



Three Powerful Google Cloud Products for Your Project

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TechTogether Seattle

Google Cloud

Agenda

1

Intro to
Google Cloud

2

App Engine

3

Machine
Learning APIs

4

Cloud
Firestore

5

API Challenge



Google Cloud

About Me

- Alison Gale
- Software Engineer at Google
- Office Location: Seattle, WA
- Brown Class of 2014 (CS)
- UW Class of 2023 (MSDS)
- Hobbies & Interests: Running, hiking, sewing



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.

What is Google Cloud?

Google Cloud 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 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 Platform Products (tl;dr)



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!



App Engine Demo

[Python Flask App Tutorial](#)



Machine Learning on Google Cloud





Puppy or Muffin?



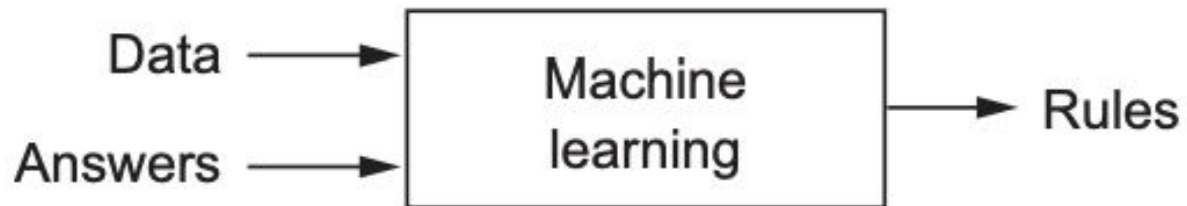
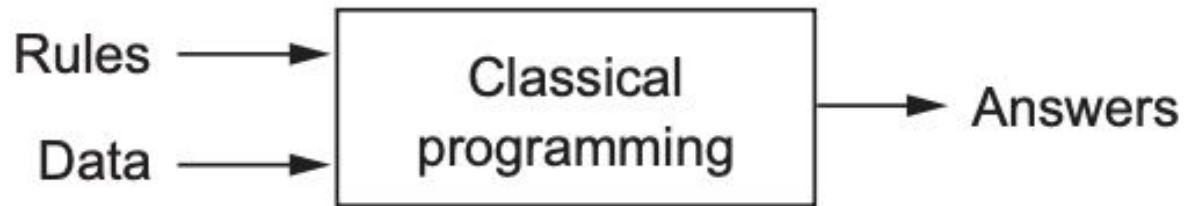


“The brown quick fox jumps over the lazy dog.”

Syntax rules for adjective order in English:

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

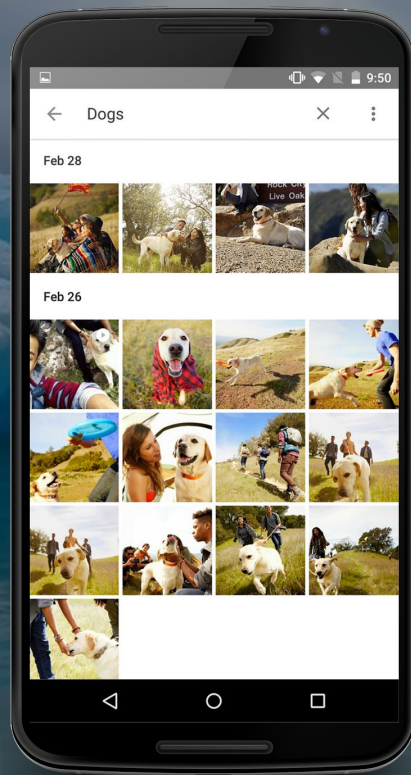
**Machine learning is learning
from rules **plus experience.****



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



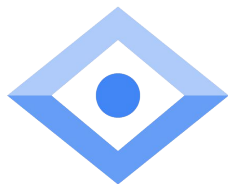
**BUILDING
YOUR
OWN ML MODEL**

**USING
GOOGLE CLOUD
MACHINE
LEARNING APIS**

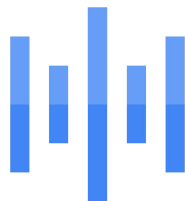
Google Cloud Machine Learning APIs



[Video Intelligence](#)



[Vision](#)



[Speech](#)



[Natural Language](#)



[Translation](#)

Firestore



What is Firebase?



Cloud Firestore

iOS



Hosting



Authentication

iOS C++



ML Kit

iOS



Cloud Storage

iOS C++



Cloud Functions

iOS C++



Realtime Database

iOS C++

Firestore Authentication

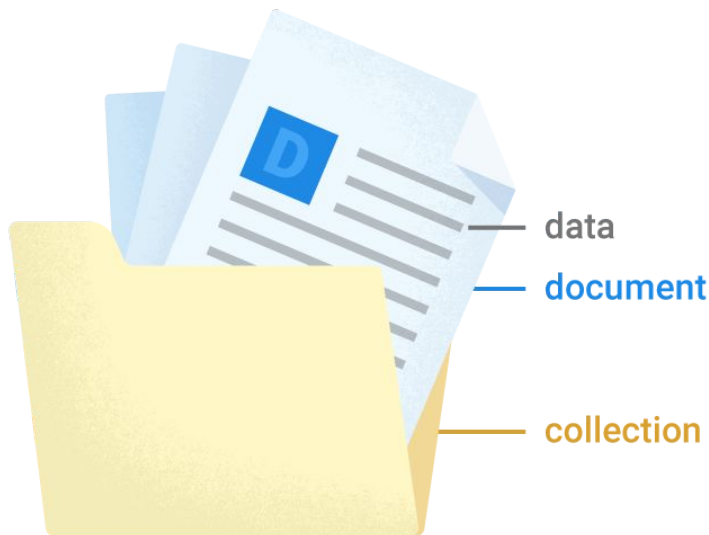


Cloud Firestore

- **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



users



alovelace

first : "Ada"

last : "Lovelace"

born : 1815



sride

first : "Sally"

last : "Ride"

born : 1951

Cloud Firestore - Subcollections

 rooms

 roomA

name : "my chat room"

 messages

 message1

from : "alex"

msg : "Hello World!"

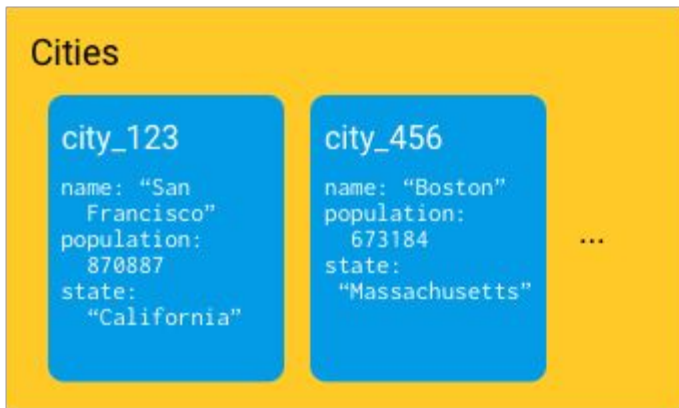
 message2

...

 roomB

...

Cloud Firestore - Easy Querying



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

Firestore Demo

ratesomecats.com



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 (Firebase counts!) to qualify.

Every member of the [winning team](#) receives:

- Patagonia Backpack
- Water Bottle



API Challenge

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

Every member of the [second place team](#) receives:

- Parkland Backpack



Google Cloud Credit Coupons

Check for an email from Major League Hacking (MLH) to activate
\$25 in Google Cloud free credits!



<< 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 _____ 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



Resources

- **App Engine** - <https://cloud.google.com/appengine/docs/standard/python3/quickstart>
- **Vision API** - <https://cloud.google.com/vision/docs/quickstart-client-libraries>
- **Natural Language API** - <https://cloud.google.com/natural-language/docs/quickstart-client-libraries>
- **Cloud Firestore** - <https://firebase.google.com/docs/firestore/quickstart>
- **Google Cloud Hackathon Toolkit** - <https://github.com/GoogleCloudPlatform/hackathon-toolkit>

Questions or Need Help?

