

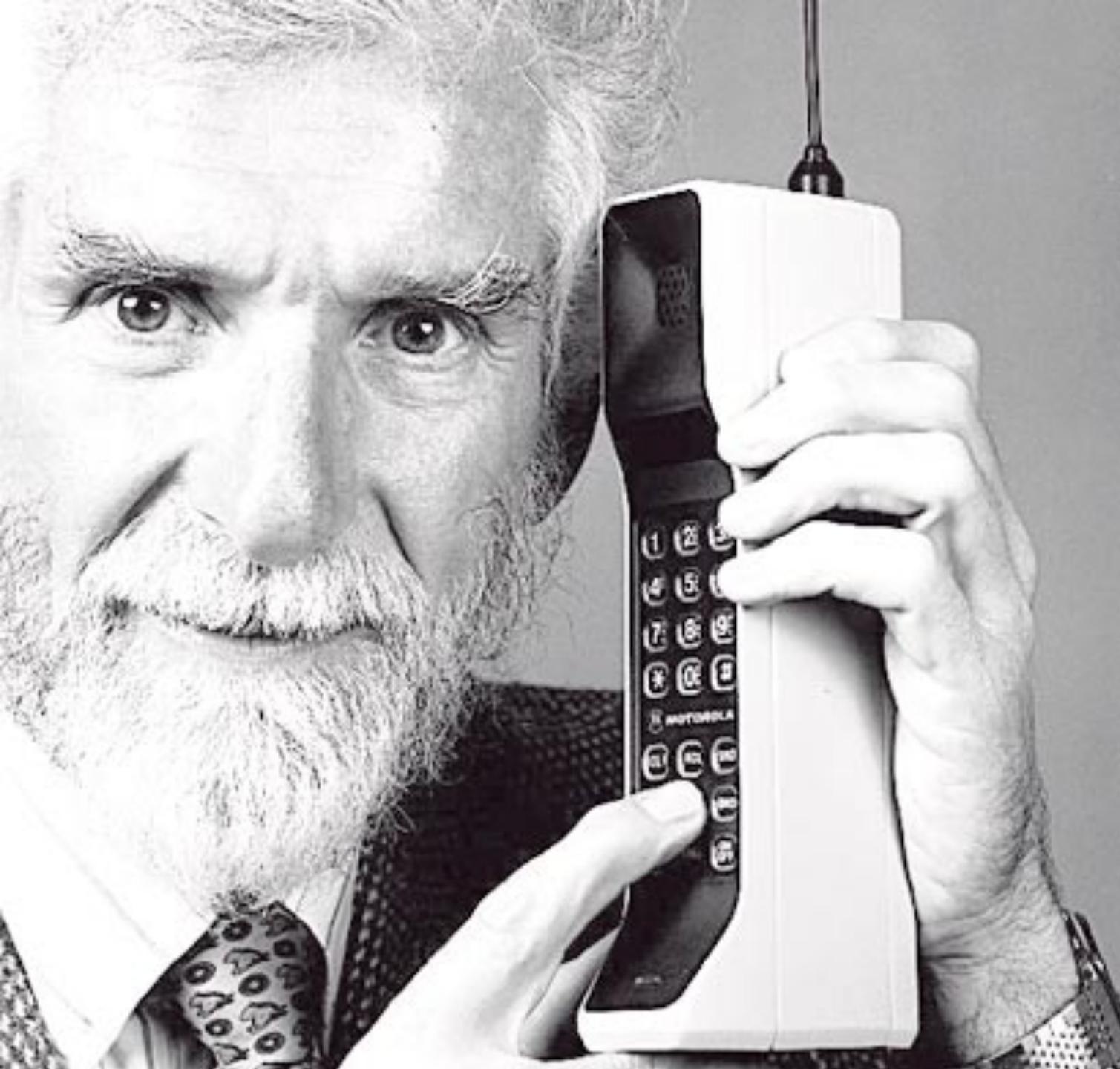
PRACTICAL ANDROID PROGRAMMING

COMP 41690

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>

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A BRIEF HISTORY



The first mobile phone call was made on **April 3, 1973**, by Motorola employee Martin Cooper. Using a prototype **DynaTAC** (DYNamic Adaptive Total Area Coverage) cell phone, Cooper stood near a 900 MHz base station on Sixth Avenue, between 53rd and 54th Streets, in New York City and placed a call to the headquarters of Bell Labs in New Jersey.

The prototype had a talk time of just 30 minutes and took 10 hours to re-charge.

1983

10 years later Motorola's DynaTAC cellular phone was made available to the public.

Weighing under 1KG and costing nearly \$4,000.

It worked on AMPS (Advanced Mobile Phone System), North America's first 1G analog service, launched first by Ameritech in Chicago.

AMPS were eventually superseded by Digital AMPS (D-AMPS) in 1990, and AMPS service was shut down by most North American carriers by 2008



THE COMPETITION

1982

Nokia's Mobira Senator weighing in at just under 10kg.



1984

The Mobira Talkman brought talk time of several hours at cheaper costs.



1989

Motorola's MicroTAC introduced the first flip phone design. It was truly the world's first pocket phone.



1992

The Motorola International 3200 became the first hand-sized digital mobile phone that used 2G digitally encrypted technology (unveiled in 1991 as GSM).



1999

The **Nokia 3210** sold over 160 million.

One of the first to allow picture messages, but only preinstalled ones like "Happy Birthday".

One of the first to be marketed toward young people.

The **Nokia 7110** was the first cell phone to incorporate Wireless Application Protocol (WAP).

Gave mobile users web access.

A stripped-down, mostly text version, but a revolutionary step for mobile internet.



SMARTPHONES

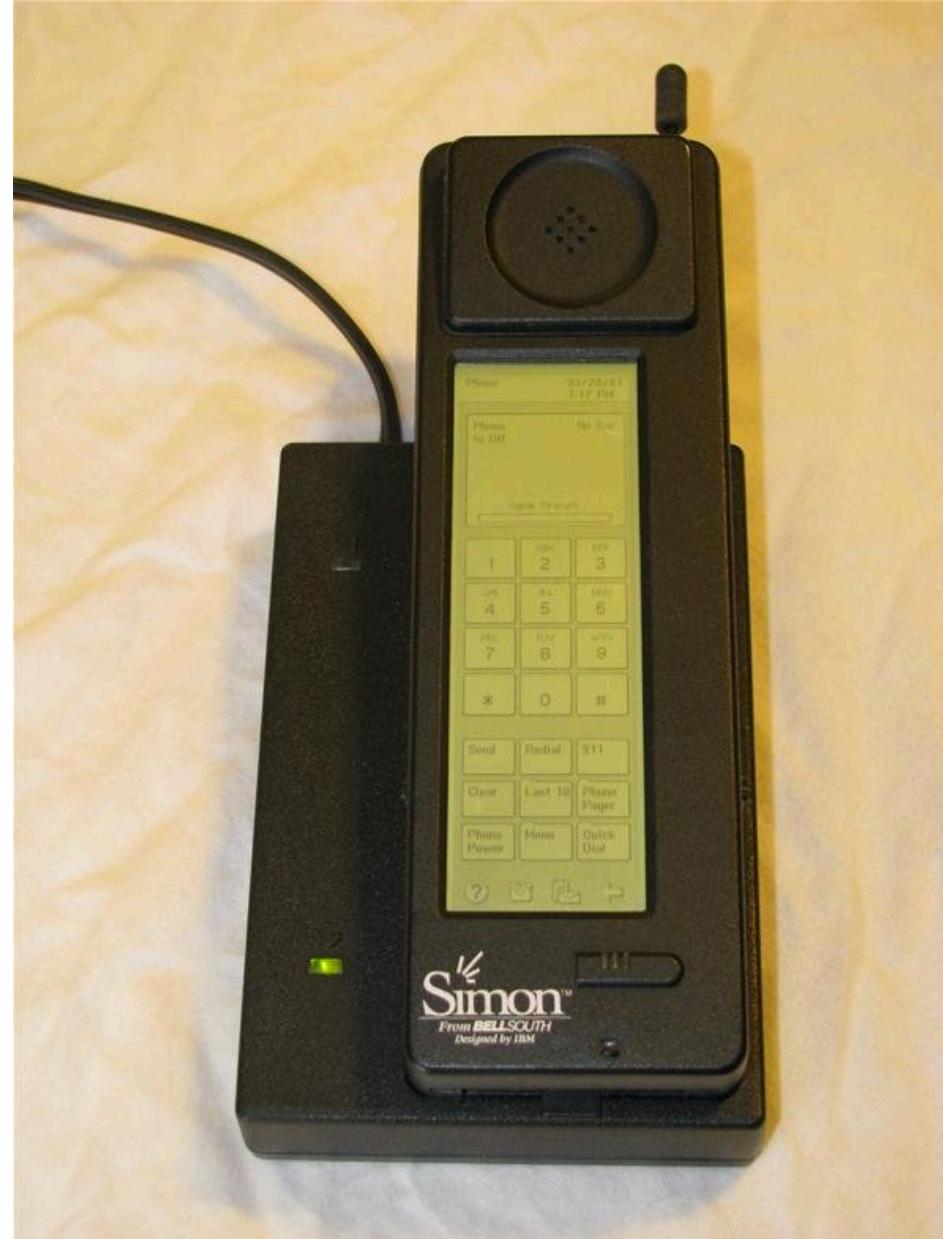
1993

The IBM SIMON was the world's first smartphone.

It was a mobile phone, pager, fax machine and PDA, all rolled into one.

It included a calendar, address book, clock, calculator, notepad, email, games and a touchscreen with QWERTY keyboard.

It originally sold for \$899.



1997

Nokia 9000
Communicator

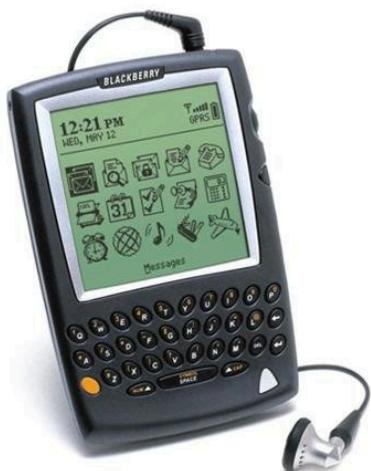
Weighed 397g
24MHz CPU
8MB of memory, which was divided up so that which is divided between:
Applications (4MB),
Program memory (2MB)
User data (2MB)



2002

RIM's BlackBerry 5810 incorporated a mobile phone into their data-only devices.

Professionals who needed immediate access to emails and schedules were the main target.



2002

Microsoft's Pocket PC Phone Edition started spreading across PDAs, including the HP Jornada 928 Wireless Digital Assistant.

2005

Palm Treo 700w



2007

Apple introduced the iPhone, a revolutionary touchscreen smartphone.

It wasn't the first smartphone, but it was the first to get the user interface right.

Eventually adapting 3G technology
(which had been available since 2001).



Apple Reinvents the Phone with iPhone

MACWORLD SAN FRANCISCO—January 9, 2007—Apple® today introduced iPhone, combining three products—a revolutionary mobile phone, a widescreen iPod® with touch controls, and a breakthrough Internet communications device with desktop-class email, web browsing, searching and maps—into one small and lightweight handheld device. iPhone introduces an entirely new user interface based on a large multi-touch display and pioneering new software, letting users control iPhone with just their fingers. iPhone also ushers in an era of software power and sophistication never before seen in a mobile device, which completely redefines what users can do on their mobile phones.

“iPhone is a revolutionary and magical product that is literally five years ahead of any other mobile phone,” said Steve Jobs, Apple’s CEO. “We are all born with the ultimate pointing device—our fingers—and iPhone uses them to create the most revolutionary user interface since the mouse.”

https://www.youtube.com/watch?v=t4OEsl0Sc_s

phones took on many roles...





Store

Mac

iPod

iPhone

iPad

iTunes

Support

Search

iPhone

Features

Design

iOS 4

Apps for iPhone

Gallery

Tech Specs

Buy iPhone

Over 200,000 ways to make iPhone even better.

The apps that come with your iPhone are just the beginning. Browse the App Store to find hundreds of thousands more, all designed specifically for iPhone. Which means there's almost no limit to what your iPhone can do.



The world's largest collection of mobile apps.

The App Store is the ultimate source for mobile apps—200,000 and counting in practically every category. Many new apps are added every day.



Download apps with a tap.

Getting apps onto your iPhone couldn't be simpler. Just find the ones you want, then tap to download them.

omnipresent phones replace omnipresent PCs—in some areas



Get updates fast.

One tap. And when newer versions of your apps are available. Download the updates one at a time or all at once.



Find more perfect apps.

The Genius feature recommends new apps based on ones you already have. Or you can browse best sellers, staff picks, and more.



Apps for iPhone



Apps for Cooks



Apps for the Great Outdoors



Apps for Keeping Current

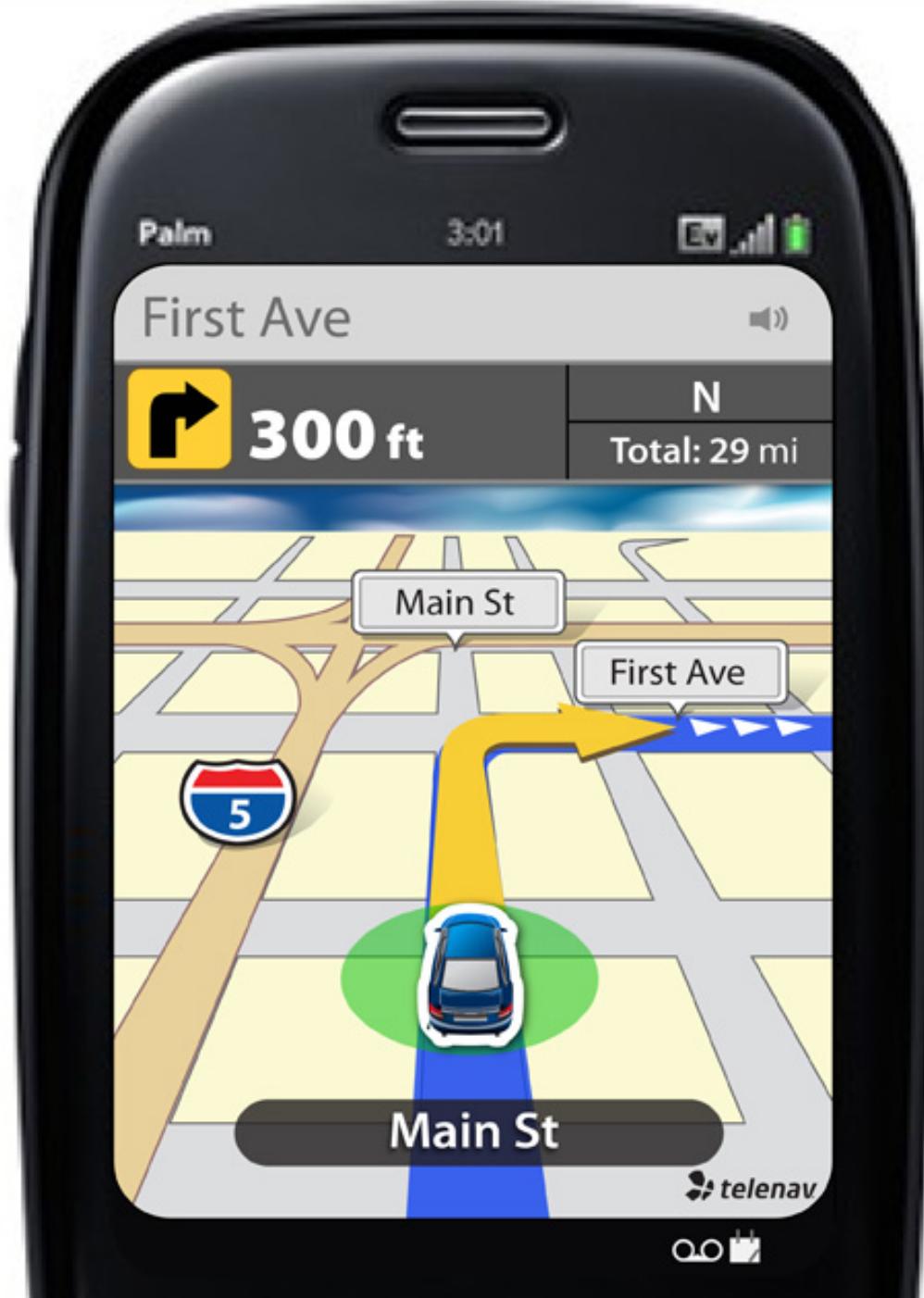


Apps for Work



Apps for Music







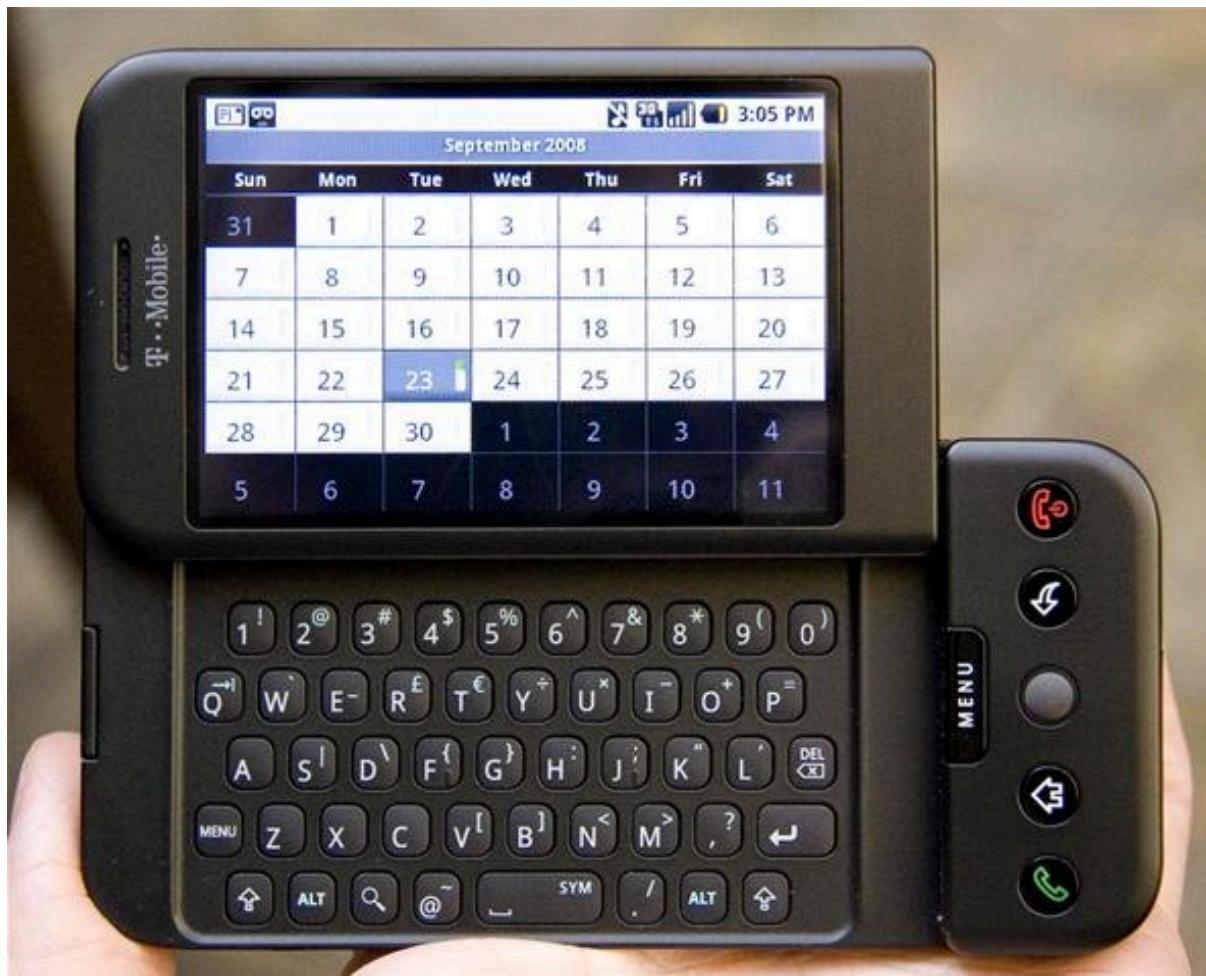
Most Recent

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Actions



2008



The first smartphone to run Google's Android OS was the HTC Dream slider smartphone.

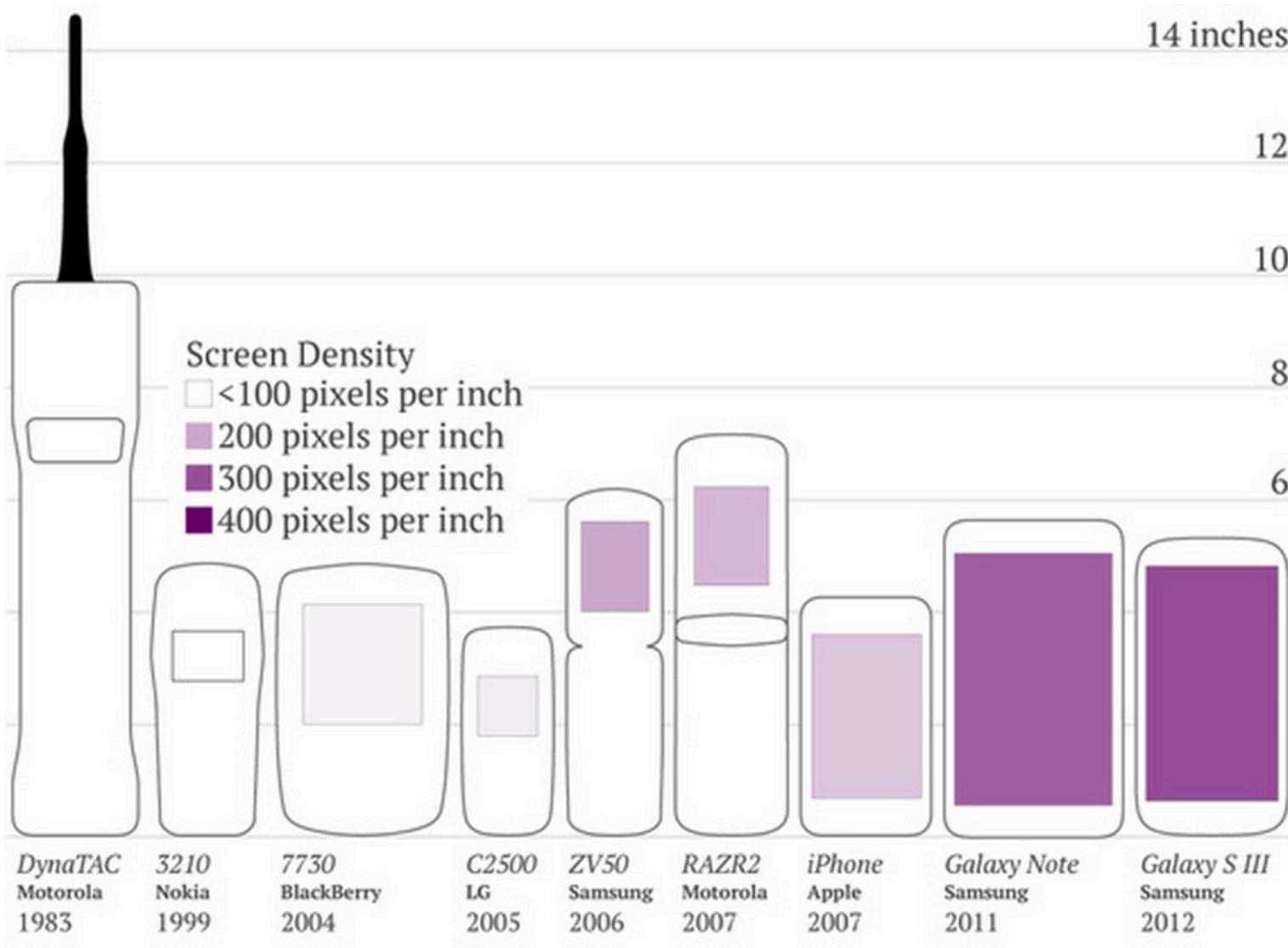
It featured a QWERTY keyboard, full HTML web browser, Gmail, YouTube ...

2010



The HTC EVO 4G was the first cellular phone to meet 4G standards, running on the WiMAX network.

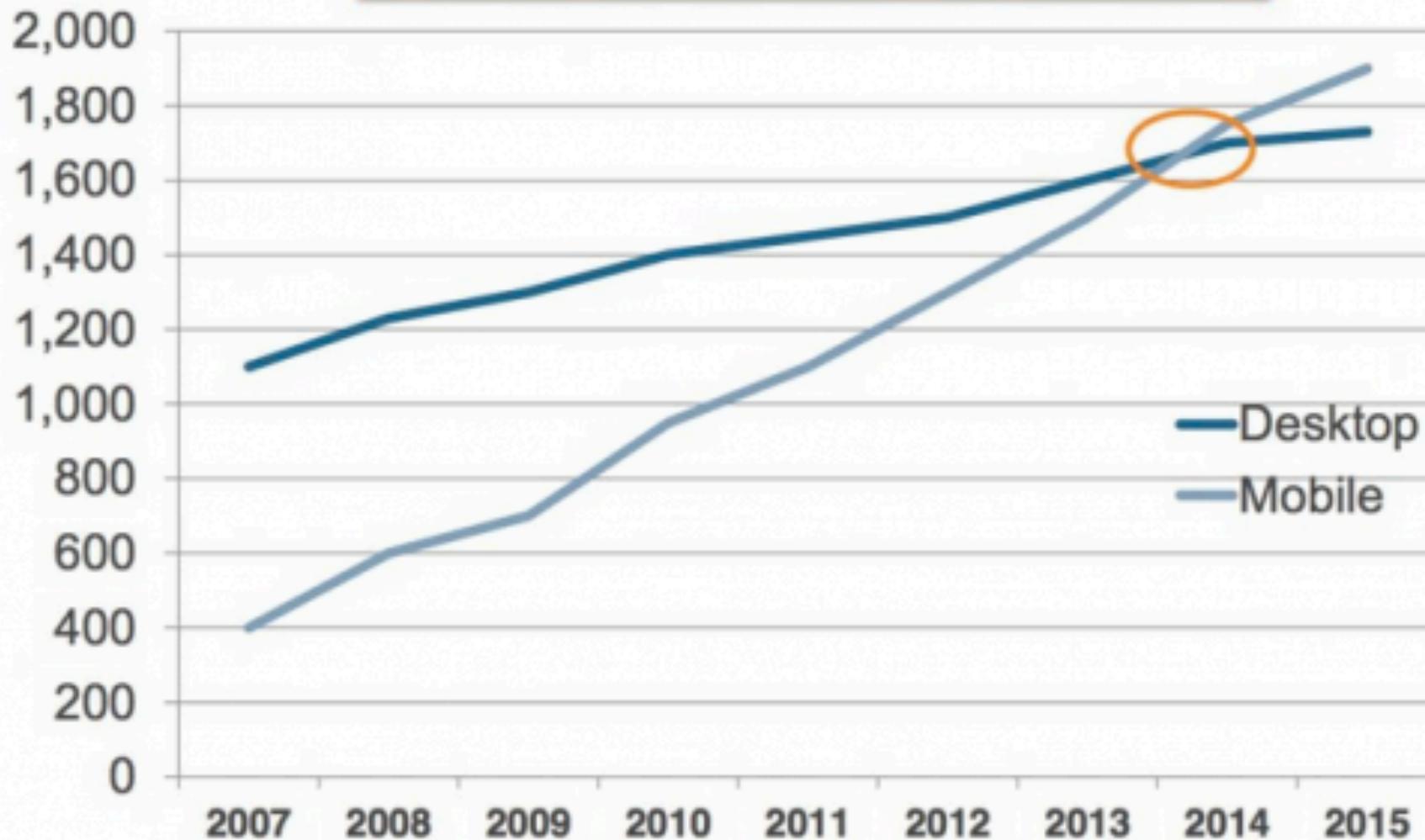
It was powered by Android 2.1 and had one of the largest touchscreen displays, an 8MP camera, HD video capture, HDMI output ...



David Yanofsky | Quartz

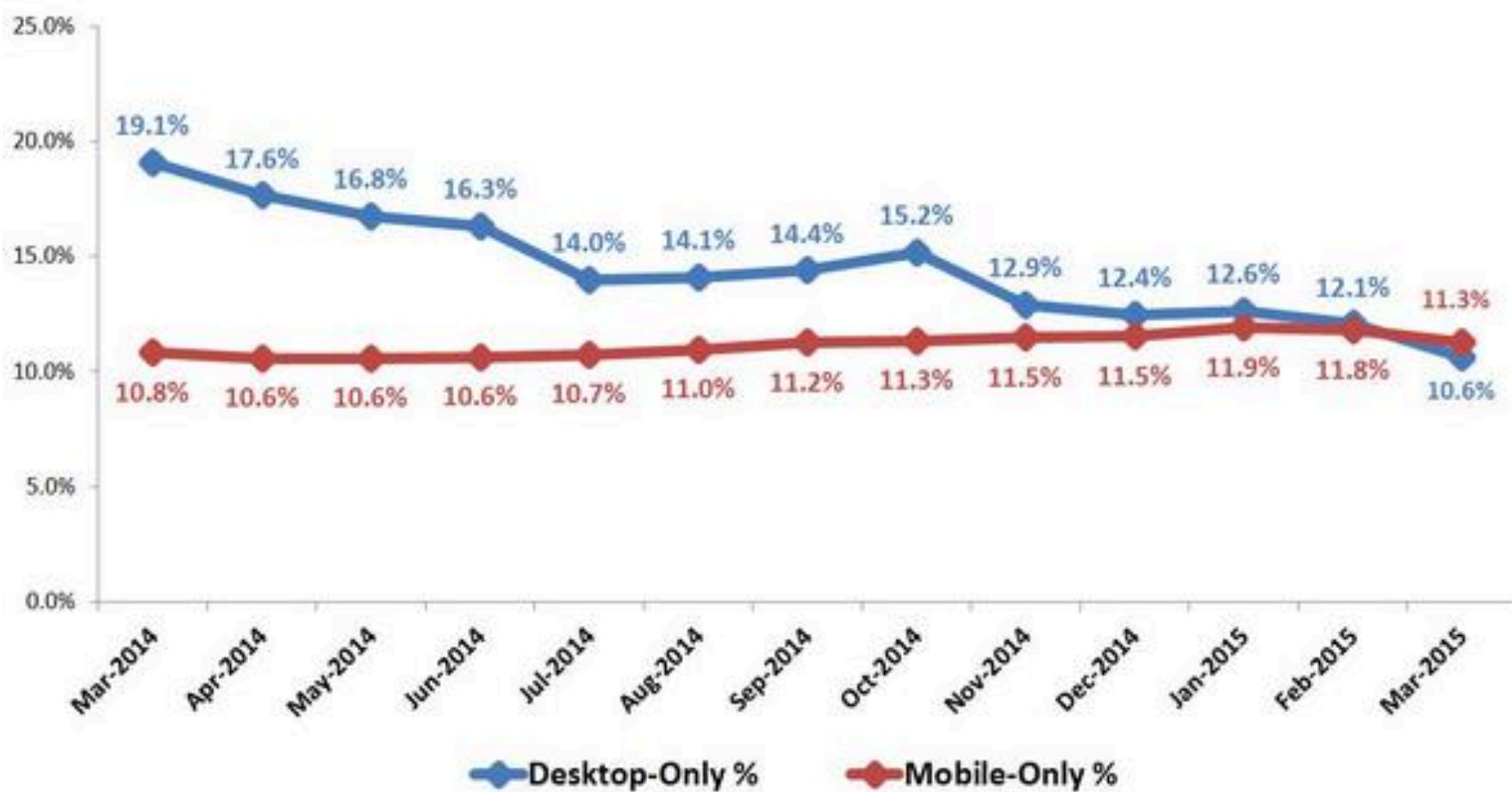
Source: GSMArena.com

Number of Global Users (Millions)



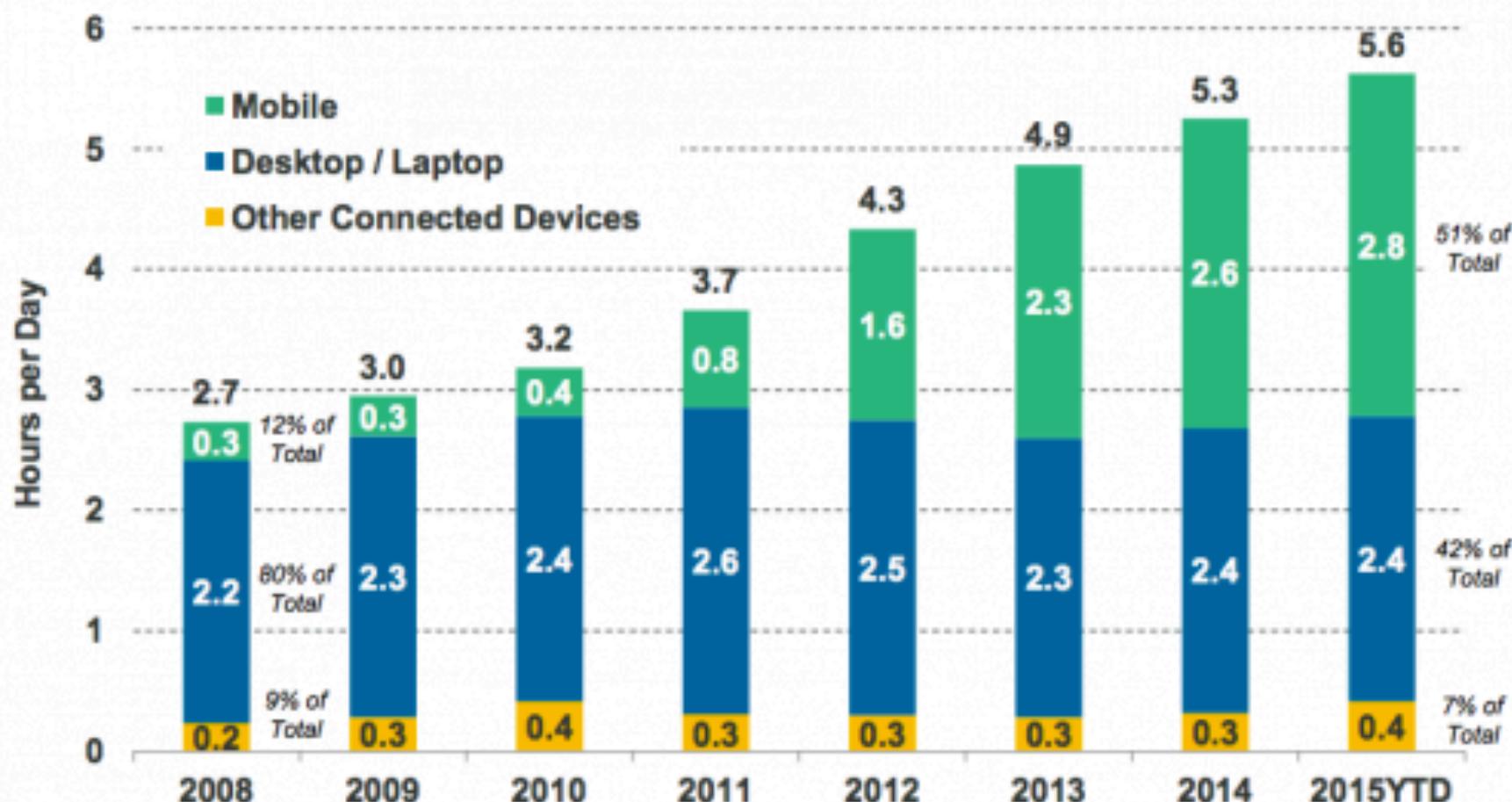
Single Platform Users' Share of Total Digital Population

Source: comScore Media Metrix Multi-Platform, U.S., Age 18+, Mar 2014 - Mar 2015



Internet Usage (Engagement) Growth Solid +11% Y/Y = Mobile @ 3 Hours / Day per User vs. <1 Five Years Ago, USA

Time Spent per Adult User per Day with Digital Media, USA, 2008 – 2015YTD



Source: eMarketer 9/14 (2008-2010), eMarketer 4/15 (2011-2015). Note: Other connected devices include OTT and game consoles. Mobile includes smartphone and tablet. Usage includes both home and work. Ages 18+; time spent with each medium includes all time spent with that medium, regardless of multitasking.

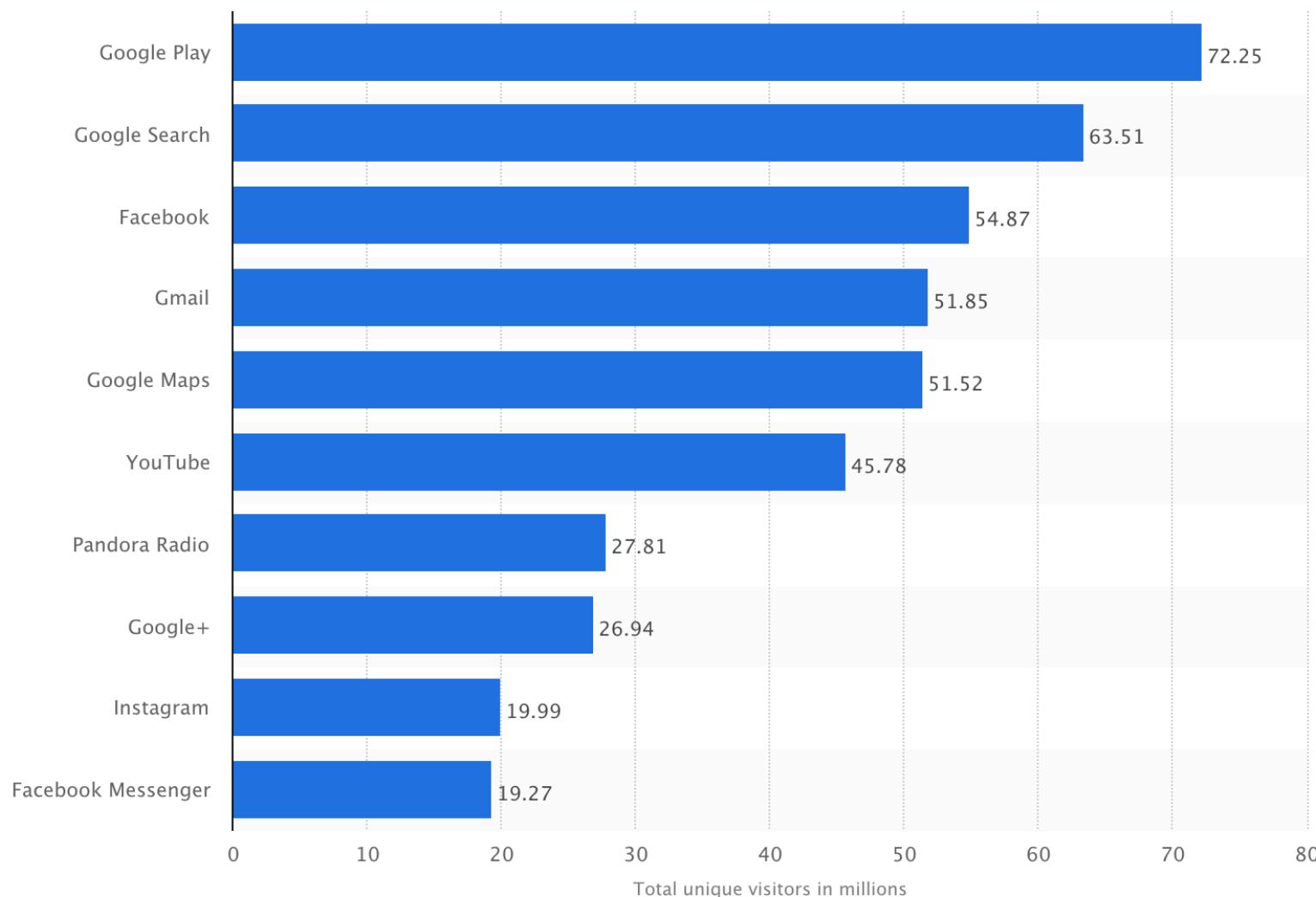
Mobile App Usage Overview	Values	Statistic
Number of mobile apps downloads worldwide	102,062m	Details →
Projected number of apps downloads 2017	268,692m	Details →
Number of free mobile apps downloads	92.88bn	Details →
Number of paid mobile app downloads	9.19bn	Details →
Worldwide mobile app revenue	\$34.99bn	Details →

App Stores	Values	Statistic
Number of apps available in Google Play store	1,600,000	Details →
Number of apps available in Windows Phone store	340,000	Details →
Number of cumulative downloads from Apple App Store	100bn	Details →

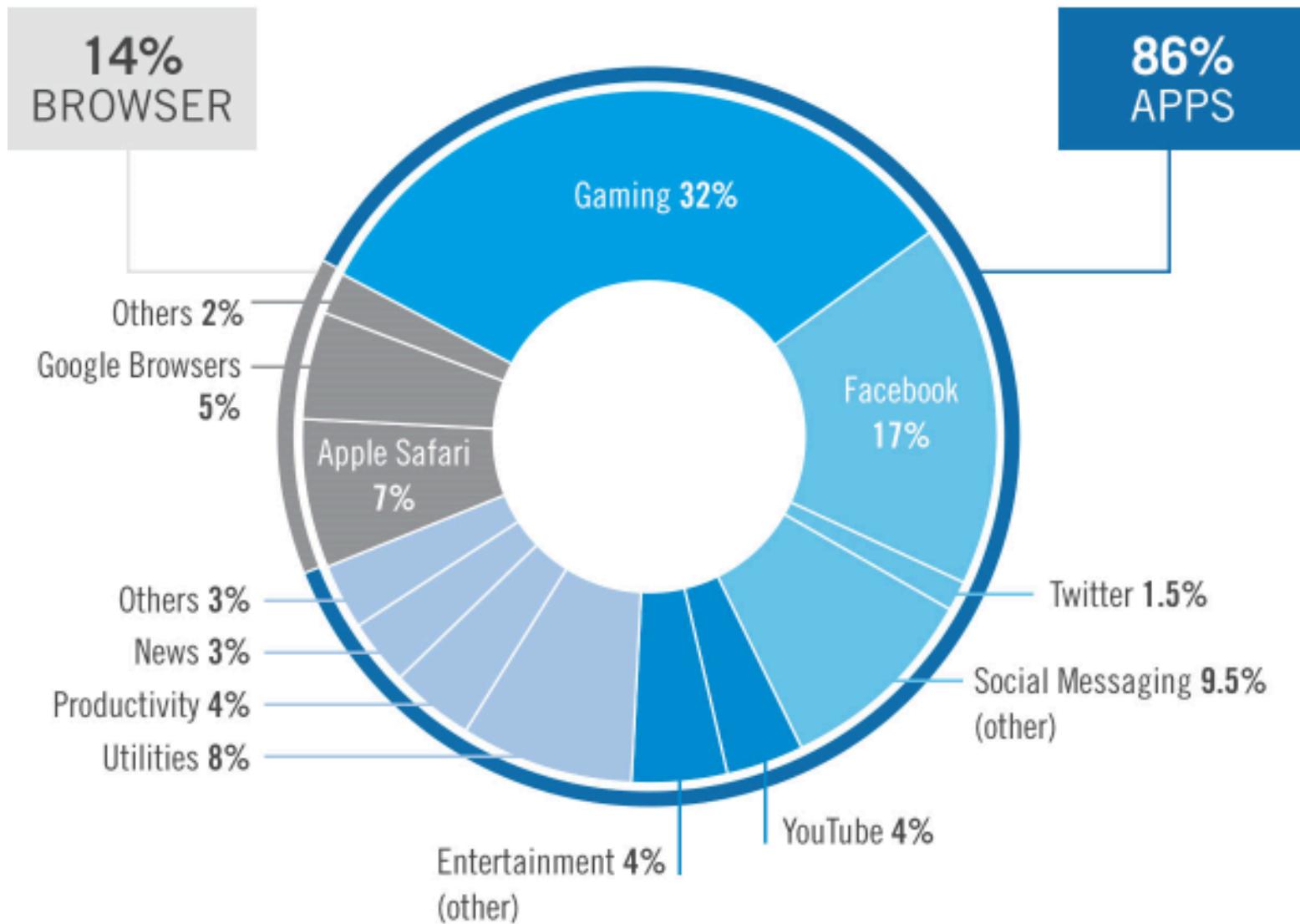
Reach & Traffic	Values	Statistic
Number of unique U.S. visitors to Facebook app on iOS	47.25m	Details →
Number of unique U.S. visitors to Google Play app on Android	72.25m	Details →
Monthly social media minutes spent on Facebook in U.S.	230	Details →

Number of unique U.S. visitors to the most popular Android apps in June 2014 (in millions)

This statistic gives information on the most popular Android smartphone apps in the United States in June 2014. During that month, 51.52 million Android smartphone users accessed the Google Maps app. The most popular Android app was Google Play with 72.25 million unique visitors.



Time Spent on iOS and Android Connected Devices



COURSE OVERVIEW

This module aims to provide a

**practical knowledge,
and hands on experience**

+ theoretical grounding

of key skills needed to design and build engaging mobile applications.

COURSE OVERVIEW

Developing Apps with Android

- It provides a solid understanding of the fundamentals of mobile application development using Android Studio and SDK Tools.
- From the basic step of creating a first app to developing more complex applications, which take advantage of mobile sensors, connectivity and the cloud, graphics and animation, and social and context sensitive applications.

Design principles

- This is complemented by an understanding of key principles of interaction design and human computer interaction for mobile and wearable technologies.

COURSE OVERVIEW

A theoretical grounding

It also introduces advance topics and current research within the field of mobile Human Computer Interaction. For example:

- Mobile crowdsourcing
- Interacting with small screens
- Social experiences and privacy
- Activity tracking & mobile health

These topics will be addressed through concrete case studies of successful and innovative design projects. Reading will be based on papers published at leading international conferences.

COURSEWORK

3 parts:

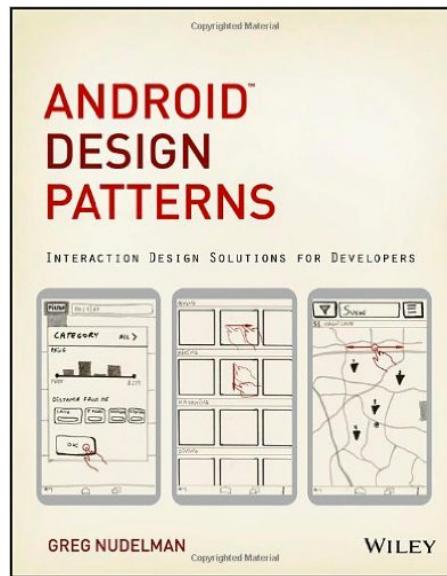
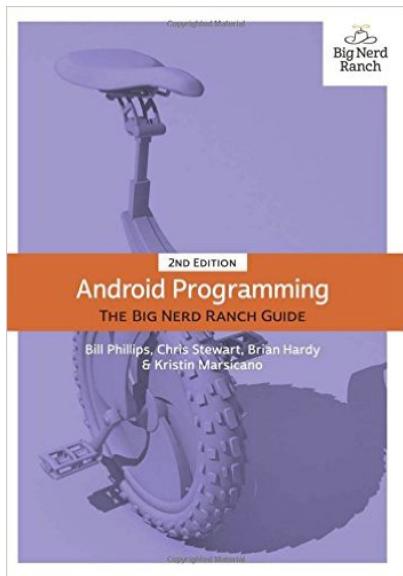
- | | | |
|---|-------|------------|
| 1. Group project – build an Android app | (50%) | Group |
| 2. Write a 6 page paper | (30%) | |
| 3. Ongoing reading reports | (20%) | Individual |

The good news!

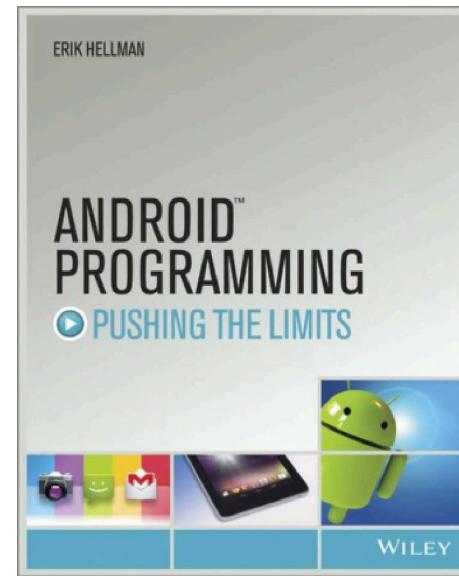
No exam.

MATERIALS

Books – there are lots available!



In the library



Google tutorials: <https://developer.android.com/index.html>

<https://stackoverflow.com/questions/tagged/android>

LEARNING OUTCOMES

On completing the module, you will be able to:

- Develop mobile applications using the Android platform.
- Develop applications that take advantage of the different sensing capabilities for modern smart phones and wearable technology.
- Propose and apply interface design approaches that are suitable to different classes of mobile applications.
- Rapidly prototype new interactive systems.
- Identify current trends in mobile human computer interaction research.

QUESTIONS?

Contact:

d.coyle@ucd.ie

Please use the Discussion Forum.