### Announcement #1

- Tonight your February plan is due
- Please submit your plan to your Github Classroom Repo by 11:59 PM
- Details regarding the February plan are on the course website

### Announcement #2

- Change your Github classroom repo name to Group#-RepoName
- This will make it easier for the TA to find your submissions
Announcement #3

• Our first weekly standup is on Wednesday
• Each team member will standup and spend up to 60 second describing what they worked on last week and what they plan to do this week.
• Also each team member must submit a peer evaluation by 11:59 PM on the day after the standup
  — The first Peer Evaluation is due by Thursday before 11:59 PM
  — Teams of 1 do not need to fill out the Peer Evaluation Form
• We will post the form on Piazza before class on Wednesday

Firebase ML Kit (from last lecture)

• Backend machine learning functions provided by Firebase
• Comes with a set of pre-trained model.
• Easy to use. Using each of them is like calling an API.
• Can also handle your own Tensorflow model.
• Docs: https://firebase.google.com/docs/ml-kit
  • Codelab: https://codelabs.developers.google.com/codelabs/mlkit-ios/#0
  • Samples: https://github.com/firebase/quickstart-ios/tree/master/mlvision
Other notes about backend

- We think a combination of database, cloud functions and machine learning kit can satisfy many needs for backend in the case of a mobile app.
- But if your app requires more backend support, you can develop fully fledged web apps to achieve that.
- Firebase is integrated into Google Cloud, so if you want to stay within it, Google App Engine is a great choice.
- For those of you who had 330, AWS is also a very popular platform.

ML Kit Demo
Today – Useful SDKs and APIs

**SDK - definition**

- Stands for software development kit
- Can take many forms. Debugger can be called an SDK. An IDE like xcode can also be called an SDK.
- Here, we are interested in API-like SDKs; namely, kits that implement certain functions or features for us so that we don’t need to do that ourselves.
- We will introduce a few SDKs that cover common functions applicable to your app, but you are not limited to those. Many apps on the market use 10+ SDKs.
**SDK - what to expect**

- Firebase can be one of the best SDKs you will encounter.
- Many SDKs don’t have that good of a documentation. Some SDKs don’t have sample code in Swift. Some are not updated for months. Some may not even work.
- When developing this course, we have tried many potential SDKs, and only a fraction of them do what they say they can do.
- So, do research on which SDK is the best for the function you want to have instead of diving into the first one that appears on Google and end up wasting a few hours.

**Direct Messaging**

**Twilio:**

**Pro:**
- Popular SDK for chat and many other functions
- Good docs available
- Reasonable pricing and free usage (200 monthly active users for free)

**Con:**
- Requires APN credentials to set up
Direct Messaging

SendBird:

Pro:
- Another popular chat SDK with docs in both Swift and objective-C.
- Well-built, well-maintained sample apps available.
- Generous free usage (free plan on the right)

Con:
- Parts of sample app UIs are written as XIB files, which is an older way than storyboard and we didn’t cover that in 438

Mesibo:

Pro:
- A somewhat popular chat SDK with decent documentations.
- Generous free usage

Con:
- Documentation only in Objective-C and doesn’t cover every aspect of the SDK
Direct Messaging

chatSDK:

Pro:
- Open source SDK that has ready-to-use UIs and specific steps about how to set up.

Con:
- Its advanced features are not free, and not even cheap. On the right is a screenshot to get a sense about its price.
- Relies on Firebase as the backend, so requires additional setup. You are also responsible for your own storage and security in the backend.

Location service

Google places:

Pro:
- Abundant data for most places in the world
- Good documentation.
- Reasonable Pricing
- Can be combined with Google Maps API and provide holistic map/location support

Con:
- Err...couldn't really think of any?
Google Places Demo

Payment

Apple’s In-App Purchases:

Pro:
- Native to Apple. Very easy to integrate.

Con:
- Only for digital content
- Whopping 30% fee for every sale
Payment

**Stripe:**

**Pro:**
- A popular payment process SDK that works across multiple platforms, not just iOS.
- Works for physical product.
- Reasonable Pricing

**Con:**
- You will need a backend to interact its APIs.

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Crash Report

- Let’s first admit that our apps will crash sometime.
- Some of the most well-coded apps have crashes, so there is no shame in having crashes.
- But we need to learn from them.
- Crash Report SDKs can help us do that. One good SDK is Firebase Crashlytics.
# Bug Report

**Instabug:**

**Pro:**
- A popular SDK for bug and feedback reporting.
- The basic free version is good enough for bug report.

**Con:**
- You can only have one app in the free version.
- The free version doesn’t contain crash reporting.