Mobile Applications

Make an informed decision

% of U.S. adults who own the following devices
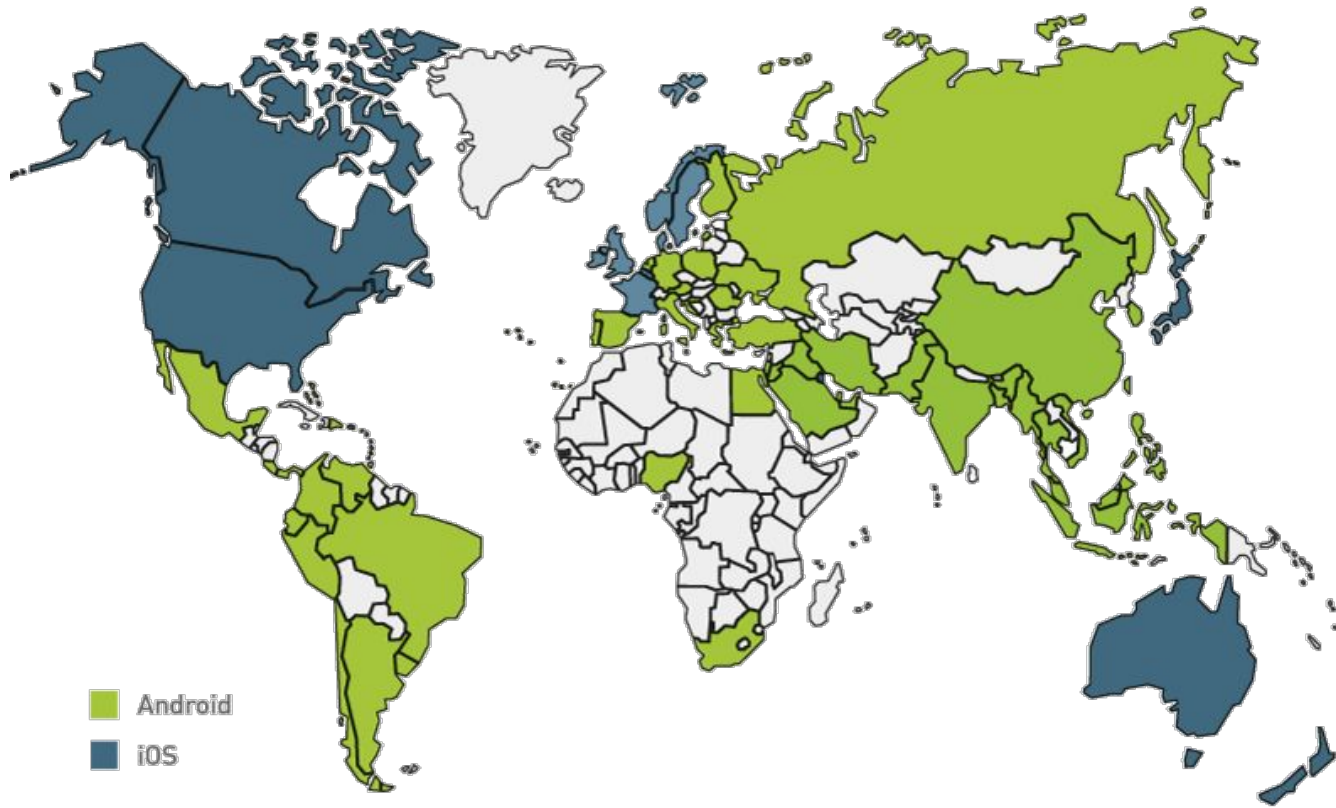
Jan 10, 2018
Smartphone: 77%

Legend: Cellphone — Smartphone
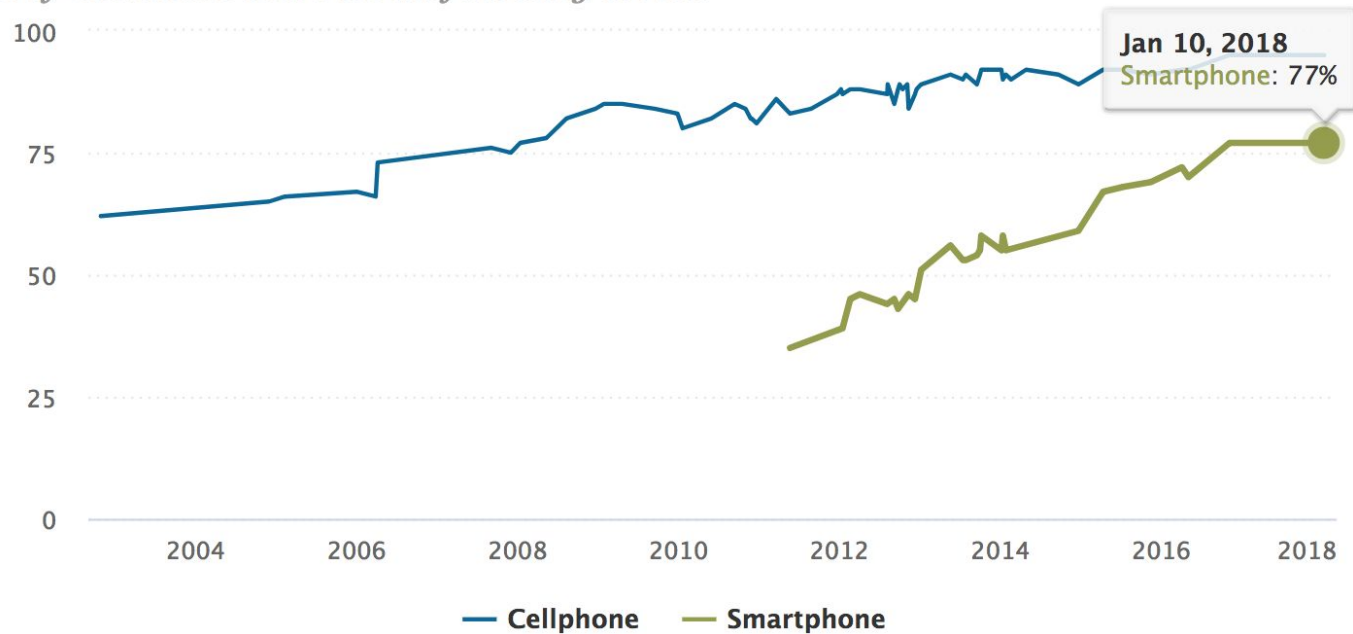
Source: Surveys conducted 2002-2018.

http://www.pewinternet.org/fact-sheet/mobile/

	Any cellphone	Smartphone	Cellphone, but not smartphone
Total	95%	77%	17%
White	94%	77%	17%
Black	98%	75%	23%
Hispanic	97%	77%	20%
Urban	96%	83%	13%
Suburban	94%	78%	16%
Rural	91%	65%	26%

Source: Survey conducted Jan. 3-10, 2018.

http://www.pewinternet.org/fact-sheet/mobile/

Android

iOS

https://android.jlelse.eu/apple-vs-android-a-comparative-study-2017-c5799a0a1683

Total U.S.

3 Month Avg. Ending Apr. 2018 vs. 3 Month Avg. Ending Feb. 2018

Smartphone Subscribers Age 13+

#	Title	Feb-2018	Apr-2018	Point Change
1	Android	53.4%	54.3%	0.9
2	Apple	45.4%	44.6%	-0.8
3	Microsoft	0.8%	0.8%	0.0
4	BlackBerry	0.3%	0.3%	0.0

https://www.comscore.com/Insights/Rankings

Android dominance
iOS dominance
Blackberry dominance
Neutral

Jumptap

https://www.huffingtonpost.com/2011/08/05/iphone-android-state_n_919488.html

Breakdown of App Stores

Apple/iOS App Store

- Costs ~$110/yr ($99 + fluctuating surcharges)
- Roughly 2.25 million apps in the store

Google Play/Android Store

- Costs $25 one time fee
- Roughly 3 million apps in the store

https://www.statista.com/statistics/263795/number-of-available-apps-in-the-apple-app-store/

Developing a Native App

iOS app
Must be built on macOS
Develop in XCode
Uses Swift or Objective-C
Longer store pre-review process

Android app
Build on any operating system
Develop in Android Studio or use plugins
Uses XML and Java
Harder to provide support for all users

Developing a Cross-platform App

Unity app

Unity is free, but you must pay to remove watermark

Knowledge of C# programming language

Same code can be used for kiosk or website version

Web wrapper app

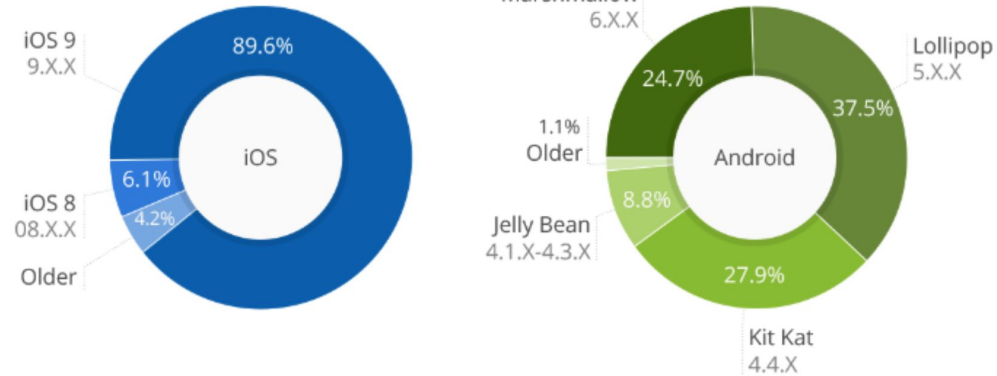Phonegap, Reactive Native, and similar frameworks are free

Knowledge of JavaScript, CSS, and HTML

Some code can be reused for a website version

Both require macOS to export for iOS

https://android.jlelse.eu/apple-vs-android-a-comparative-study-2017-c5799a0a1683

Average Monthly Apps Installed and Used on iPhones in 2017 in Select Countries

Country	Apps Used	Apps Installed
France	39	114
Indonesia	42	113
South Korea	40	112
Japan	37	109
Brazil	40	108
Germany	37	107
China	41	103
India	40	102
Australia	37	100
United States	37	96
United Kingdom	36	90
Mexico	37	89

Apps Used   Apps Installed
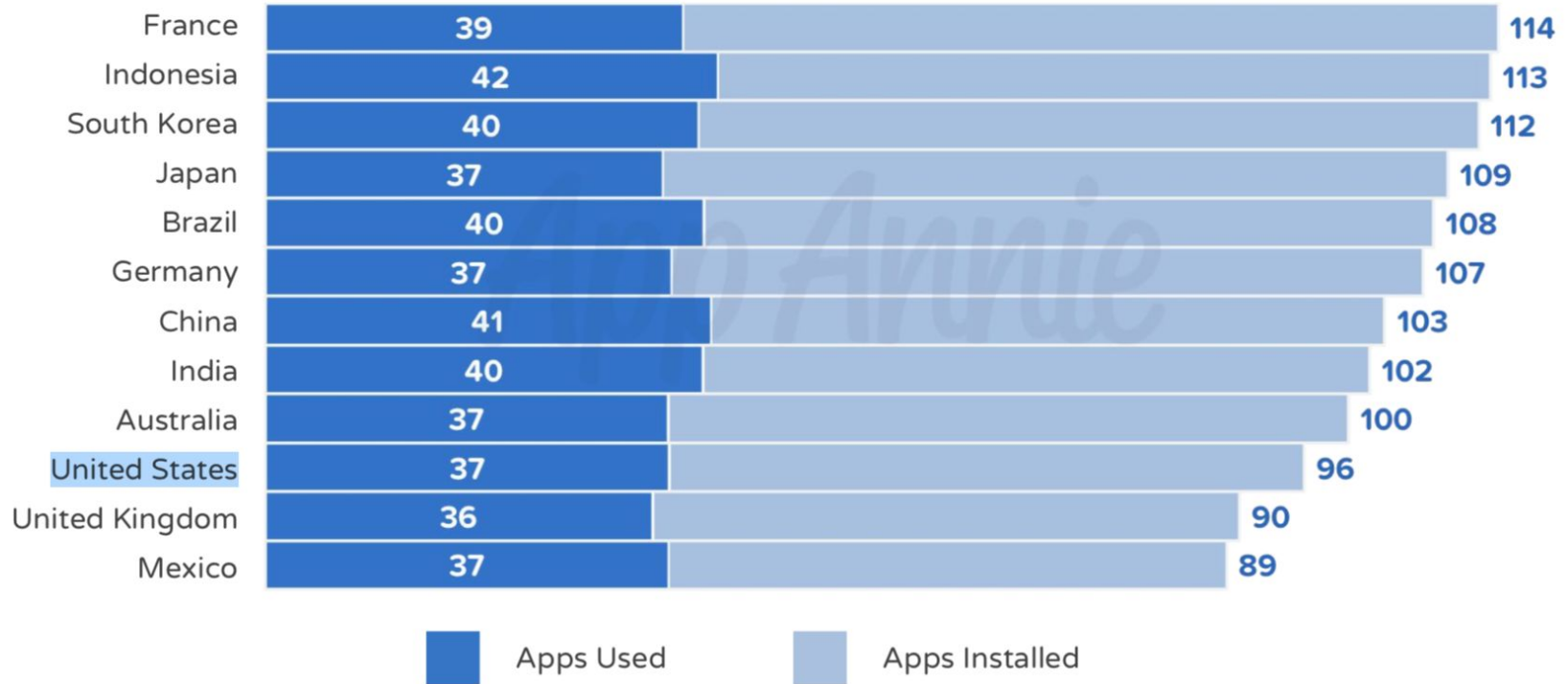
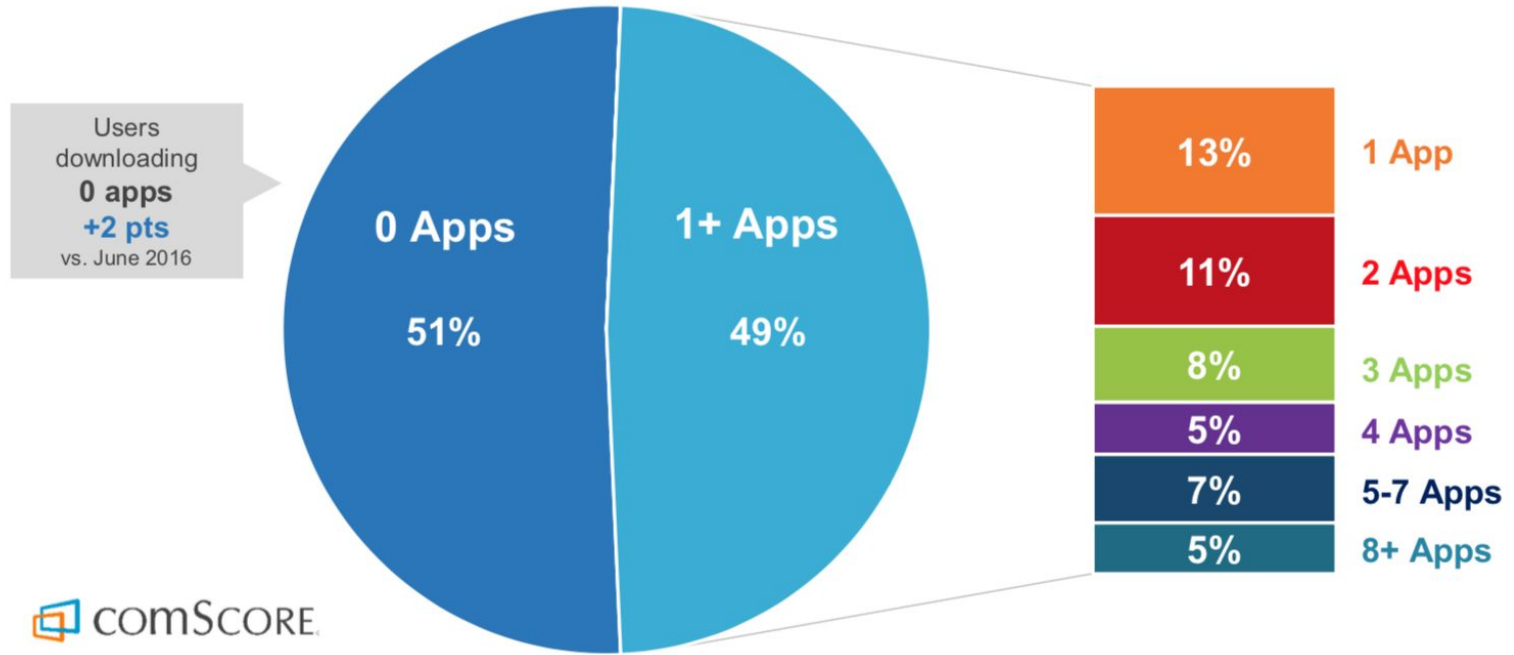App Annie 10 Years iOS App store presentation

Average Number of Apps Used per Day
Smartphone Users, Q1 2017

*China iOS only
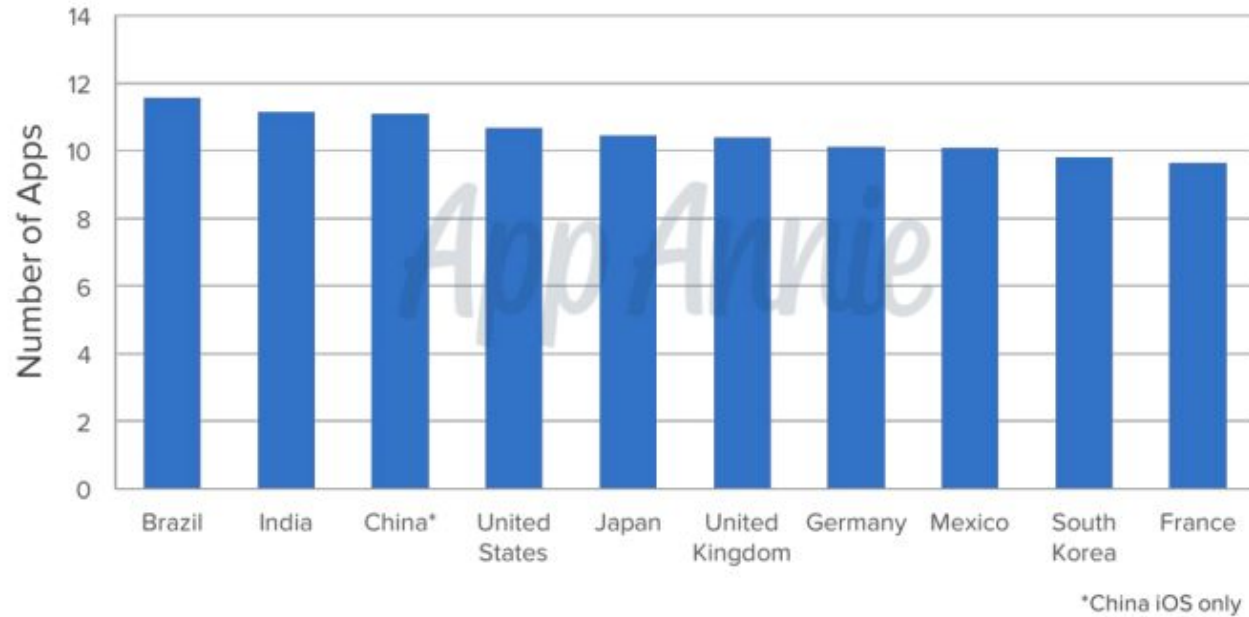
App Annie 10 Years iOS App store presentation

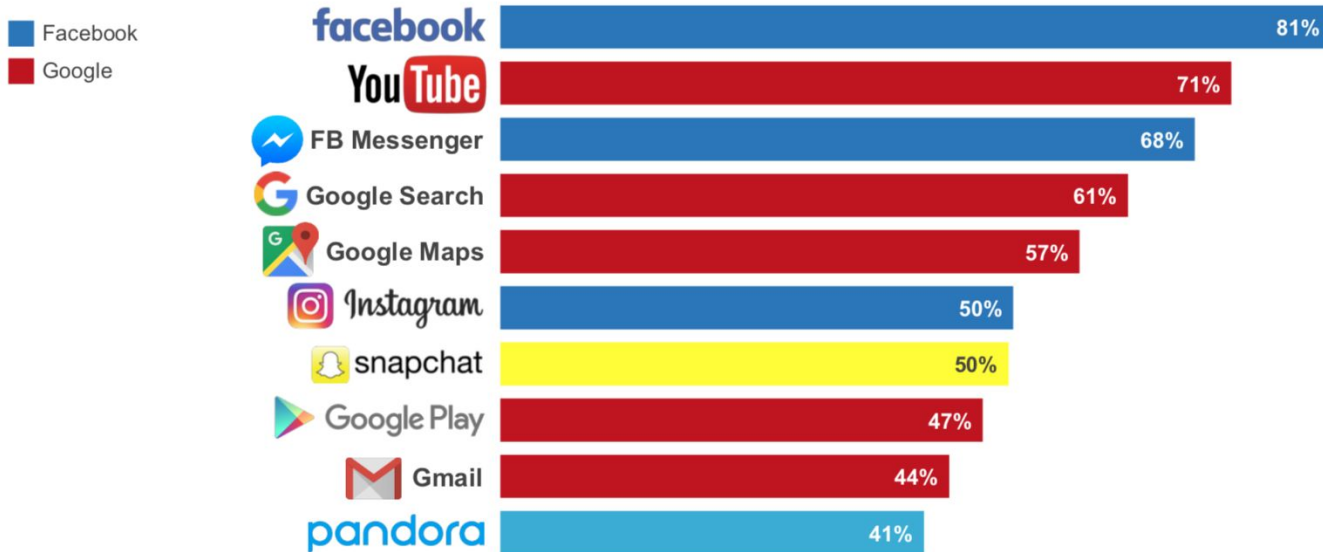Smartphone Users' Number of App Downloads Per Month
Source: comScore MobiLens, U.S., Age 13+, 3 Month Average Ending June 2017

comScore 2017 Mobile App Report presentation
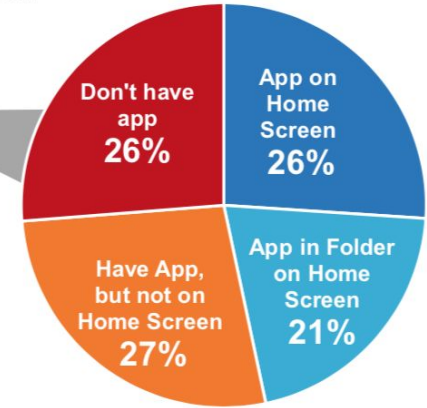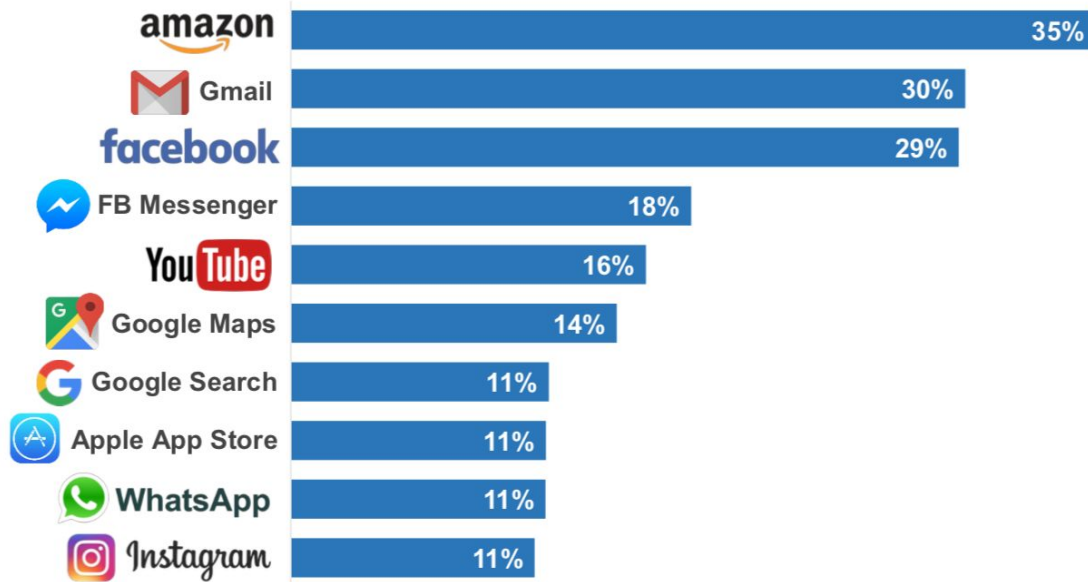
Top 10 Mobile Apps by Penetration of App Audience
Source: comScore Mobile Metrix, U.S., Age 18+, June 2017

comScore 2017 Mobile App Report presentation

Most Essential Apps 18-34 Year-Olds Said They 'Can't Go Without'
Source: comScore Custom Survey, U.S., Age 18+, 2017 Wave

amazon — 35%
Gmail — 30%
facebook — 29%
FB Messenger — 18%
YouTube — 16%
Google Maps — 14%
Google Search — 11%
Apple App Store — 11%
WhatsApp — 11%
Instagram — 11%

Don't have app 26%
App on Home Screen 26%
App in Folder on Home Screen 21%
Have App, but not on Home Screen 27%

* Survey respondents were asked to select their top 3 'most essential' apps (i.e. the apps they couldn't go without) of the apps they own.

comSCORE

© comScore, Inc. Proprietary.

comScore 2017 Mobile App Report presentation

Native App Pros and Cons

- Pro: Native apps are faster and use less battery
- Pro: Native app interfaces directly with the phone's OS
- Pro: You do not have to host anything unless you want to

- Con: Slow update cycle or users may never update your app
- Con: Vying for attention on the device
- Con: Older devices may never see your app

Cross-Platform and Wrapped App Pros and Cons

- Pro: You do not have to host anything unless you want to
- Pro: Write app once and ship to multiple platforms with few changes

- Con: Must interface with phone's OS through secondary system
- Con: Some advanced features may use more battery power than a native app
- Con: Slow update cycle or users may never update your app
- Con: Vying for attention on the device
- Con: Older devices may never see your app

Mobile Apps on the Web

Web technologies now allow you to create mobile experiences in the browser.

- Responsive Web Sites
- Progressive Web Apps

Responsive Web Sites

- Use HTML, CSS, and Javascript on your existing Website
- Code can detect user's device specs and resize itself accordingly
- Visible to search engines

Responsive Web Sites

http://thinkapps.com/blog/development/responsive-web-vs-native-apps/
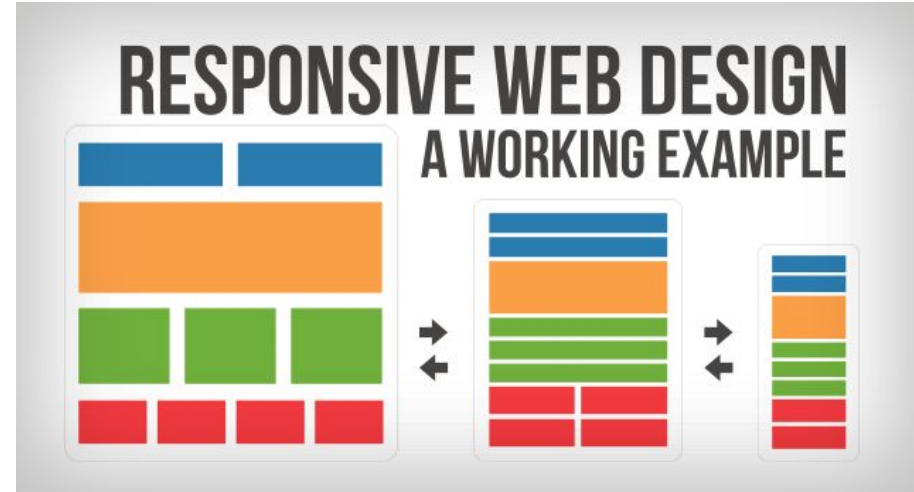
Web Apps and Progressive Web Apps

- Can be saved to the home screen of the device to look and feel like an app
- Limited access to hardware features to feel more like an app
- Use HTML, CSS, and Javascript on your existing Website
- Code can detect user's device specs and resize itself accordingly
- Your page can respond to touches and gestures as if it were an app
- Visible to search engines

Google's definition of Progressive Web Apps

- Must be hosted on an https server
- Must provide app-like interface and be responsive
- Must work offline and load quickly
- Must have add to home functionality
- May store data to user's device
- Must work cross browser

https://developers.google.com/web/progressive-web-apps/checklist

https://sii.im/playground/notes/

Notes

Start typing...

Progressive Web Pros and Cons

- Pro: Full control over update cycle
- Pro: Write app once and ship to multiple platforms with few changes
- Pro: Access to more device hardware features than traditional web site

- Con: Must interface with phone's OS through secondary system (browser)
- Con: Older devices/browsers may not load your app properly
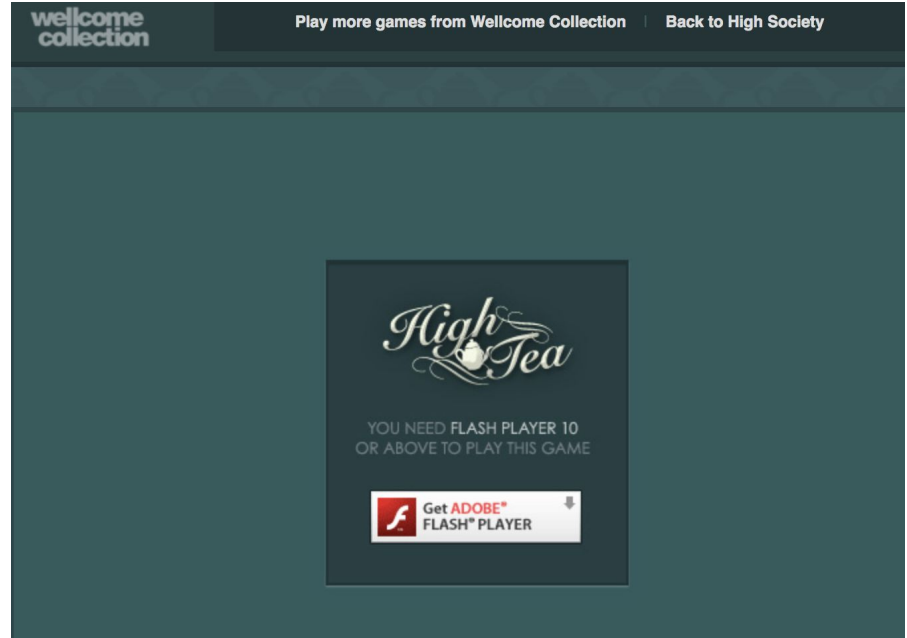- Con: Some hardware features not available (yet)

https://whatwebcando.today/

Native Behaviors

📱 LOCAL NOTIFICATIONS ✓

📶 PUSH MESSAGES ✓

⬇ HOME SCREEN INSTALLATION ✓

⬚ FOREGROUND DETECTION ✓

🔓 PERMISSIONS ✓

Flash App from the Wellcome Collection

- Adobe stopped supporting mobile Flash in 2011
- Android Flash install was disabled in 2012

http://hightea.wellcomeapps.com/

Responsive Web App from Peabody Essex Museum

Mood-O-Meter
- Developed in 2014
- Inspired by BuzzFeed quizzes

http://connected.pem.org/dissecting-our-mood/

Responsive Web App from Peabody Essex Museum

- Series of questions results in a unique painting from the exhibition
- Uses Shake gesture on devices

http://turner.pem.org/

P|E|M

DIAGNOSIS COMPLETE!

YOU'RE FEELING: **CHOLERIC**

MOOD-O-METER

You're feeling excitable, active, and a bit cranky.

This should suit your mood!

YOUR PRESCRIPTION: *Ship Aground, Brighton*

Learn more about the exhibition
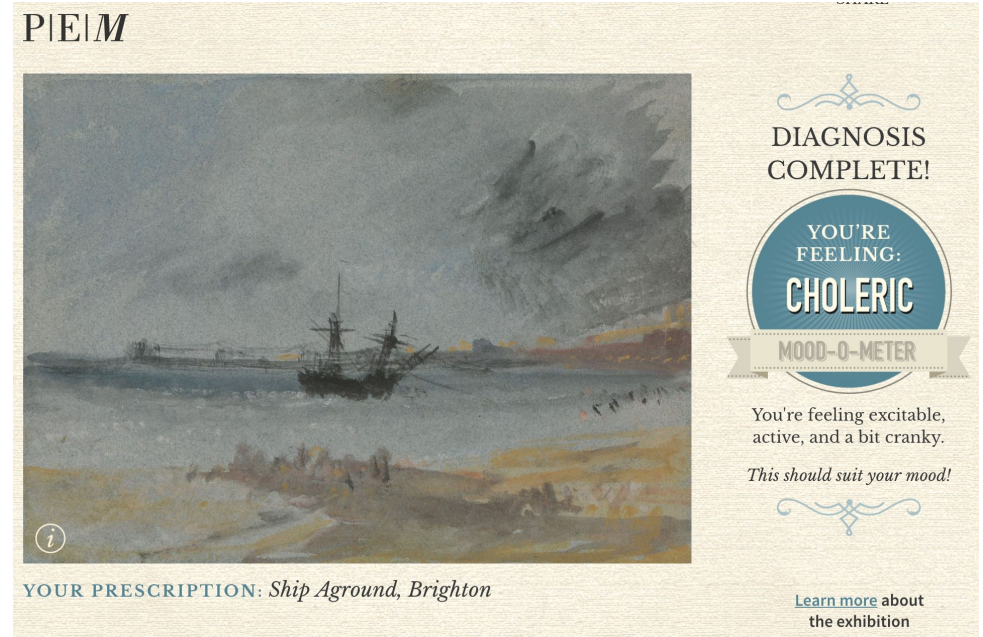
Responsive Web App from Culture24

VanGo Yourself
- Developed in 2015
- Mobile first design
- Accesses Camera

https://mw2015.museumsandtheweb.com/best-of-the-web-winners/

Responsive Web App from Victoria and Albert Museum

Design a Wig
- Developed in 2016
- Designed around touch interface

https://www.vam.ac.uk/designawig/

Social Media Campaign from Metropolitan Museum of Art

#EMPTYMET
- Started in 2014
- Capitalizes on instagram celebrities spreading content
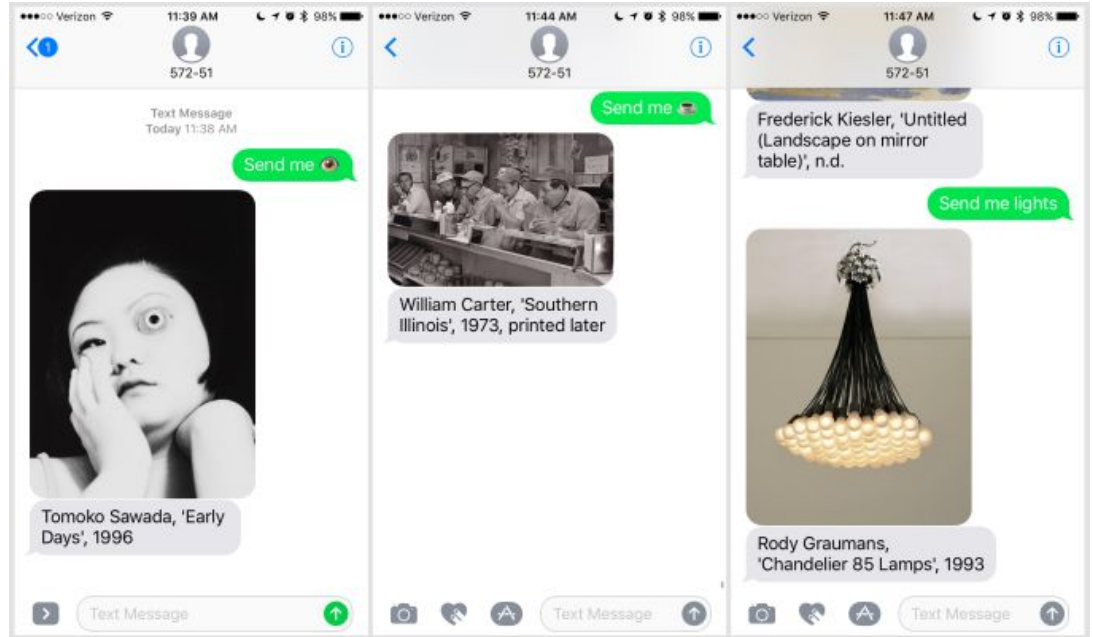

http://stories.davekrugman.com/emptymet

Text Messaging Interface from SFMOMA

SendMe
- Developed in 2017
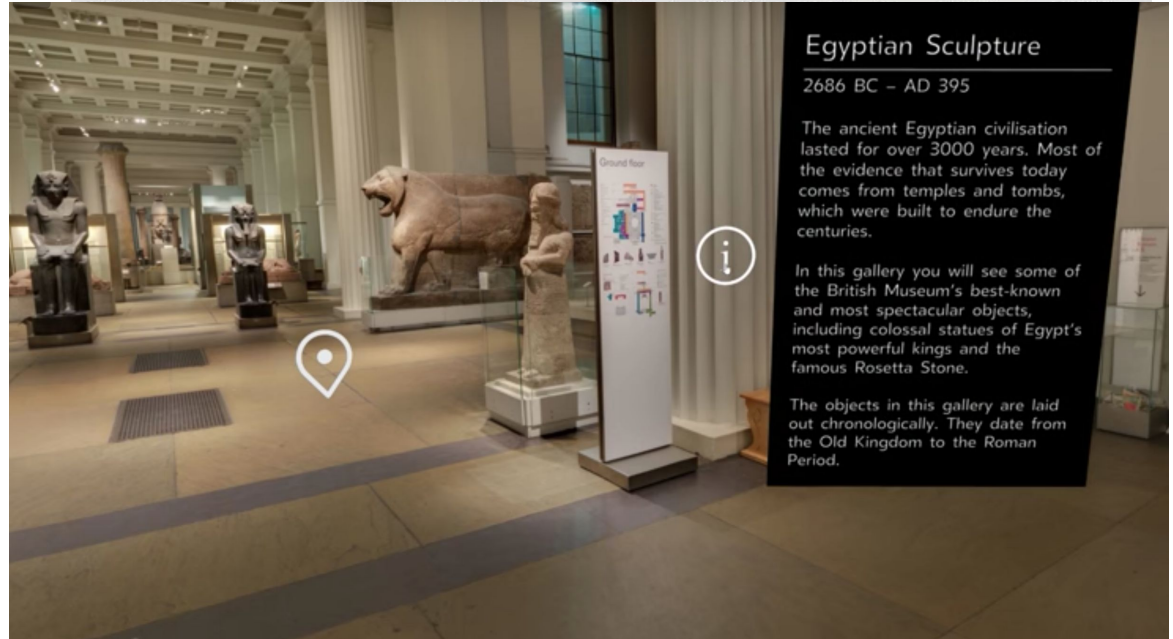- Uses phone's text app to interface to database

https://techcrunch.com/2017/07/10/you-can-text-sfmoma-and-it-will-respond-with-art-on-demand/

Facebook/Oculus VR from The British Museum

Virtual Reality Tour
- Developed in 2017
- Found via Facebook

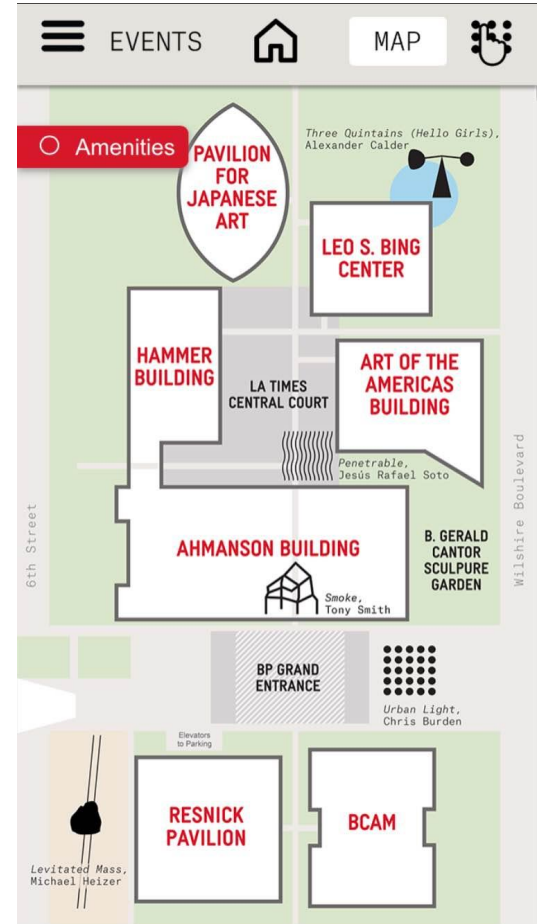https://blog.britishmuseum.org/new-virtual-reality-tour-with-oculus/

Native app from LACMA

- Developed in 2010
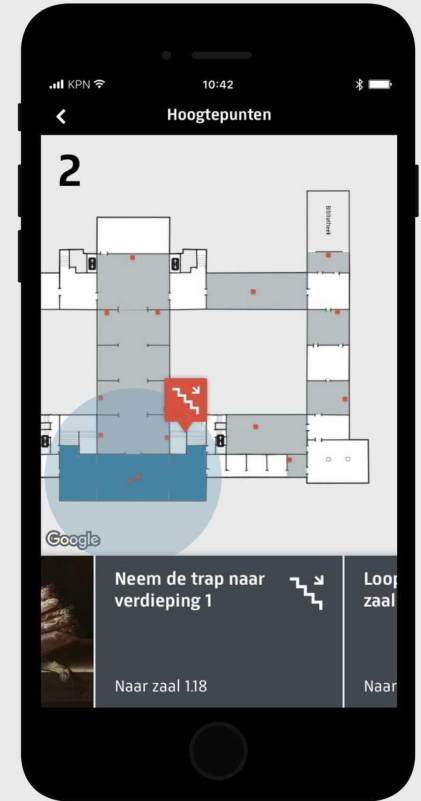- Updated every year
- Nothing that could not be done in PWA

itunes.apple.com/us/app/lacma/id409488167
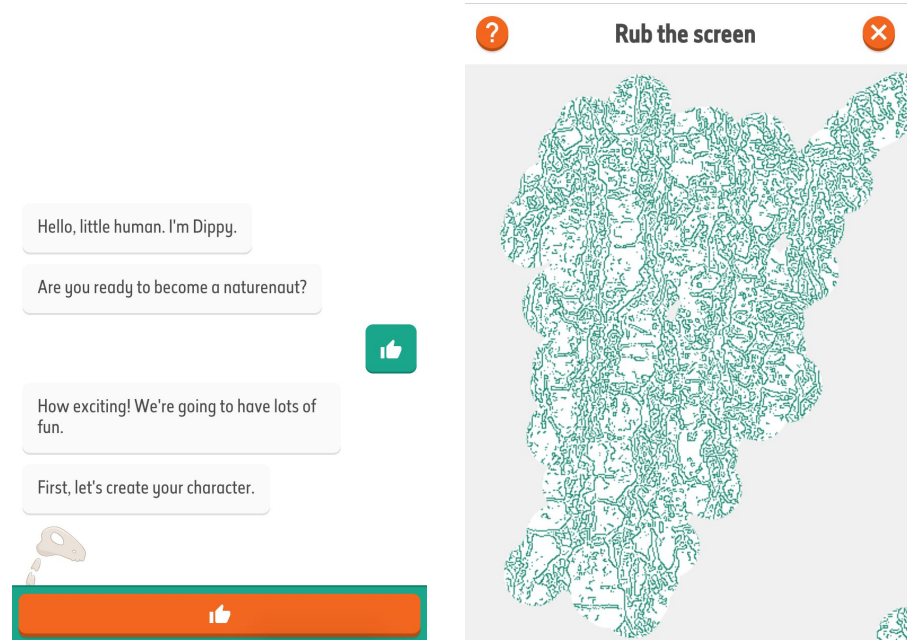
Native app from Rijksmuseum

- Developed in 2013
- Updated every year
- Nothing that could not be done in PWA

itunes.apple.com/gb/app/rijksmuseum/id621307961

Progressive Web App from London's Natural History Museum

- Developed in 2018
- Mascots speak to kids in fake texts
- Heavily uses camera

https://www.nhm.ac.uk/naturenauts

Native App from Google Arts & Culture

- Released in 2018
- Matches your face to art
- PWA version eliminates camera features

http://money.cnn.com/2018/01/15/technology/google-art-selfie-app-how-to/index.html
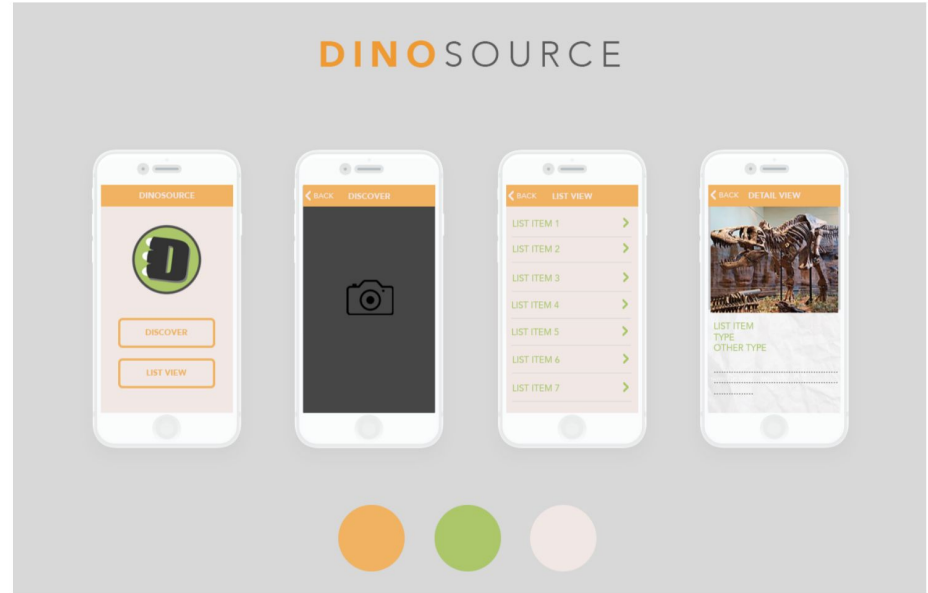
Native App from Google Arts & Culture

- Blocked in Texas
  and Illinois
  because of their
  privacy laws

http://time.com/5106798/google-selfie-app-not-work-states/

Native App for NMHU Practicum Project

- Developed in 2018
- Chose native app because of text recognition framework

Native App for Coronado Historic Site

- Developed in 2015
- Could be PWA now

Practicum class cost and schedule

- $1500-$3000 depending on size of the project.
- Employs multiple students and an academic advisor
- Fall and Spring semester timelines (3-4 mo. timeframe)
- Send proposal as soon as you have an idea