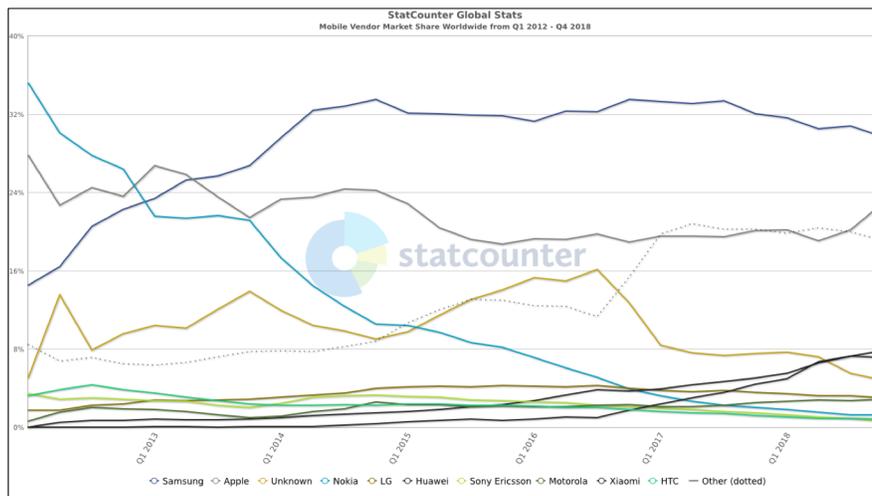# CSC 581: Mobile App Development

Spring 2019

The iOS landscape

- iPhone/iOS market share
- iOS history
- iOS architecture
  - Cocoa Touch, media layer, core services, core OS
- iOS development
  - XCode & Swift

1

Vendor market share: worldwide

Samsung has 30% of the worldwide mobile market, Apple 22%

StatCounter Global Stats
Mobile Vendor Market Share Worldwide from Q1 2012 - Q4 2018

◇ Samsung ◇ Apple ◇ Unknown ◇ Nokia ◇ LG ◇ Huawei ◇ Sony Ericsson ◇ Motorola ◇ Xiaomi ◇ HTC — Other (dotted)

http://gs.statcounter.com/vendor-market-share/mobile

2

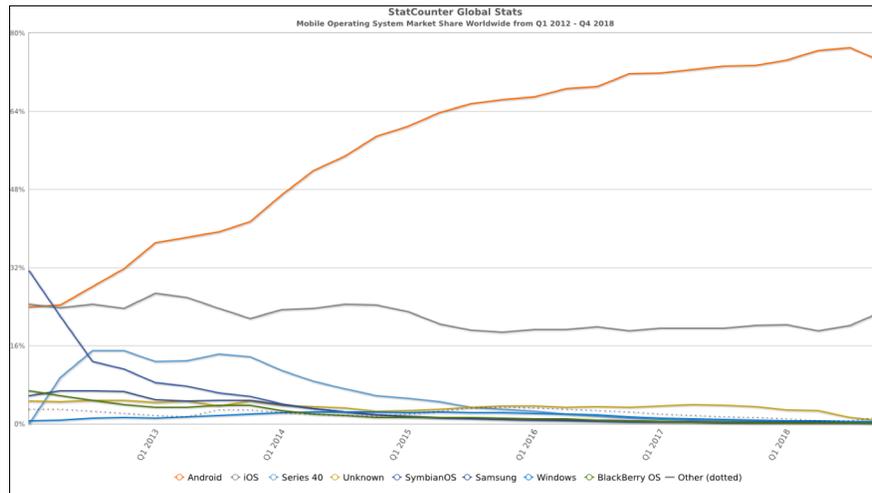
1

iOS market share: worldwide

important to note that the Android OS is supported by many vendors

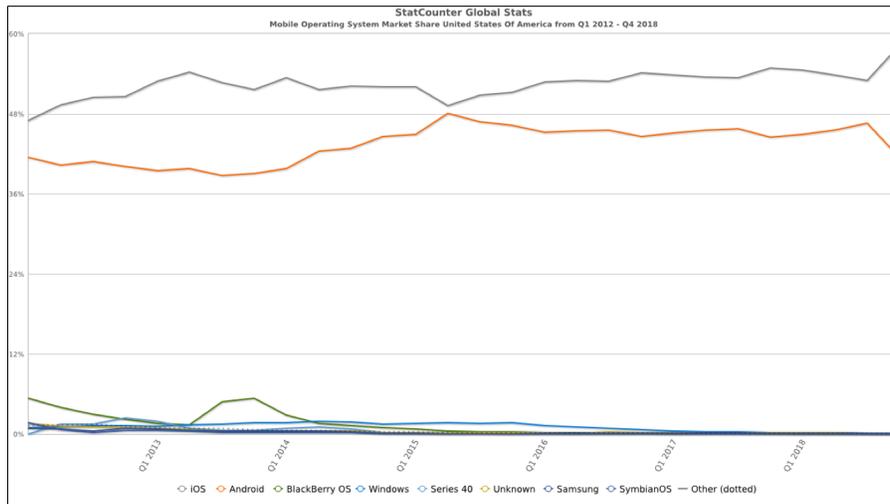- Android has 75% of the worldwide mobile market, iOS 22%

StatCounter Global Stats
Mobile Operating System Market Share Worldwide from Q1 2012 - Q4 2018

◇ Android ◇ iOS ◇ Series 40 ◇ Unknown ◇ SymbianOS ◇ Samsung ◇ Windows ◇ BlackBerry OS — Other (dotted)

3

Vendor market share: U.S.

in the US, however, Apple leads the market with 58%, Samsung 22%

StatCounter Global Stats
Mobile Vendor Market Share United States Of America from Q1 2012 - Q4 2018

◇ Apple ◇ Samsung ◇ LG ◇ Motorola ◇ HTC ◇ Unknown ◇ Nokia ◇ ZTE ◇ RIM ◇ Google — Other (dotted)
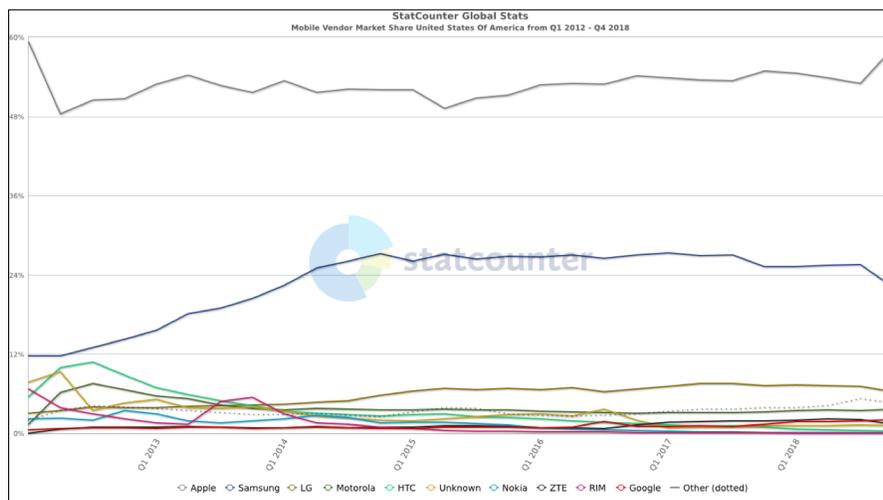
4

iOS market share: U.S.

in the US, iOS leads the market with 58%, Android 41%

StatCounter Global Stats
Mobile Operating System Market Share United States Of America from Q1 2012 - Q4 2018

◇ iOS ◇ Android ◇ BlackBerry OS ◇ Windows ◇ Series 40 ◇ Unknown ◇ Samsung ◇ SymbianOS — Other (dotted)

5

Profits vs. volume

unit volume can be a misleading measure
- Samsung and other manufacturers sell many low-end models
- Apple sells only high-end phones, with high profit margins
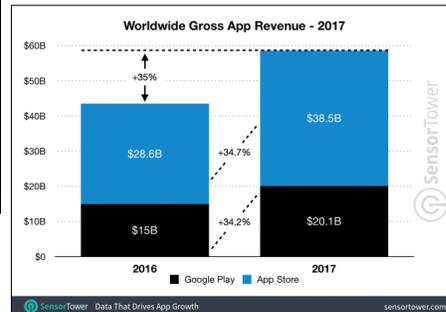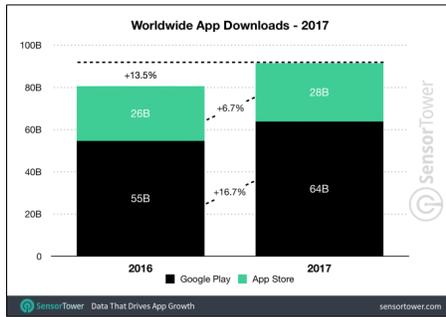- as a result, Apple brings in 62% of all mobile phone profits

Global Handset Profit Share by Brands - Q2 2018

■ 2016 Q2   ■ 2017 Q2   ■ 2018 Q2

62%

17%

8%

5%

4%

3%

Apple   Samsung   Huawei   OPPO   Vivo   Xiaomi

Counterpoint

6

3

Downloads vs. profits

from a developer perspective,
- more apps are downloaded from the Google Play Store
- but revenue is much higher at the Apple App Store

---

iOS history

the iOS mobile operating system was released with the iPhone in 2007
- based on the MacOS, written in C, C++ and Objective-C
- extended to support iPod Touch (2007) and iPad (2010)
- major versions are released annually – iOS 12 (Sept 2018)

- initially, 3rd party app development was not supported
    Steve Jobs wanted new apps to utilize the Web interface
- in 2008, the iPhone SDK was released for developing native apps
    the XCode IDE was extended for iOS development (in addition to MacOS)
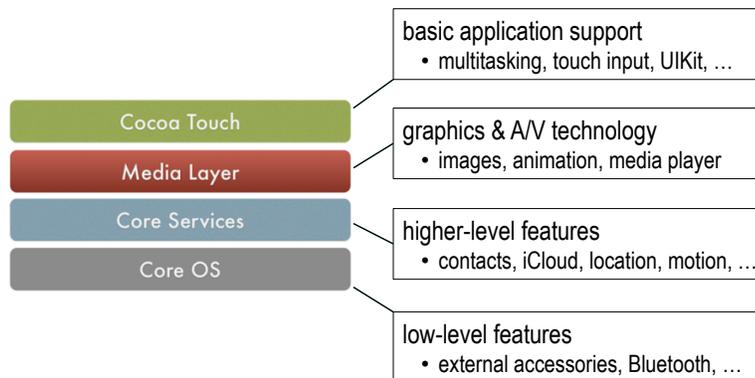
the iOS App Store opened in July 2008
- initially, 500 apps available
- by July 2017, 3+ million apps & games available
- by July 2017, cumulative number of downloads exceeded 180 billion

iOS architecture

iOS is a layered architecture
- apps interact with the hardware through well-defined system interfaces

Cocoa Touch	**basic application support** • multitasking, touch input, UIKit, …
Media Layer	**graphics & A/V technology** • images, animation, media player
Core Services	**higher-level features** • contacts, iCloud, location, motion, …
Core OS	**low-level features** • external accessories, Bluetooth, …

9

---

iOS development

Apple utilizes a single IDE, XCode, for development on all its platforms
- released in 2003, based on the Project Builder IDE developed at NeXT
    - could support many languages, but primarily used with Objective-C
- 3.x series (2008) added support for iOS development
- 4.x series (2010) consolidated editing tools and Interface Builder into one IDE

- 6.x series (2014) introduced the Swift programming language
- Swift is a much simpler language than Objective-C (but utilizes the Objective-C runtime library, and can coexist in a project)
    - fully object-oriented, but borrows heavily from scripting languages
    - e.g., type inferencing, simple list/dictionary data structures, streamlined syntax

```
NSString *str = @"hello,";
str = [str stringByAppendingString:@" world"];
```
vs.
```
var str = "hello,"
str += " world"
```

10

Questions

1. Do you own a smartphone? If so, what brand? What were the driving forces that led you to select that particular brand? If you don't own a smartphone, what is the primary reason you do not.

2. If you have a smartphone, how many apps do you have installed? What apps do you use most often? If you don't have a smartphone, what apps do you miss having the most?

3. Researchers have recently coined the term *nomophobia* (short for no-mobile-phone-phobia) to describe the anxiety that many people have when separated from their mobile phones. Do you feel that you suffer from some degree of nomophobia? If not you, perhaps someone you know? Describe your (or their) feelings/behaviors. Do you feel that people's dependence on mobile devices is becoming unhealthy?

4. The History of iOS article outlines each release of iOS (originally iPhone OS) and describes the major new features in each. Which release (after the first, of course), do you feel was most significant? That is, which new release introduced new features that had the greatest impact on the mobile phone sector. Justify your selection.

11