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CS991: Mobile Application Development

Dr Lee Clift

Week 1: Introduction & Design Principles

What Are Mobile Applications?

Why Are Mobile Applications Important?

How Should Mobile Applications Be Designed?

Who's teaching this module?

Lecturer: Dr Lee Clift

Email: Lee.clift@strath.ac.uk

Office Hours: 09:00 – 17:00 Mon-Fri either online via Teams or in LT1206

How is this module organised?

Lectures

Monday at 11:00 to 12:00

Typically Theory

Labs

Monday at 13:00 till 15:00

Typically Practical

Tutorials

Friday at 15:00 to 16:00

Weekly Overview and catchup

Optional Labs

Thursday 13:00 to 15:00

Catchup and Assessments

How is this module assessed?

Coursework 1

40% of your overall grade

Design Coursework

Create an an app, and pitch it

Anything you want

Industry standard presentation

Coursework 2

60% of your overall grade

Development Coursework

In groups, make an app

Must be from Coursework 1

Progress must be incremental

What's assessed?

Typically everything in the lectures and labs can and may be assessed in the coursework

Only under particular circumstances (i.e. background information) will things be marked as non-assessed

Typically this will happen on a section header

Learning Outcomes

1. Introduction to mobile apps development

2. Mobile Apps, OS's and their growth

What is a Mobile App?

Think, Pair, Share (3 Minutes)

What is a Mobile App, and what is Mobile App Development?

What makes a Mobile App different to a typical computer program?

Why can't I run standard MacOS programs on an iPhone?

Mobile App Development

"Mobile app development is a term used to **denote the act or process by which a mobile app is developed for mobile devices,** such as personal digital assistants, enterprise digital assistants or mobile phones." - Wikipedia

Your favourite mobile app

What's your favourite mobile app? Why?
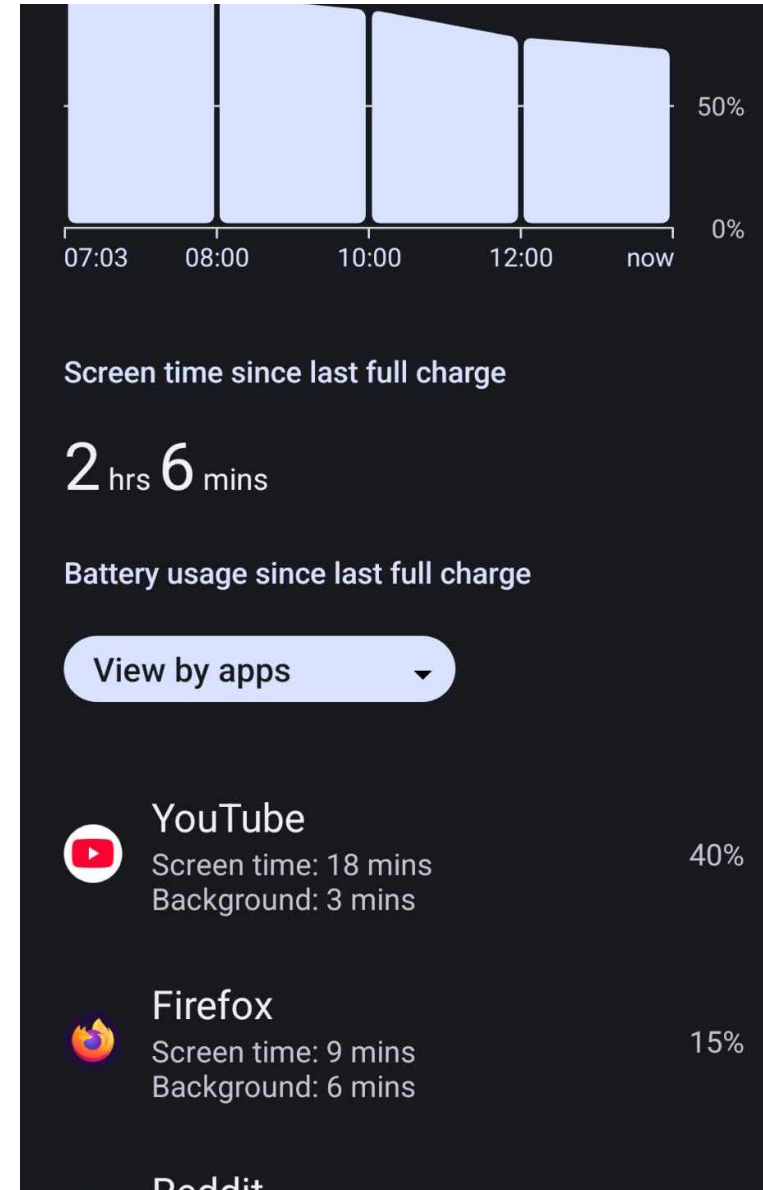
Do you think its necessarily the one you use the most?

    Why/ Why not?

Phone insights

Is YouTube my favourite app?

Or does it just take up most of my time…

　　　or battery!

50%

0%

07:03　08:00　10:00　12:00　now

Screen time since last full charge

2 hrs **6** mins

Battery usage since last full charge

View by apps ▼

YouTube
Screen time: 18 mins
Background: 3 mins
40%

Firefox
Screen time: 9 mins
Background: 6 mins
15%

Reddit

Mobile App Development

"As part of the development process, **mobile user interface (UI) design** is also essential in the creation of mobile apps. Mobile UI considers constraints, contexts, screen, input, and mobility as outlines for design." - Wikipedia

Poorly designed mobile app

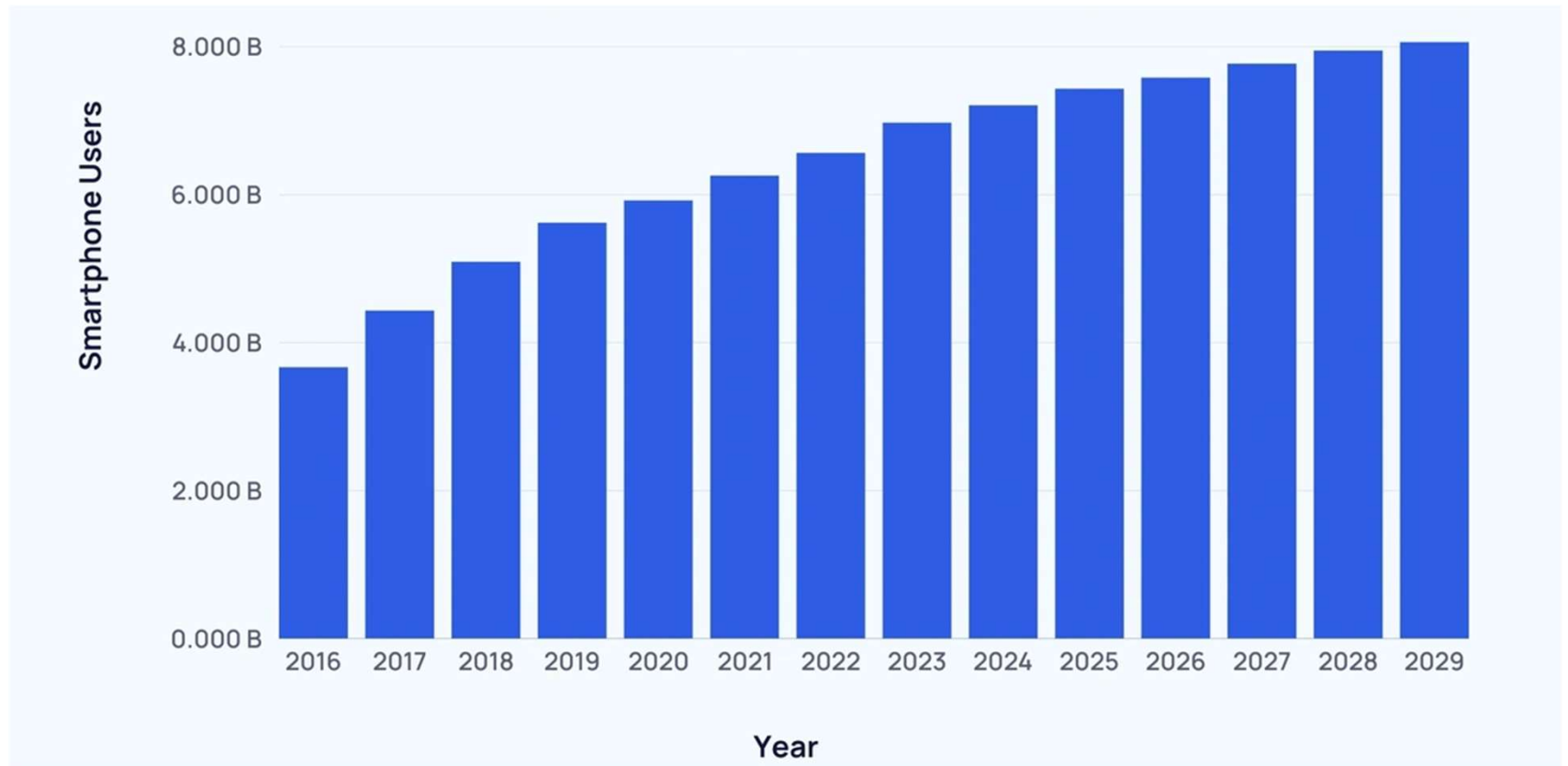Think of an application you think is poorly designed – Why?

What things annoy us? Frustrate us? Make us stop using it?

Why bother with Mobile Apps?

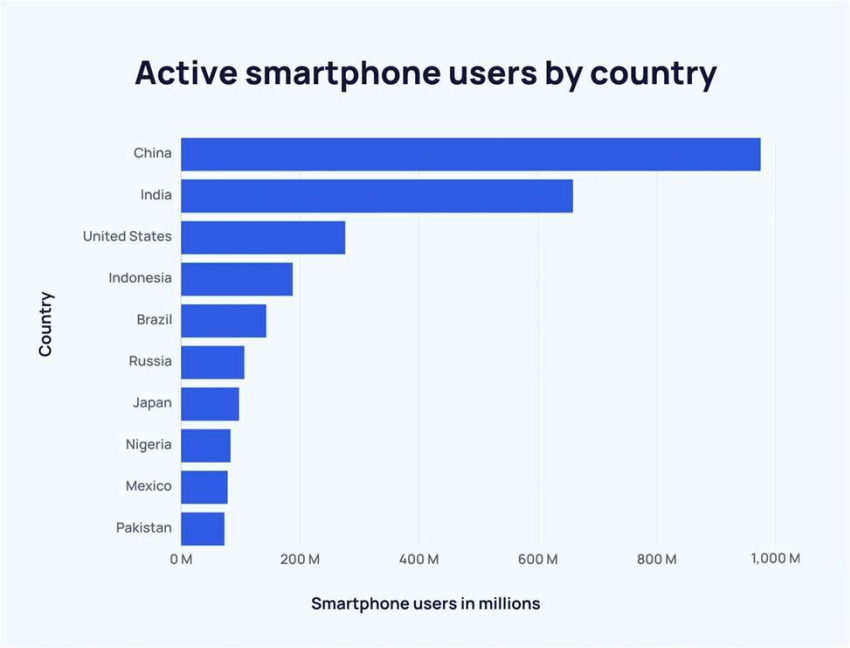There are approximately 7.21 billion smartphones in the world

Howarth, J. (2024) *How many people own smartphones? (2024-2029)*, *Exploding Topics*. Available at: https://explodingtopics.com/blog/smartphone-stats#smartphone-top-picks (Accessed: 12 November 2024).

Smartphones over time

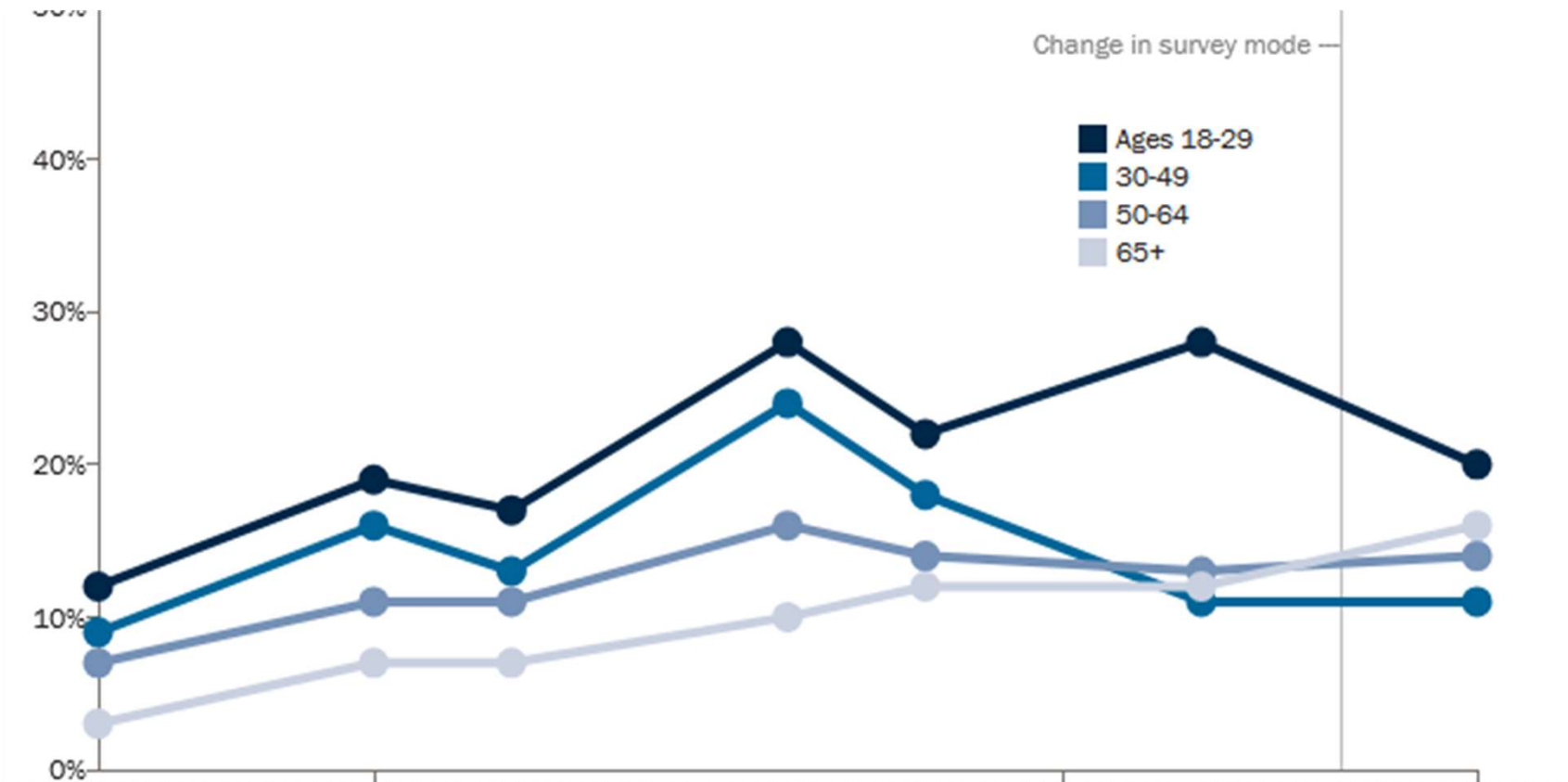Howarth, J. (2024) *How many people own smartphones? (2024-2029)*, *Exploding Topics*. Available at:
https://explodingtopics.com/blog/smartphone-stats#smartphone-top-picks (Accessed: 12 November 2024).

Smartphone ownership per country

Active smartphone users by country

Rank	Country	Smartphone Users	Total Population	Smartphone Penetration
1	China	974.69 million	1.43 billion	68.4%
2	India	659 million	1.42 billion	46.5%
3	United States	276.14 million	338.29 million	81.6%
4	Indonesia	187.7 million	275.5 million	68.1%
5	Brazil	143.43 million	215.31 million	66.6%
6	Russia	106.44 million	144.71 million	73.6%
7	Japan	97.44 million	123.95 million	78.6%
8	Nigeria	83.34 million	218.54 million	38.1%
9	Mexico	78.37 million	127.5 million	61.5%
10	Pakistan	72.99 million	235.82 million	31%

Howarth, J. (2024) *How many people own smartphones? (2024-2029)*, *Exploding Topics*. Available at: https://explodingtopics.com/blog/smartphone-stats#smartphone-top-picks (Accessed: 12 November 2024).

Smartphone Dependency By Age

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Importance of Mobile Apps

Given all the statistics, what do you think are the key benefits of a mobile application from a business/personal perspective?
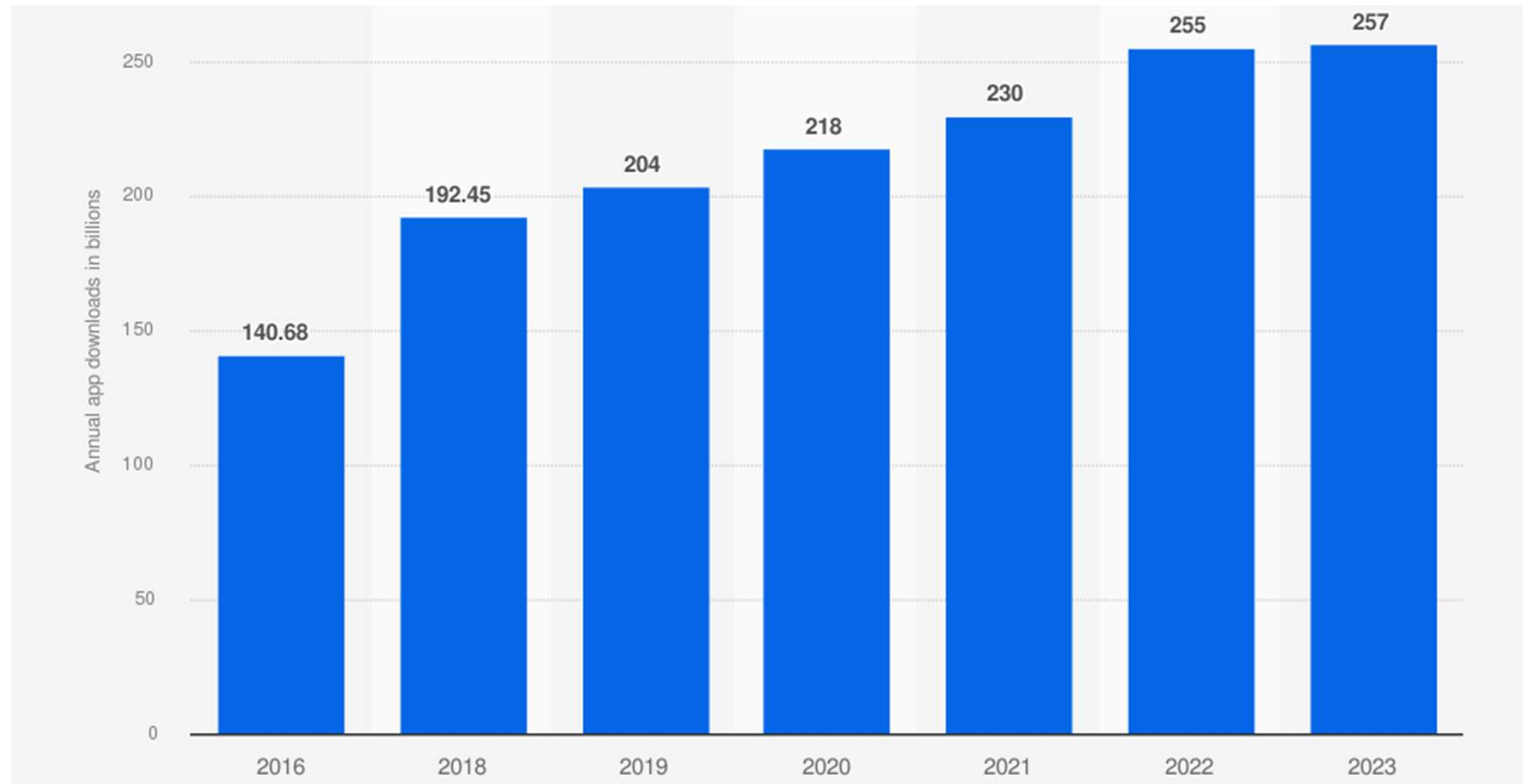
Challenges?

What Challenges do Mobile Application Development present?
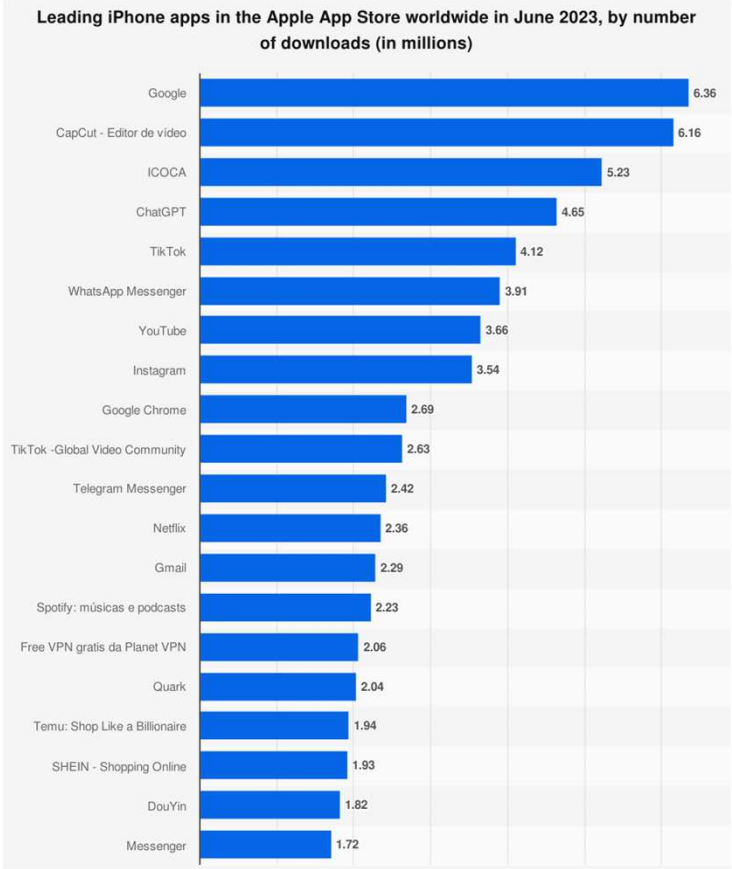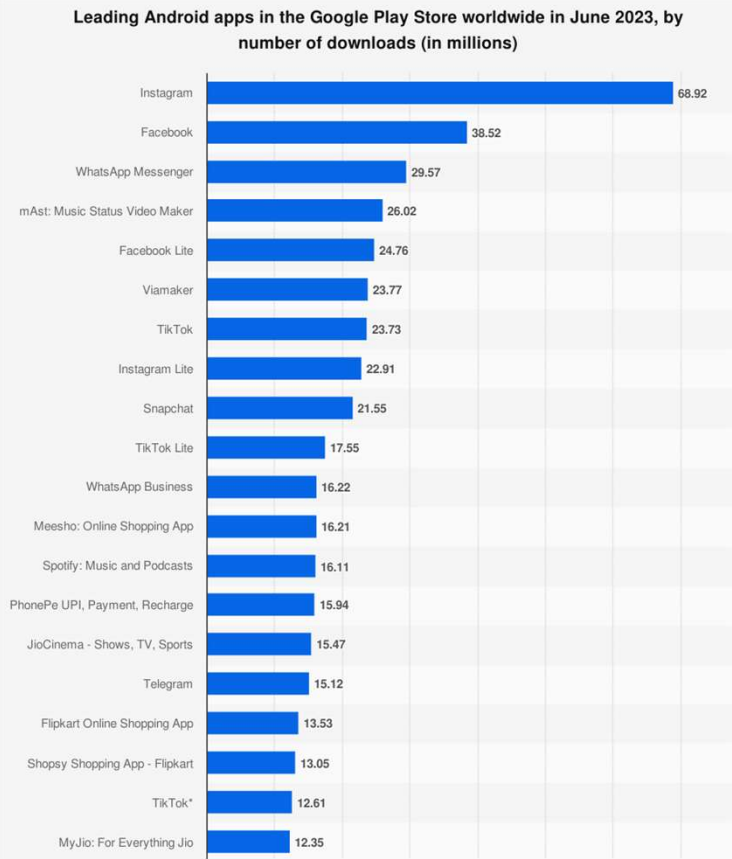
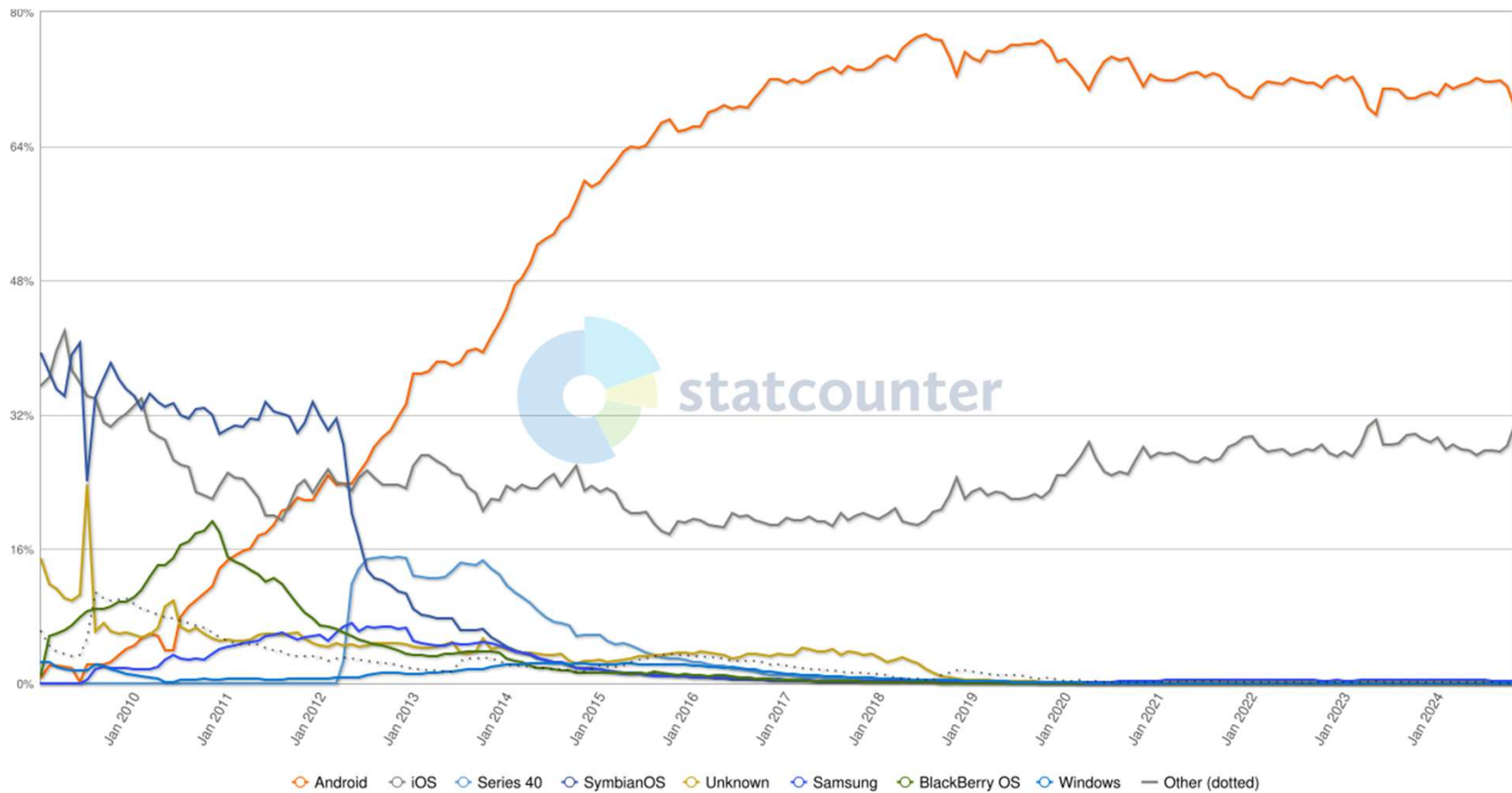# Growth of the mobile Apps and OS'S

Mobile Apps Downloads

Mobile Apps Worldwide Per OS

Leading Android apps in the Google Play Store worldwide in June 2023, by number of downloads (in millions)

App	Downloads
Instagram	68.92
Facebook	38.52
WhatsApp Messenger	29.57
mAst: Music Status Video Maker	26.02
Facebook Lite	24.76
Viamaker	23.77
TikTok	23.73
Instagram Lite	22.91
Snapchat	21.55
TikTok Lite	17.55
WhatsApp Business	16.22
Meesho: Online Shopping App	16.21
Spotify: Music and Podcasts	16.11
PhonePe UPI, Payment, Recharge	15.94
JioCinema - Shows, TV, Sports	15.47
Telegram	15.12
Flipkart Online Shopping App	13.53
Shopsy Shopping App - Flipkart	13.05
TikTok*	12.61
MyJio: For Everything Jio	12.35

Leading iPhone apps in the Apple App Store worldwide in June 2023, by number of downloads (in millions)

App	Downloads
Google	6.36
CapCut - Editor de vídeo	6.16
ICOCA	5.23
ChatGPT	4.65
TikTok	4.12
WhatsApp Messenger	3.91
YouTube	3.66
Instagram	3.54
Google Chrome	2.69
TikTok -Global Video Community	2.63
Telegram Messenger	2.42
Netflix	2.36
Gmail	2.29
Spotify: músicas e podcasts	2.23
Free VPN gratis da Planet VPN	2.06
Quark	2.04
Temu: Shop Like a Billionaire	1.94
SHEIN - Shopping Online	1.93
DouYin	1.82
Messenger	1.72

Smartphone OS Market Share

Mobile App Downloads based on Store
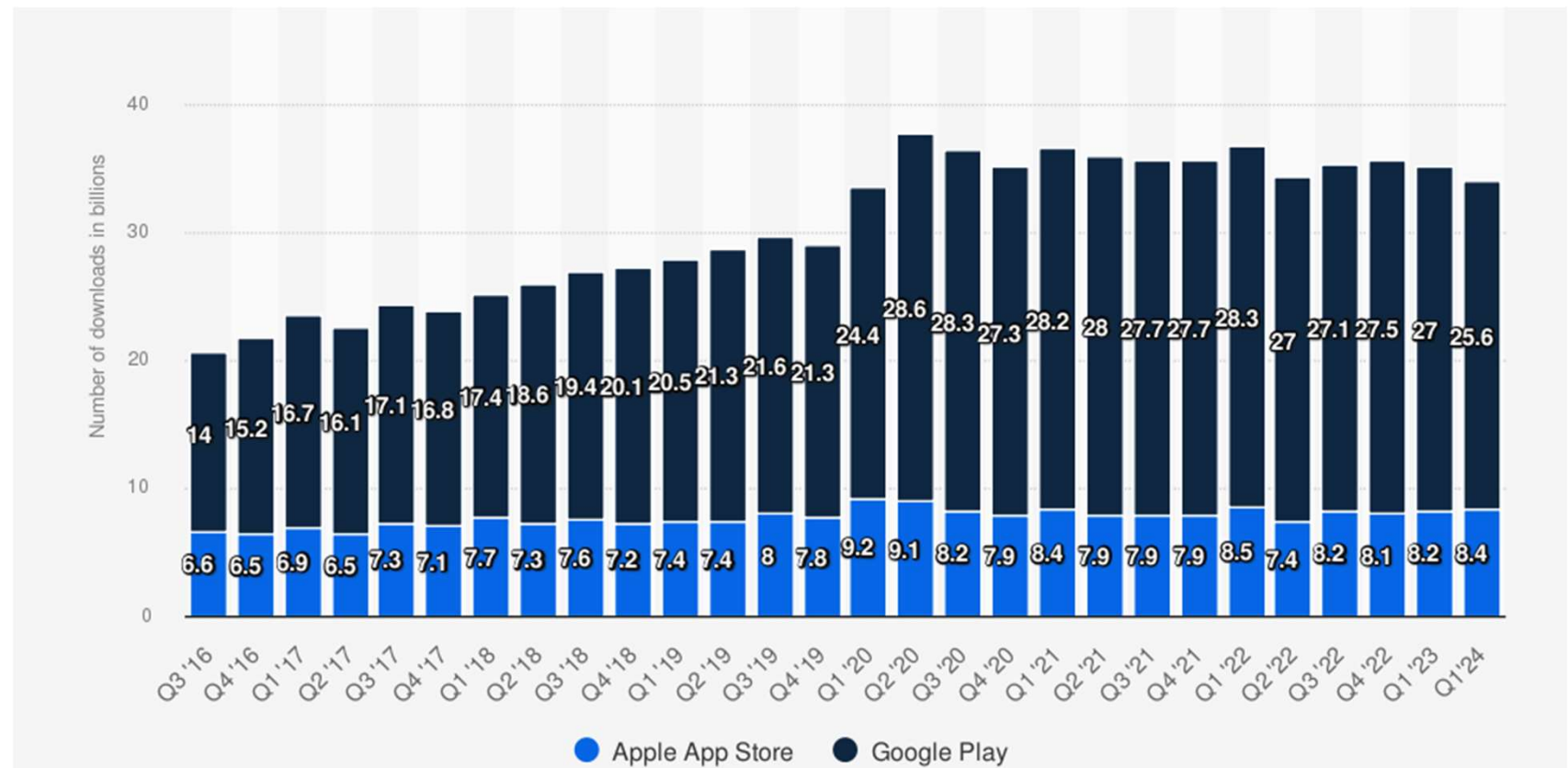
Statista, AppleInsider. (2024). Number of Apple App Store and Google Play mobile app downloads worldwide from 3rd quarter 2016 to 1st quarter 2024 (in billions). Statista. Statista Inc.. Accessed: November 12, 2024. https://www.statista.com/statistics/695094/quarterly-number-of-mobile-app-downloads-store/

Leading Apps

What do you think is the leading iPhone apps in the Apple App Store worldwide in 2024, by revenue?

What do you think is the leading Android apps in the Google Play Store worldwide in 2024, by revenue?

Mobile App Revenue Per OS

Leading Android apps in the Google Play Store worldwide in June 2023, by revenue (in million U.S. dollars)

App	Revenue
Disney+	70.59
Max: Stream HBO, TV, & Movies	50.73
TikTok	38.09
Google One	27.34
Peacock TV: Stream TV & Movies	25.2
Twitch: Live Game Streaming	25.08
Crunchyroll	22.19
Bumble: Dating App & Friends	19.08
Tinder Dating app. Meet People	17.79
Paramount+	Peak Streaming	15.22
Globoplay: filmes, séries e +	13.41
HBO Max: Stream TV & Movies	9.87
Pandora - Music & Podcasts	9.5
Hulu: Stream TV shows & movies	8.03
TikTok*	7.46
Vudu- Buy, Rent & Watch Movies	7.27
ESPN	6.16
Microsoft OneDrive	6.12
Duolingo: language lessons	5.9
Fitbit	5.89

Leading iPhone apps in the Apple App Store worldwide in June 2023, by revenue (in million U.S. dollars)

App	Revenue
DouYin	372.08
TikTok	324.3
Piccoma	228.32
Honor of Kings	165.75
Tencent Video	165.71
Roblox	129.95
Honkai: Star Rail	104.8
x: Stream HBO, TV, & Movies	103.93
Iqiyi	96.54
Honkai: Star Rail	94.73
LINE	93.24
Disney+	92.06
Candy Crush Saga	90.26
YouTube	89.94
PUBG	88.63
Genshin Impact	72.97
Tinder	72.38
Royal Match	71.81
Audible: Audio Entertainment	70.94
Fantasy Westward Journey	70.85

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AppTweak. (2023). Leading Android apps in the Google Play Store worldwide in June 2023, by revenue (in million U.S. dollars). Statista. Statista Inc.. Accessed: November 12, 2024. https://www.statista.com/statistics/271674/top-apps-in-google-play-by-revenue/
AppTweak. (2023). Leading iPhone apps in the Apple App Store worldwide in June 2023, by revenue (in million U.S. dollars). Statista. Statista Inc.. Accessed: November 12, 2024. https://www.statista.com/statistics/271103/top-iphone-apps-worldwide-by-revenue/

Fact Matching - Questions

- Percentage of users that refuse to continue using an app on their device due to poor performance

- Average number of apps user has on their smartphone

- Percentage of free iOS apps

- Percentage of free Android apps

- Average number of apps that are commonly used amongst millennials

- Average number of apps used on a daily basis

- Percentage of people who check their apps from 1 to 10 times a day

Fact Matching - Answers

- Percentage of users that refuse to continue using an app on their device due to poor performance: 46%

- Average number of apps user has on their smartphone: 40

- Percentage of free iOS apps: 93.4% (July 2021)

- Percentage of free Android apps: 96.6% (July 2021)

- Average number of apps that are commonly used amongst millennials: 25

- Average number of apps used on a daily basis: 9

- Percentage of people who check their apps from 1 to 10 times a day: 32%

How do apps make money?
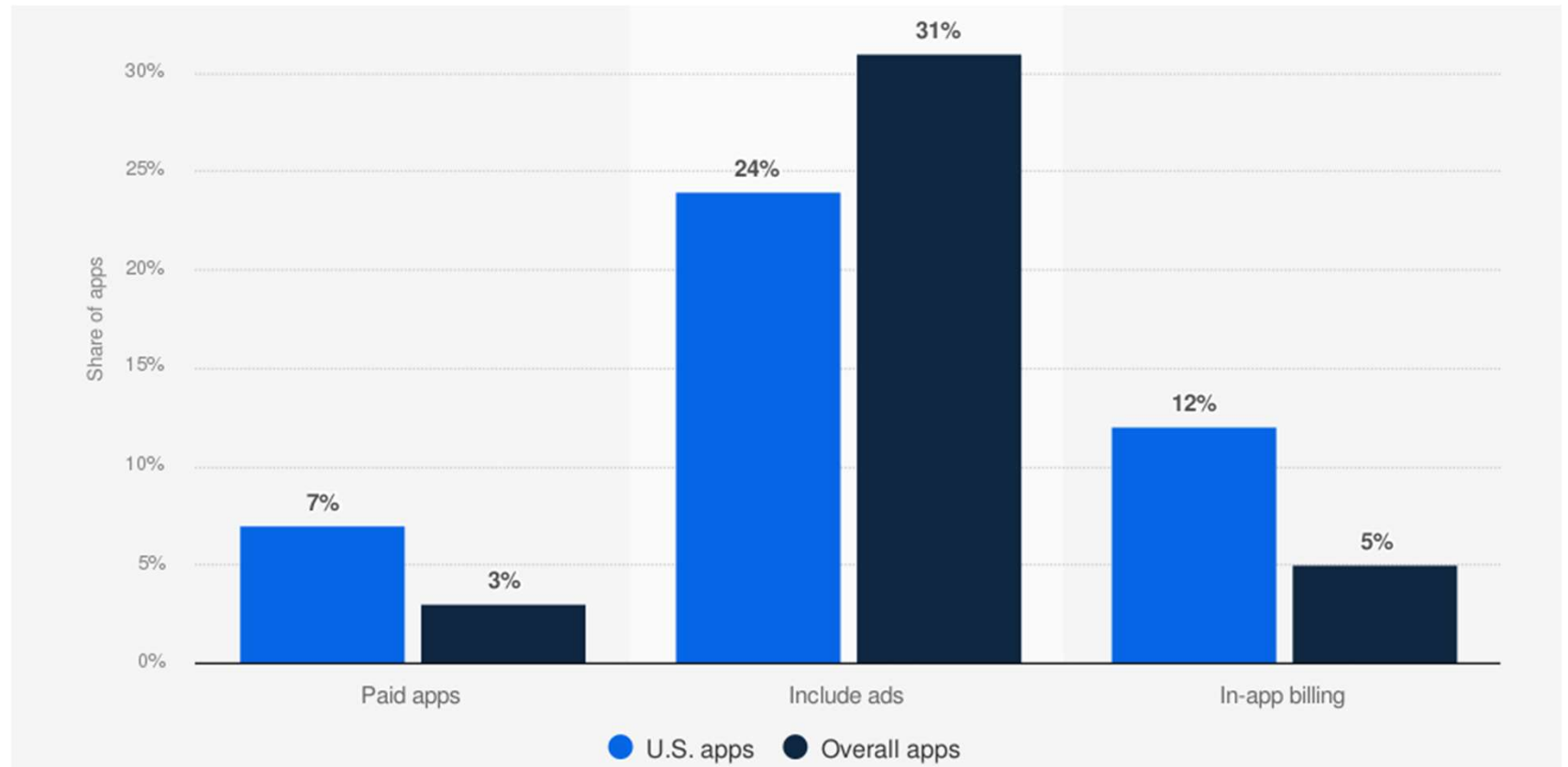
How do apps make money?
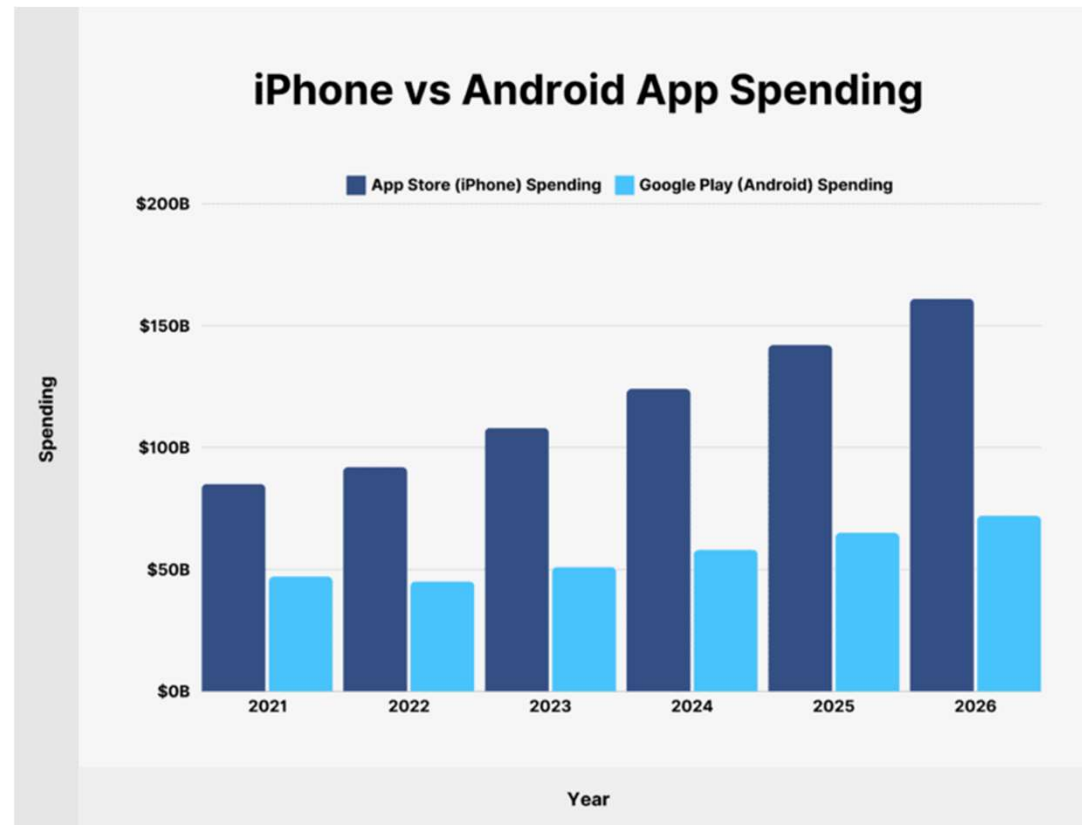
IPhone vs. Android User & Revenue Statistics (2024) (2024) *Backlinko*. Available at: https://backlinko.com/iphone-vs-android-statistics (Accessed: 12 November 2024).

Third Party Stores

There are stores other than Google Play and iOS App Store for mobile apps.

- Tencent

- Baidu

- Xiaomi

- Huawei

- Amazon App Store

- Cydia

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