Taking Your Project to the Next Level with Google Cloud Platform

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Google Cloud

Agenda

1 Intro to Google Cloud Platform

2 App Engine

3 Machine Learning APIs

4 Cloud Firestore

5 API Challenge

Google Cloud

Dictionary

cloud

cloud

/klaʊd/ 🔊

noun

1. **Getting things done using someone else's computers**, especially where someone else worries about maintenance, provisioning, system administration, security, networking, failure recover, etc.

Google Cloud

What is Google Cloud Platform?

Google Cloud Platform lets you build and host applications and websites, store data, and analyze data, all on Google's highly scalable and reliable computing infrastructure.

Google Cloud

Google Cloud Platform Products

Compute

- Compute Engine
- App Engine
- Kubernetes Engine
- GPU
- Cloud Functions
- Container-Optimized OS

Big Data

- BigQuery
- Cloud Dataflow
- Cloud Dataproc
- Cloud Dataprep
- Cloud Datalab
- Cloud Pub/Sub
- Genomics
- Data Studio

Identity & Security

- Cloud IAM
- Cloud Resource Manager
- Cloud Security Scanner
- Key Management Service
- BeyondCorp
- Data Loss Prevention API
- Identity-Aware Proxy
- Security Key Enforcement

Internet of Things

- Cloud IoT Core

Machine Learning

- Cloud Machine Learning
- Cloud Vision API
- Cloud Speech API
- Cloud Video Intelligence API
- Cloud Natural Language API
- Cloud Translation API
- Cloud Jobs API
- Advanced Solutions Lab

Storage & Databases

- Cloud Storage
- Cloud Bigtable
- Cloud Datastore
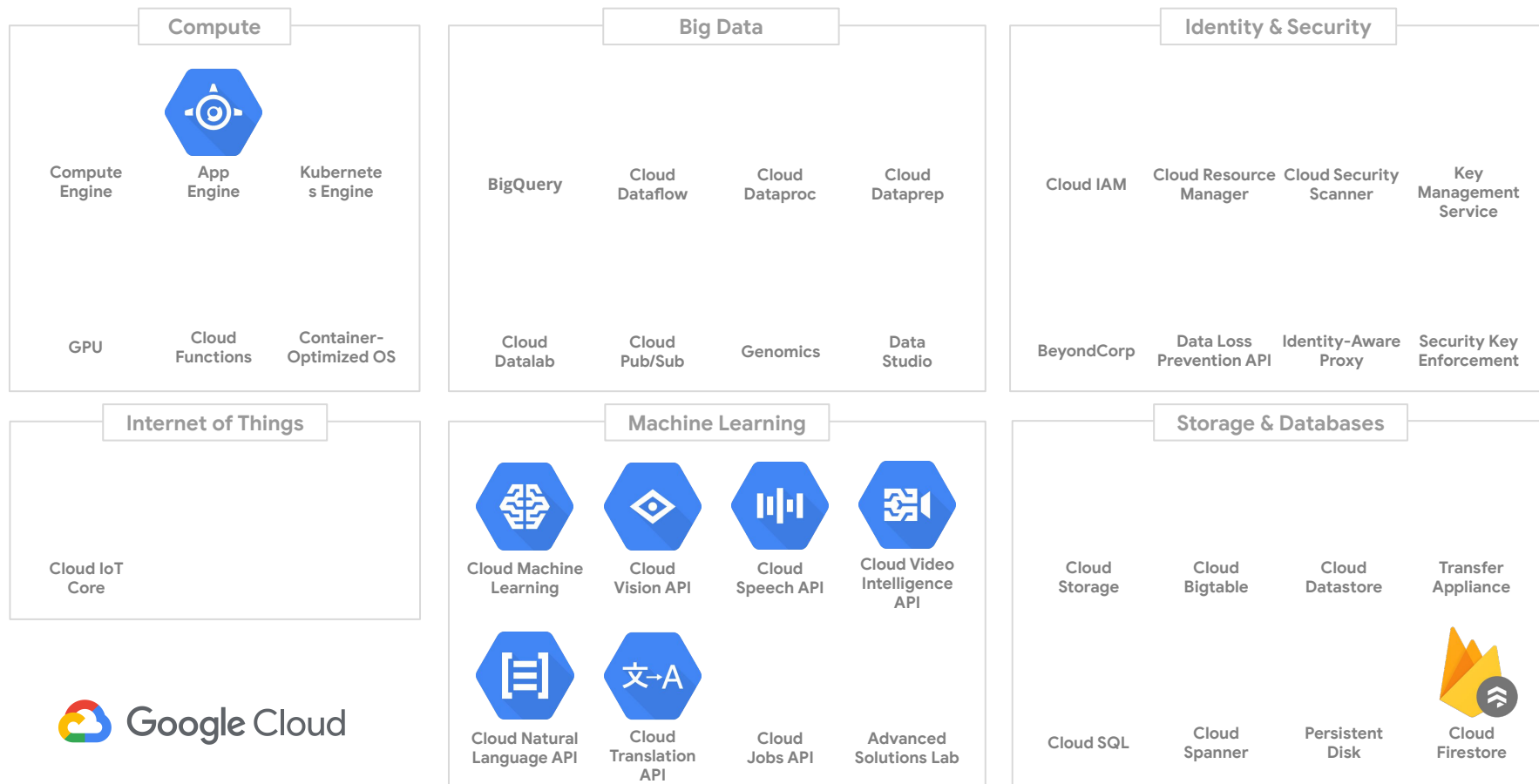- Transfer Appliance
- Cloud SQL
- Cloud Spanner
- Persistent Disk
- Cloud Firestore

Google Cloud

Google Cloud Platform Products (tl;dr)

Compute

Compute Engine

App Engine

Kubernetes Engine

GPU

Cloud Functions

Container-Optimized OS

Big Data

BigQuery

Cloud Dataflow

Cloud Dataproc

Cloud Dataprep

Cloud Datalab

Cloud Pub/Sub

Genomics

Data Studio

Identity & Security

Cloud IAM

Cloud Resource Manager

Cloud Security Scanner

Key Management Service

BeyondCorp

Data Loss Prevention API

Identity-Aware Proxy

Security Key Enforcement

Internet of Things

Cloud IoT Core

Machine Learning

Cloud Machine Learning

Cloud Vision API

Cloud Speech API

Cloud Video Intelligence API

Cloud Natural Language API

Cloud Translation API

Cloud Jobs API

Advanced Solutions Lab

Storage & Databases

Cloud Storage

Cloud Bigtable

Cloud Datastore

Transfer Appliance

Cloud SQL

Cloud Spanner

Persistent Disk

Cloud Firestore

Google Cloud

App Engine

- **Deploy web apps** and mobile backends to the Cloud

- "Platform as a service" product

- Managed application platform that lets you focus on your code

- Autoscaling, load balancing, traffic splitting for A/B testing, error reporting, and more!

Google Cloud

Puppy

or

Muffin?

" The brown quick fox jumps over the lazy dog. "

Syntax <u>rules</u> for adjective order in English:

- Quantity or number
- Quality or opinion
- Size
- Age
- Shape
- Colour
- Proper adjective (often nationality, other place of origin, or material)
- Purpose or qualifier

Machine learning is learning from rules *plus experience*.

Rules ⟶ **Classical programming** ⟶ Answers

Data ⟶

Data ⟶ **Machine learning** ⟶ Rules
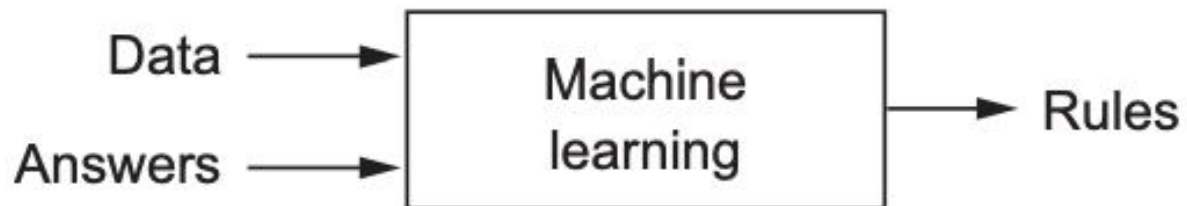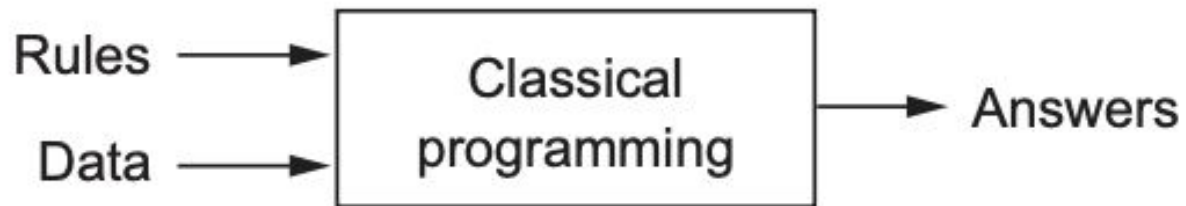
Answers ⟶

What is Machine Learning?

- "Machine Learning is the study of computer algorithms that improve automatically through experience." ~IEEE

- "Machine Learning is using data to answer questions." ~Yufeng Guo, Developer Advocate at Google

- Data -> Model -> Prediction
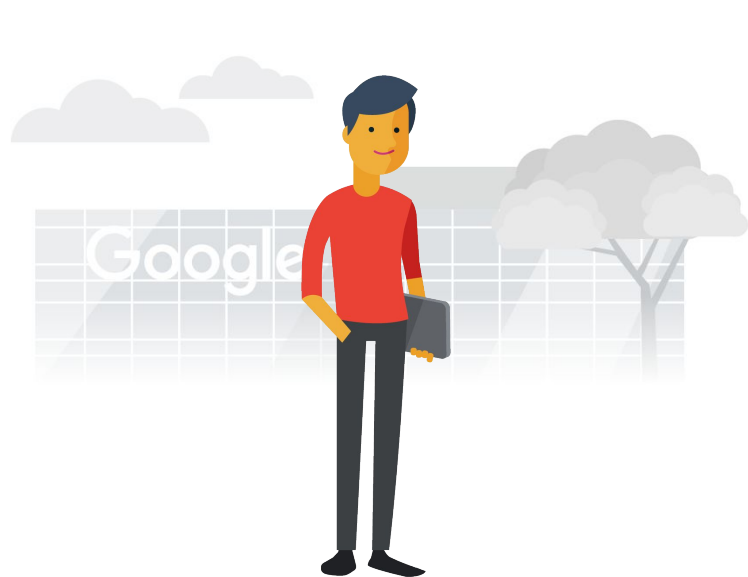
Google Photos
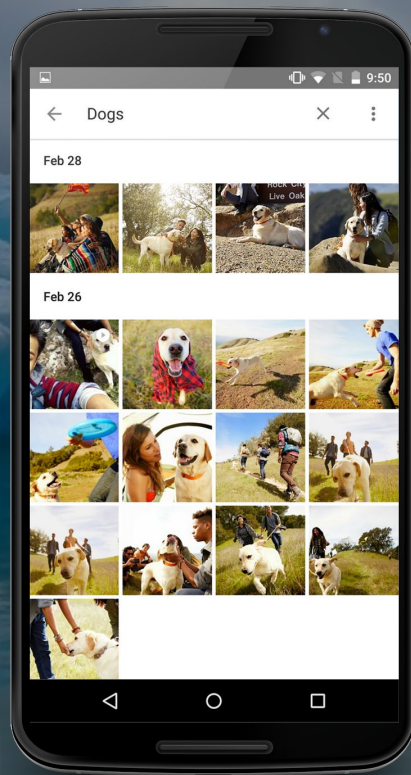
"Ok Google"

Google Translate

Google Cloud Machine Learning APIs

- **Gain insights from data** using Google Cloud's pre-trained machine learning models

- Leverage same technology as Google Photos and Google Assistant

- Require ZERO prior knowledge of ML

Google Cloud

Google Cloud Machine Learning APIs

Vision

Video Intelligence

Speech

Natural Language

Translation

Google Cloud

Natural Language API Quickstart

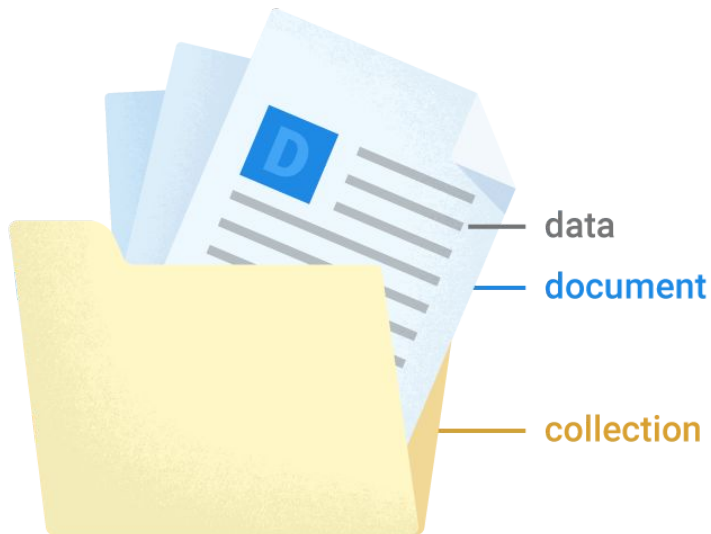[Quickstart Tutorial](#)

Google Cloud

Cloud Firestore

- **Powerful NoSQL realtime database**

- **Ordinary database -** query database for new updates

- **Realtime database -** automatically *receive* updates when the database is updated

  - Set up a listener object on the client

Cloud Firestore - Data Model

data

document

collection

users

alovelace
first : "Ada"
last : "Lovelace"
born : 1815

sride
first : "Sally"
last : "Ride"
born : 1951

Google Cloud

Cloud Firestore - Subcollections

📚 rooms

   📖 roomA

   `name : "my chat room"`

      📚 messages

         📖 message1

         `from : "alex"`
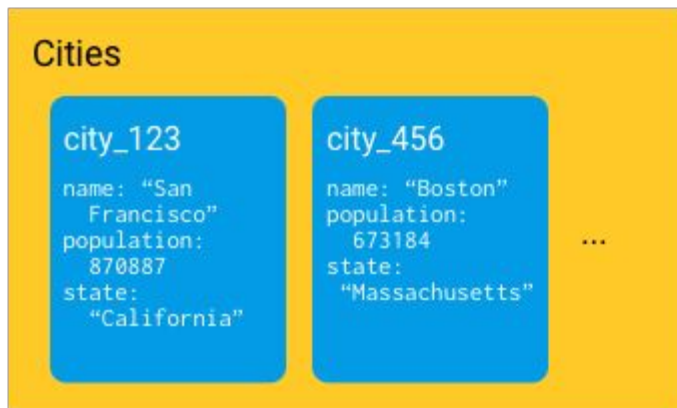   `msg : "Hello World!"`

         📖 message2

         `...`

   📖 roomB

   `...`

Google Cloud

Cloud Firestore - Easy Querying


```
Cities

city_123                    city_456
name: "San                  name: "Boston"
   Francisco"               population:
population:                    673184
   870887          ...      state:
state:                        "Massachusetts"
   "California"
```

```
citiesRef
.where("state", "==", "California")
.where("population", ">", 500000)
```

Google Cloud

Cloud Firestore - Key Advantages

- Highly scalable database

- Multi-regional data replication

- Strong consistency

- Robust client libraries (iOS, Android, front-end Javascript, Node.js, Python, Ruby, Java, PHP, Go, and .NET)

API Challenge

Best Use of Google Cloud - use any Google Cloud product (including Firebase!) to qualify.

Every member of the winning team receives:

- Google Home Mini
- Patagonia Backpack
- Cloud Pillow
- Acrylic Trophy
- Water Bottle

Every member of the runner-up team receives:

- Google Home Mini

Google Cloud

Google Cloud Credit Coupons

Check for an email from Major League Hacking (MLH) for your $100 Google Cloud Platform free credits!

Google Cloud

MLH
MAJOR LEAGUE HACKING

<< Test First Name >>,

We're excited that you've registered or applied for << Test Most Recent Event >> this weekend, and can't wait to see what you build.

To get started, Google Cloud and MLH are sharing $100 of free Google Cloud credits. This gives you access to use the same tools and infrastructure that power Google products for your own project.

Claim your credits:

1. **Login to your preferred Google Account to use during << Test Most Recent Event >>.**
2. **Make sure you can access console.cloud.google.com while signed in.**

Some account domains don't have GCP enabled. If you receive an error message when signing into console.cloud.google.com, use a different account.

CLAIM CREDITS

Check out some of the most frequently used GCP tools:

Cloud AI products

Resources

- **App Engine -** https://cloud.google.com/appengine/

- **Cloud Firestore -** https://cloud.google.com/firestore/

- **Google Cloud AI Products -** https://cloud.google.com/products/ai/

- **ML API Code Samples -** https://github.com/ryanmats/gcp-hackathon-demos

Google Cloud

Questions or Need Help?