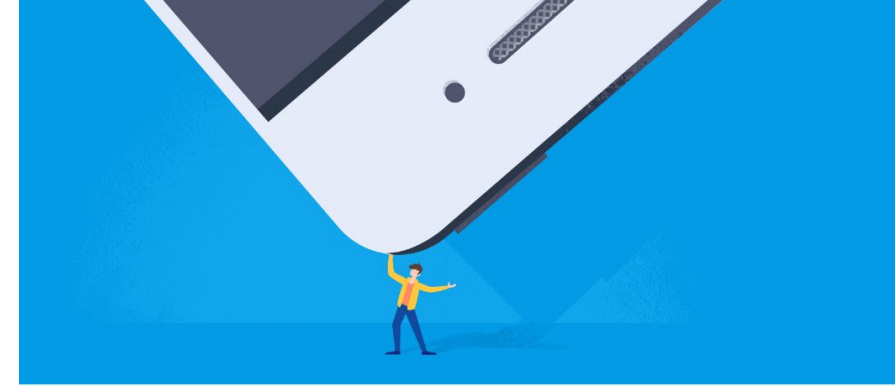CS397: Software Tools & Development
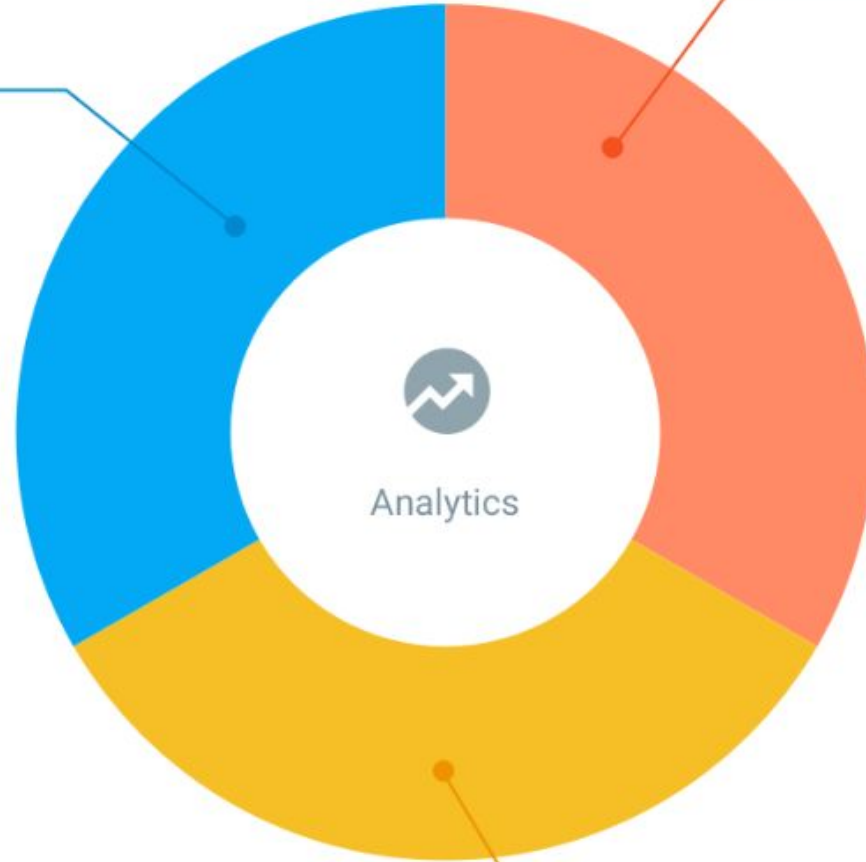
Janie Martin & Nika Pogrebna

# What is Firebase?

- A NoSQL cloud-based database which imports and exports database in JSON format

- Founded in 2011, acquired by Google in 2014

- Provides tools and infrastructure needed to build better apps and grow successful businesses
  - Backend-facing
  - Saves and retrieves data with minimal hassle

- Open-source with upgrade$

- Accessible on different platforms:

**DEVELOP**

Realtime Database

Authentication

Cloud Messaging

Storage

Hosting

Test Lab

Crash Reporting

Functions

**GROW**

Notifications

Remote Config
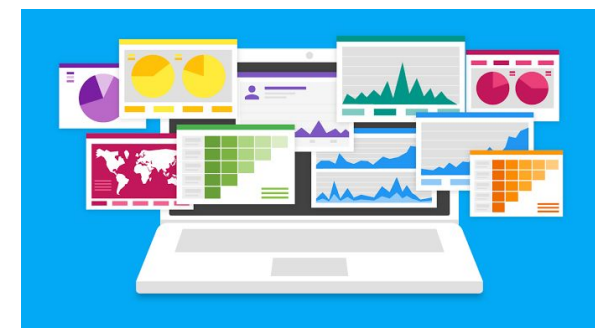
App Indexing

Dynamic Links

Invites

AdWords

**EARN**

AdMob

Analytics

What Firebase offers: https://console.firebase.google.com/project/fir-demo-project/overview

# What is Firebase Analytics?

[Overview video](Overview video)

**Features:**

- Free and unlimited app analytics using real-time SDK

- User insights from acquisition to app usage

- Attributions across dozens of sources

- Segmentation and optimization in one dashboard

# Who Uses Firebase?

- Can you think of developers who could use Firebase Analytics for their apps?

# Who Uses Firebase?

- Can you think of developers who could use Firebase Analytics for their apps?

- Companies that use it:

# Firebase Analytics

- Allows developers to track user behavior and measure attributes
- SDK allows automatic capture of events & properties
- Main Goal: Allow app developers to analyze user behavior in order to optimize their apps and revenue

# 4 Pillars of Firebase Analytics

1. Demographics
2. Retention
3. Engagement
4. Average revenue

# How does Firebase Analytics work?

- Well, first you need an app!

- Link your app to Firebase SDK

- Firebase Analytics records user events and behaviors

- Then, you are able to look at the statistics to make adjustments & customizations to your app!

# Demo

- Demo link: https://goo.gl/r33ox4
- https://console.firebase.google.com/project/fir-demo-project/analytics/app/ios:com.google.flood2/overview

# Requirements/Dependencies

- Depends on OS

- Firebase SDK

- For an iOS app:
  - Xcode 7.0
  - Bundle identifier of your app
  - CocoaPods 1.0.0
  - For Cloud Messaging: physical iOS device & APNs certificate with Push Notifications

- For an Android app:
  - Android Studio 2.3.1
  - A device running Android 4.0 & Google Play services 10.2.1
  - Google Play services SDK from Google Repository

# Firebase Analytics

**STRENGTHS**

- *Custom & Free:* reporting for 500 distinct events that you can define
- *Easy* to use interface
- High level of *documentation, tutorials, & support* available
- Less time spent linking tools with app & with each other
- Less lag and inconsistencies
- Less communication errors between tools
- Scalable
- Flexible price models

**Weaknesses**

- Despite theoretical scalability, some users report performance issues once they surpass ~100GB traffic/month
- Any database logic change results in client app updates
- Not as cost-efficient in the long term as crafting your own code-base
  - Time-efficiency: different story!
- You don't own your data, so you can't export your user data
- Query complexity is limited

# Opportunities & Extensions

Google Product Compatibility

- AdMob
    - Optimizes ad relevancy to user
    - Improves user experience
    - Maximizes ad profits

- Push Notifications
    - Allows you to send highly targeted messages to re-engage and retain your user base

- Remote Config
    - Allows you to change the behavior and appearance of your app on the fly

# Opportunities & Extensions

Zapier integration keeps almost any tools you can think of in synch

- Google Sheets
- RSS feeds
- Webflow forms
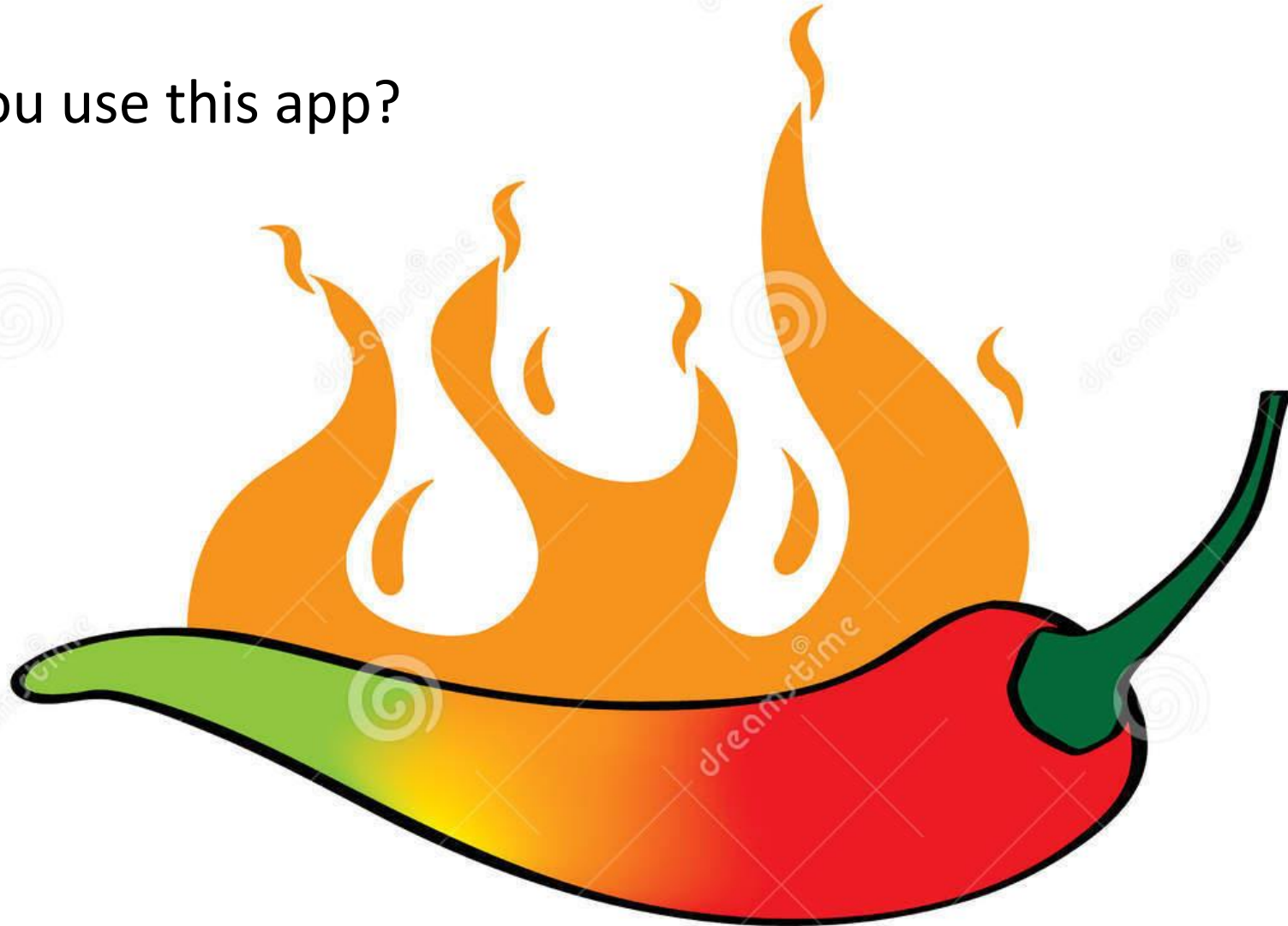- Twilio SMS text messages
- AND MORE!

Third-Party APIs

- Expands what interfaces you can use to build your app so you can find the best fit

# Competitors/Alternatives

|  | Price | Database functionality? | Specialty? |
|---|---|---|---|
| Firebase | • Free<br>• $25/month<br>• pay-as-you-go | Yes | Backend data tracking and robust analytics |
| Pusher | Free → $ 499/month+ | No | Highly scalable real-time layer that sits between servers and clients |
| PubNub | • Free<br>• $49/month<br>• $999/month | No | APIs for developing real-time communication links |

# Thoughts? Questions?

- Would you use this app?

# References

- https://firebase.google.com/features/
- https://firebase.google.com/features/analytics/
-  http://stackoverflow.com/questions/38423632/firebase-scalability
- https://zapier.com/zapbook/firebase/
- https://crisp.im/blog/why-you-should-never-use-firebase-realtime-database/
- Image sources are listed on slides under Notes