platform that could support explosive demand and provide robust capabilities to deliver a superior user experience. Google App Engine provides both while requiring minimal maintenance, which gives the company’s developers time to focus on improving the games.

Challenge

Rovio knew that bringing its games online presented an enormous opportunity. In early 2011, a development team began planning a version of “Angry Birds” for Google Chrome. The company wanted to launch the game at Google’s annual I/O conference that spring, just a few months away.

The developers needed a platform that would scale effortlessly: The mobile app had already hit more than 140 million downloads, and the team expected demand for the free online version to be overwhelming. They also wanted a low-maintenance system that would make it easy to update features and bring new titles online.

Solution

The developers chose Google App Engine to build the game because they knew it would allow them to work quickly and provide the scalability needed to support an enormous user base. “Angry Birds Chrome” finished on schedule, followed by other titles such as “Angry Birds Google+” and “Angry Birds Friends.” Rovio also created customized versions for companies, sports teams and other partners.

Source: https://cloud.google.com/customers/
Compute Engine

Compute Engine is Google’s Infrastructure-as-a-Service (IaaS). Run large-scale workloads on virtual machines hosted on Google’s infrastructure. Choose a VM that fits your needs and gain the performance and consistency of Google’s worldwide fiber network. With per-minute billing, you pay only for what you use.

App Engine

App Engine is Google’s Platform-as-a-Service (PaaS). Develop your application easily using built-in services that make you more productive. Deploy to a fully-managed platform and let Google carry the pager. Just download the SDK and start building immediately for free with no credit card required.

Container Engine

Container Engine makes it easy to run Docker containers on Google Cloud Platform. Powered by Kubernetes, Container Engine takes care of provisioning and maintaining the underlying virtual machine cluster, scaling your application, and operational logistics like logging, monitoring, and health management.

Source: https://cloud.google.com/products/
Storage

Cloud Datastore

Cloud Datastore provides a managed, NoSQL, schemaless database for storing non-relational data. Cloud Datastore automatically scales as you need it and supports transactions as well as robust, SQL-like queries.

Cloud SQL

Store and manage data using a fully-managed, relational MySQL database. Google handles replication, patch management and database management to ensure availability and performance.

Cloud Storage

Use a durable and highly available object storage service. With global edge-caching, your users have fast access to your app’s data from any location. Google manages versioning, guarantees a strong SLA and provides a simple API that allows you to manage your data programmatically.

Source: https://cloud.google.com/products/
BigQuery

• Analyze Big Data in the cloud with BigQuery.
• Run fast, SQL-like queries against multi-terabyte datasets in seconds.
• Scalable and easy to use, BigQuery gives you real-time insights about your data

Source: https://cloud.google.com/products/
Services

**Cloud Pub/Sub**
Connect your services with reliable, many-to-many, asynchronous messaging hosted on Google's infrastructure. Cloud Pub/Sub automatically scales as you need it and provides a foundation for building your own robust, global services.

**Cloud DNS**
Reliable, resilient, low-latency DNS serving from Google's worldwide network of Anycast DNS servers. Create DNS records with an easy to use command line interface, or program against a full featured RESTful API to customize the service to your specific needs.

**Cloud Endpoints**
Create RESTful services from your code and make them accessible to iOS, Android and Javascript clients. Automatically generate client libraries to make wiring up the frontend easy. Built-in critical infrastructure includes denial-of-service protection, OAuth 2.0 support and client key management.

**Translate API**
Create multilingual apps and translate text into other languages programmatically. Thousands of language pairs are available.

Source: [https://cloud.google.com/products/](https://cloud.google.com/products/)
Prediction API

• Use Google’s machine learning algorithms to analyze data and predict future outcomes using a familiar RESTful interface.

Source: https://cloud.google.com/products/
Google Cloud Platform Solutions

Solutions
Cloud Platform enables you to build a wide variety of robust applications. See how you can quickly and easily build a mobile, gaming, or Hadoop solution.

Mobile
Build and host the backend for any mobile app. With an infrastructure that is managed automatically, you can focus on your app.

Read about Mobile

Hadoop
Take advantage of the performance and cost efficiency of Google Cloud Platform to run Apache Hadoop. Directly access data in Google Cloud Storage and BigQuery from Hadoop.

Read about Hadoop

Source: https://cloud.google.com/solutions/
Mobile App with Google Cloud Platform

Build your mobile app with Google Cloud Platform

Build and host the backend for any mobile app. With an infrastructure that is managed automatically, you can focus on your app. Then, scale infinitely to support millions of users.

Start your free trial or Contact sales

Deploy an app in 300 seconds

See how easy it is to develop a mobile backend using custom code with Google Cloud Endpoints. Automatically generated strongly-typed client libraries for iOS, Android, and Javascript make calling backend APIs simple.

Benefits of building mobile apps on Google Cloud Platform:
Mobile App with Google Cloud Platform

Deploy an app in 300 seconds

See how easy it is to develop a mobile backend using custom code with Google Cloud Endpoints. Automatically generated strongly-typed client libraries for iOS, Android, and JavaScript make calling backend APIs simple.

Benefits of building mobile apps on Google Cloud Platform:

- **Automatic scaling and load balancing**
  All you have to do is write your application code and we'll handle the rest. No matter how many users you have, App Engine will scale to your needs.

- **Push notifications**
  Use Google Cloud Messaging to send data to your Android users and the Sockets API to send push notifications to your iOS users.

- **Geo-proximity search**
  Leverage App Engine's Search API for geo-proximity search.

- **Data processing**
  Application logs can provide insight into app usage and backend behavior. BigQuery enables you to gather real-time ad-hoc analysis of your log files, analyzing terabytes of data in seconds.

- **Static content serving**
  App Engine serves static files from dedicated servers and caches that are separate from the application servers.

- **Data storage**
  Google Cloud Storage lets you store objects and files up to terabytes in size using a simple REST-based interface.

Source: https://cloud.google.com/solutions/mobile/
Mobile Solution on Google Cloud Platform

- Support for Android and iOS devices through native applications
- Storage, retrieval, and processing data outside of mobile devices
- Orchestrating push notification to Android and IOS devices
- Geo-location awareness and geo-proximity search
- User authentication
- High scalability

Source: https://cloud.google.com/developers/articles/mobile-application-solutions/
Mobile App Solutions Architecture

Source: https://cloud.google.com/developers/articles/mobile-application-solutions/
Mobile App Solutions Architecture

• Android and/or iOS mobile clients.
• Google Cloud Endpoints used for communications between the clients and the backend over REST API with optional OAuth2 authentication.
• Your mobile backend application code running on Google App Engine and responsible for serving requests from the clients.

Source: https://cloud.google.com/developers/articles/mobile-application-solutions/
Storing data

Mobile Backend Running On Google App Engine Instances

GAE App Engine Datastore

Google Cloud Storage
# Google App Engine

## Datastore Quotas and limits

<table>
<thead>
<tr>
<th>Limit</th>
<th>Amount</th>
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<tbody>
<tr>
<td>Maximum entity size</td>
<td>1 megabyte</td>
</tr>
<tr>
<td>Maximum transaction size</td>
<td>10 megabytes</td>
</tr>
<tr>
<td>Maximum number of index entries for an entity</td>
<td>20000</td>
</tr>
<tr>
<td>Maximum number of bytes in composite indexes for an entity</td>
<td>2 megabytes</td>
</tr>
</tbody>
</table>

Source: [https://cloud.google.com/appengine/docs/java/datastore/](https://cloud.google.com/appengine/docs/java/datastore/)
Optimizing data access with Memcached

Source: https://cloud.google.com/developers/articles/mobile-application-solutions/
Google App Engine
Platform as a Service (PaaS)

build and run applications on
Google’s infrastructure

Source: https://cloud.google.com/appengine/docs
Google App Engine

• 1 GB of data storage and traffic for free

• can be increased by enabling paid applications

Source: https://cloud.google.com/appengine/docs/whatisgoogleappengine
Google App Engine supports apps written in a variety of programming languages: Python, Java, PHP, Go

Source: https://cloud.google.com/appengine/docs/whatsgoogleappengine
Google App Engine

Run your applications on a fully-managed Platform-as-a-Service (PaaS) using built-in services that make you more productive. Just download the SDK and start building immediately.

Features

- **Popular languages and frameworks**
  Write applications in some of the most popular programming languages: Python, Java, PHP and Go. Use existing frameworks such as Django, Flask, Spring and webapp2. Develop locally with

- **Focus on your code**
  Let Google worry about database administration, server configuration, sharding and load balancing. With Traffic Splitting, you can A/B test different live versions of your app. Multitenancy support lets you compartmentalize your application data.

- **Multiple storage options**
  Choose the storage option you need: a traditional MySQL database using Cloud SQL, a schemaless NoSQL datastore, or object storage using Cloud Storage.

https://cloud.google.com/appengine/
Features

Popular languages and frameworks
Write applications in some of the most popular programming languages: Python, Java, PHP and Go. Use existing frameworks such as Django, Flask, Spring and webapp2. Develop locally with language-specific SDKs. Pair your applications with Compute Engine to integrate other familiar technologies such as Node.js, C++, Scala, Hadoop, MongoDB, Redis and more.

Focus on your code
Let Google worry about database administration, server configuration, sharding and load balancing. With Traffic Splitting, you can A/B test different live versions of your app. Multitenancy support lets you compartmentalize your application data.

Multiple storage options
Choose the storage option you need: a traditional MySQL database using Cloud SQL, a schemaless NoSQL datastore, or object storage using Cloud Storage.

Powerful built-in services
App Engine makes you more productive by eliminating the need to write boilerplate code. Managed services, such as Task Queues, Memcache and the Users API, let you build any application.

Familiar development tools
Use the tools you know, including Eclipse, IntelliJ, Maven, Git, Jenkins, PyCharm and more. The App Engine SDK allows you to test applications locally in a simulated environment and then deploy your app with simple command-line tools or the desktop launcher.

Deploy at Google scale
Some of the world's most popular web services are built on our platform. You can scale up to 7 billion requests per day and automatically scale down when traffic subsides.

https://cloud.google.com/appengine/
Google Cloud Datastore

Cloud Datastore

Use a managed, NoSQL, schemaless database for storing non-relational data. Cloud Datastore automatically scales as you need it and supports transactions as well as robust, SQL-like queries.

Start your free trial

Features

- Schemaless access, with SQL-like querying
  No need to worry about data models and migration. Cloud Datastore is a schemaless storage service that allows you to be agile by removing the need to think about the underlying structure of the

- Managed database
  Cloud Datastore is fully managed. Google automatically handles sharding and replication in order to provide you with a highly available and consistent database.

- Autoscale with your users
  Cloud Datastore automatically scales depending on your needs. This allows you to focus on building your application and not on worrying about provisioning and load anticipation.

https://cloud.google.com/datastore/
Google Cloud Datastore

- **Schemaless access, with SQL-like querying**
  No need to worry about data models and migration. Cloud Datastore is a schemaless storage service that allows you to be agile by removing the need to think about the underlying structure of the data. Cloud Datastore provides a robust query engine that allows you to search for data across multiple properties and sort as needed.

- **Managed database**
  Cloud Datastore is fully managed. Google automatically handles sharding and replication in order to provide you with a highly available and consistent database.

- **Autoscale with your users**
  Cloud Datastore automatically scales depending on your needs. This allows you to focus on building your application and not on worrying about provisioning and load anticipation.

- **ACID transactions**
  Cloud Datastore provides ACID transactions using optimistic concurrency control. Your application can execute multiple datastore operations in a single transaction in which either all succeed or all fail, ensuring the integrity of your data.

- **Built-in redundancy**
  With a single API call, data is automatically replicated across multiple data centers. High availability and durability are built in from the very core.

- **Local development tools**
  With the Cloud Datastore Development Kit, you can develop, test and iterate your applications locally without doing full deployments.

- **Access your data from anywhere**
  Build solutions that span App Engine and Compute Engine, and rely on Cloud Datastore as the integration point. With the RESTful interface that is exposed by Cloud Datastore, data can easily be accessed by any deployment target.

[https://cloud.google.com/datastore/](https://cloud.google.com/datastore/)
Google Cloud Endpoints

Create RESTful services and make them accessible to iOS, Android and Javascript clients. Automatically generate client libraries to make wiring up the frontend easy. Built-in features include denial-of-service protection, OAuth 2.0 support and client key management.

Start your free trial

Features

- One tool, multiple clients
  - Build client libraries for Android, iOS and web-based clients from one source. Cloud Endpoints wraps your code to build an API server in just a few steps. Cloud Endpoint API libraries are available in Java, Python, Go and PHP. Learn more

- Extending App Engine infrastructure
  - All of the tools and libraries made available in App Engine are now available to your mobile devices. Access Datastore, Cloud Storage and Task Queues using your App Engine backend with no extra

- Low maintenance client-server
  - Because Cloud Endpoints is backed by App Engine, you have no servers to maintain, no load balancing to worry about and the same quick and painless scaling. Like App Engine and our other Cloud services, you only pay for what you use.

Source: https://cloud.google.com/endpoints/
Google Cloud Endpoints

Features

One tool, multiple clients
Build client libraries for Android, iOS and web-based clients from one source. Cloud Endpoints wraps your code to build an API server in just a few steps. Cloud Endpoint API libraries are available in Java, Python, Go and PHP. Learn more about Cloud Endpoints in our documentation or just dive in and try our sample Tic Tac Toe web application.

Extending App Engine infrastructure
All of the tools and libraries made available in App Engine are now available to your mobile devices. Access Datastore, Cloud Storage and Task Queues using your App Engine backend with no extra work. Integrate OAuth 2.0 authentication quickly by following our examples.

Low maintenance client-server
Because Cloud Endpoints is backed by App Engine, you have no servers to maintain, no load balancing to worry about and the same quick and painless scaling. Like App Engine and our other Cloud services, you only pay for what you use.

Flexible client-side integration
Annotate your server-side API and then build your client libraries automatically. Client libraries are built for Android and iOS. Get standard web clients up and running with a minimal JavaScript client library. All of your clients use similar APIs and the same backend, which keeps development time down.

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

Google Cloud Endpoints Architecture

Source: https://cloud.google.com/appengine/docs/java/endpoints/
Mobile App, Goolge App Engine, Cloud Datasotre

http://www.youtube.com/watch?v=v5u_Owtbfew
Mobile, Web and Cloud

The Triple Crown of Modern Applications

Ido Green - Developer Advocate, Google
Danny Hermes - Developer Programs Engineer, Google

http://www.youtube.com/watch?v=6_oO9Gwf_do
Build your mobile app with Google Cloud Platform

http://www.youtube.com/watch?v=ZZNb1NOPTp8
App Engine Architecture and Services

http://www.youtube.com/watch?v=QJp6hmASstQ
Datastore Introduction

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

Datastore is a database (persistent storage) for App Engine

Source: Datastore Introduction, http://www.youtube.com/watch?v=fQazhzcC-rg
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
Try Google Cloud Platform for free
Google Cloud Platform

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

Get started quickly

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- **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
Google Cloud Platform

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

Computing and hosting

**App Engine**

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- Overview
- Get Started
- Tutorials: Java, PHP, Python, Go
- Documentation

**Compute Engine**

Compute Engine is Google’s Infrastructure-as-a-Service (IaaS). Run large-scale workloads on virtual machines hosted on Google’s infrastructure. Choose a VM that fits your needs and gain the performance and consistency of Google’s worldwide fiber network. With per-minute billing, you pay only for what you use.

- Overview
- Get Started
- Tutorial
- Documentation

Storage

**Cloud SQL**

Store and manage data using a relational MySQL database. Google handles replication, patch management and database management to ensure availability and performance, and you can even have your instance automatically co-locate with your deployed applications.

- Overview
- Tutorial

**Cloud Storage**

Use a durable and highly available object storage service. With global edge-caching, your users have fast access to your app’s data from any location. Google manages versioning, guarantees a strong SLA and provides a simple API that allows you to manage your data programmatically.

- Overview
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- Overview
- Tutorial
- Documentation
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

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.http.*;

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

Hello, World
4 INSTALL GOOGLE CLOUD SDK

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

   ```sh
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:

   ```sh
gcloud auth login
   
   gcloud components update gae-java
```

5 RUN YOUR APP LOCALLY
5  RUN YOUR APP LOCALLY

Note: App Engine supports Java 7. Make sure you have the Java 7 JDK installed.

1. Download `appengine-trial-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-trial-java
   mvn package
   dev_appserver.sh target/appengine-trial-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.
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

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.
Pricing overview

Run your application using the same technology and tools used at Google. Cloud Platform provides the building blocks so you can develop quickly, using the services that you need.

Pricing calculator

Want to get a sense of what running in the cloud will cost? The pricing calculator provides a quick and easy way to estimate what your usage will look like.

Get a custom quote

Pricing philosophy

We believe that pricing should be as simple as possible and the burden of getting the best deal should be on us, not you. That's why we have sustained-use discounts, pay by the minute pricing, and believe in Moore's law in the cloud.

See philosophy

Billing questions

Sometimes you just need to get questions about your bill answered. Take a look at our frequently asked questions and if you don't get an answer contact us.

See billing FAQs
Summary

• Google Cloud Platform
  – Google App Engine
  – Google Cloud Datastore
  – Google Cloud Endpoints

• Mobile App with Google Cloud Platform
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/