

Mobile Applications

Fall 2025

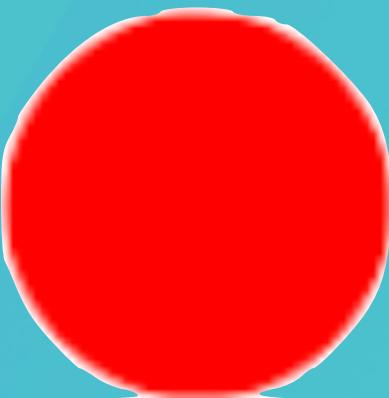
Prerequisites

- Modern programming language
- Object oriented
- Statically types
- IDE - IntelliJ/Android Studio or Visual Studio Code



What should you know...

- Basics:
 - Object-oriented programming
 - Classes, methods
 - Exception handling



Bonus

- Functional Programming
- Lambdas
- Higher Order Functions
- Reactive Programming



BONUS

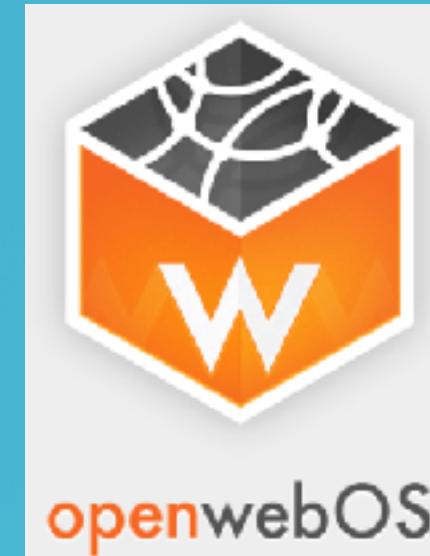
Options



2007



2008



symbian
OS

 BlackBerry 10



2010



Native Options



2008



2017

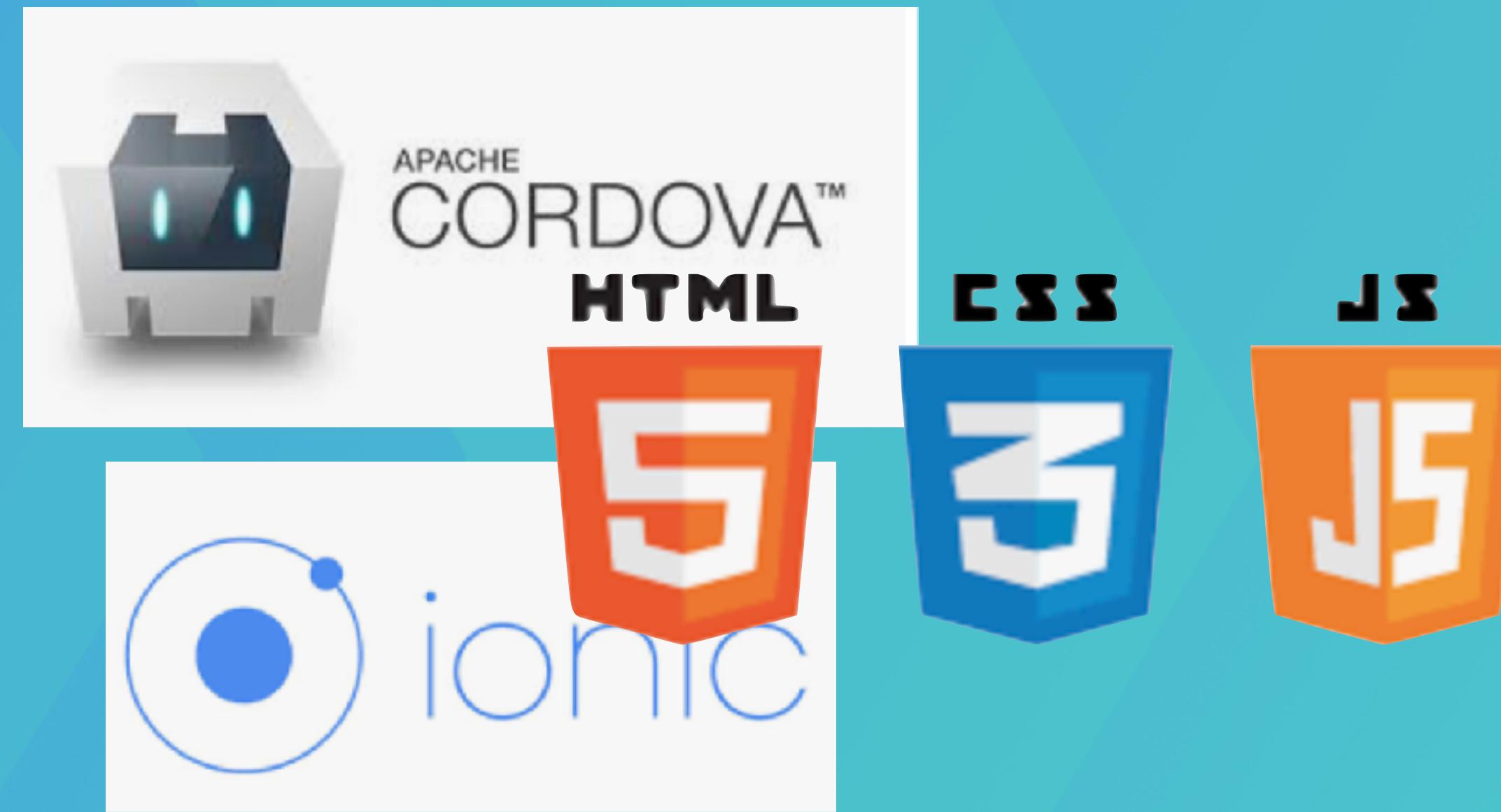


2007



2014

Non-Native Options



2013

Hybrid App

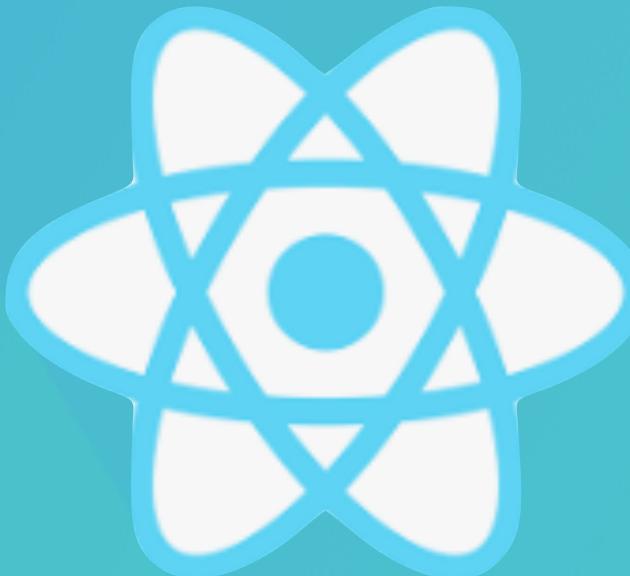
Non-Native Options



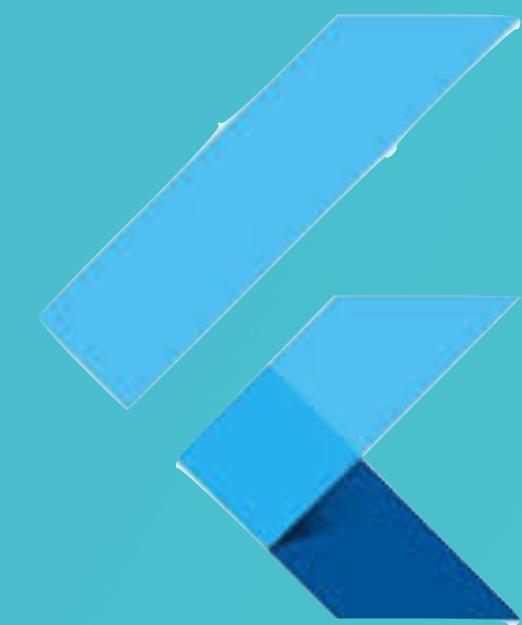
2014



Compiled App



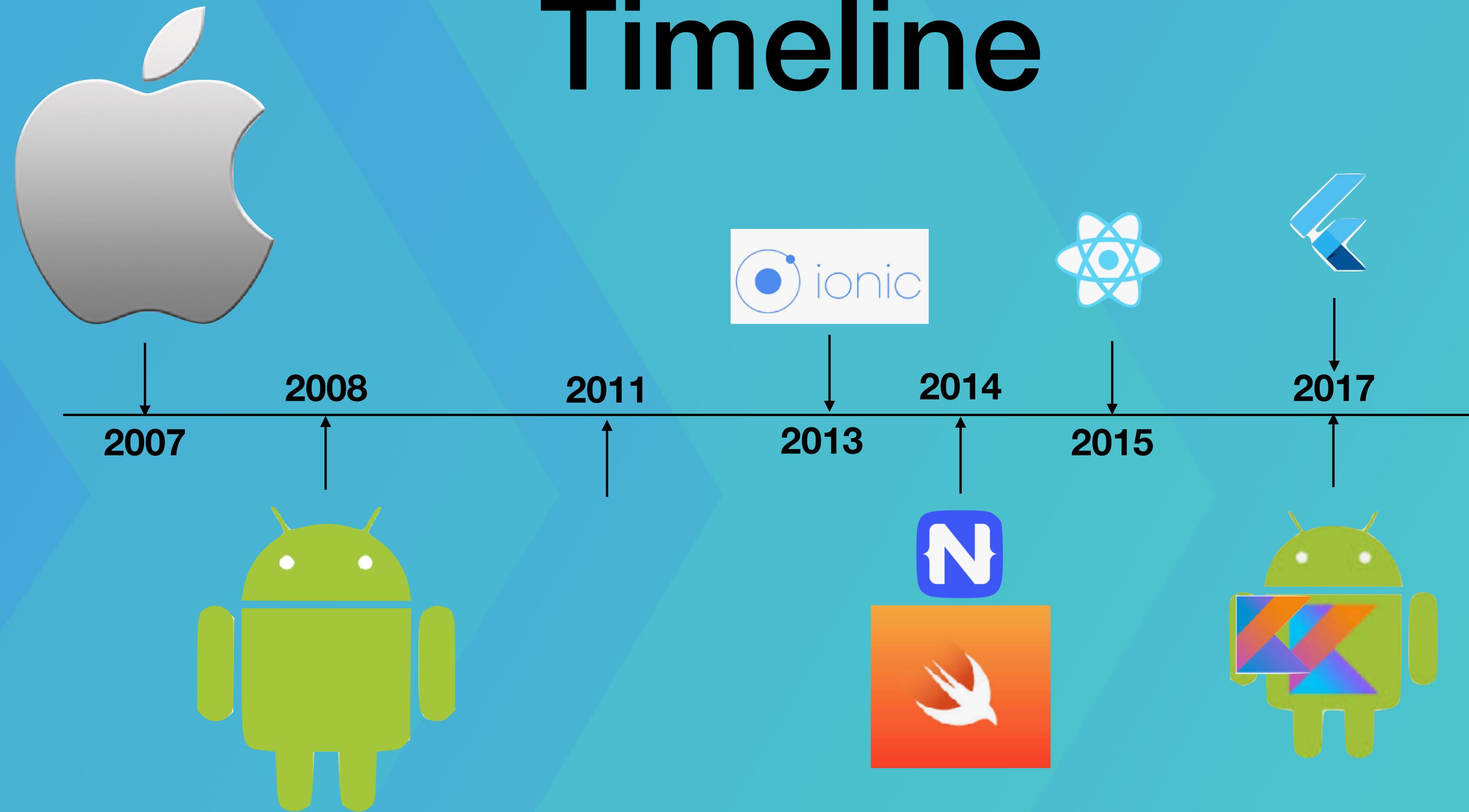
2015



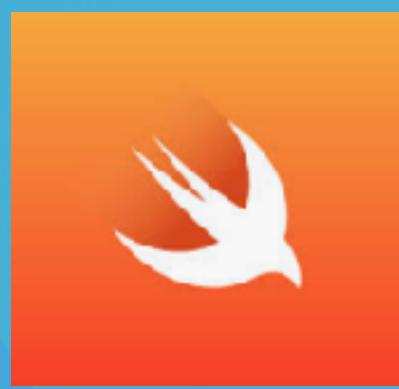
2017



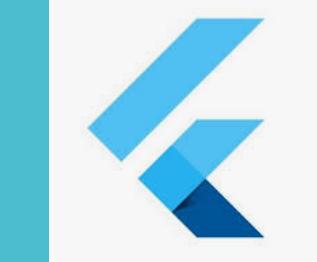
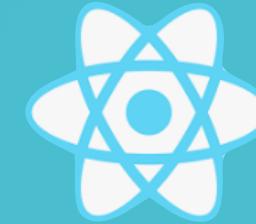
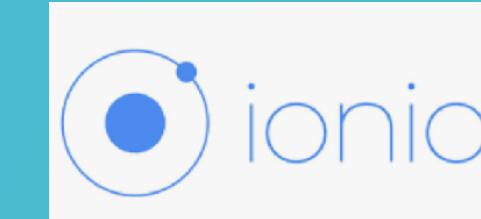
Timeline



What to learn?



OBJ-C



KNOW YOUR RIGHTS

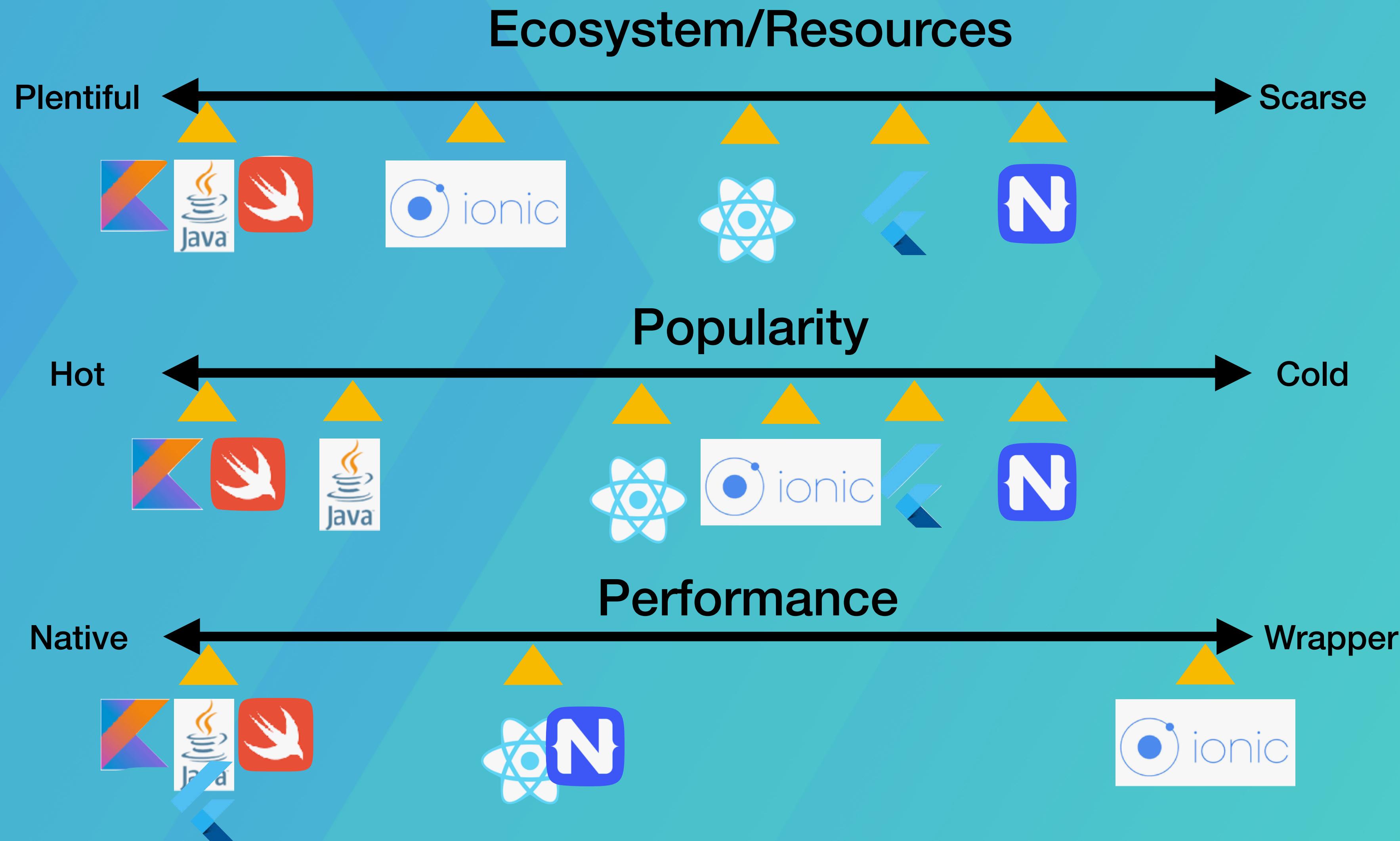
bit.ly/maQuiz2025



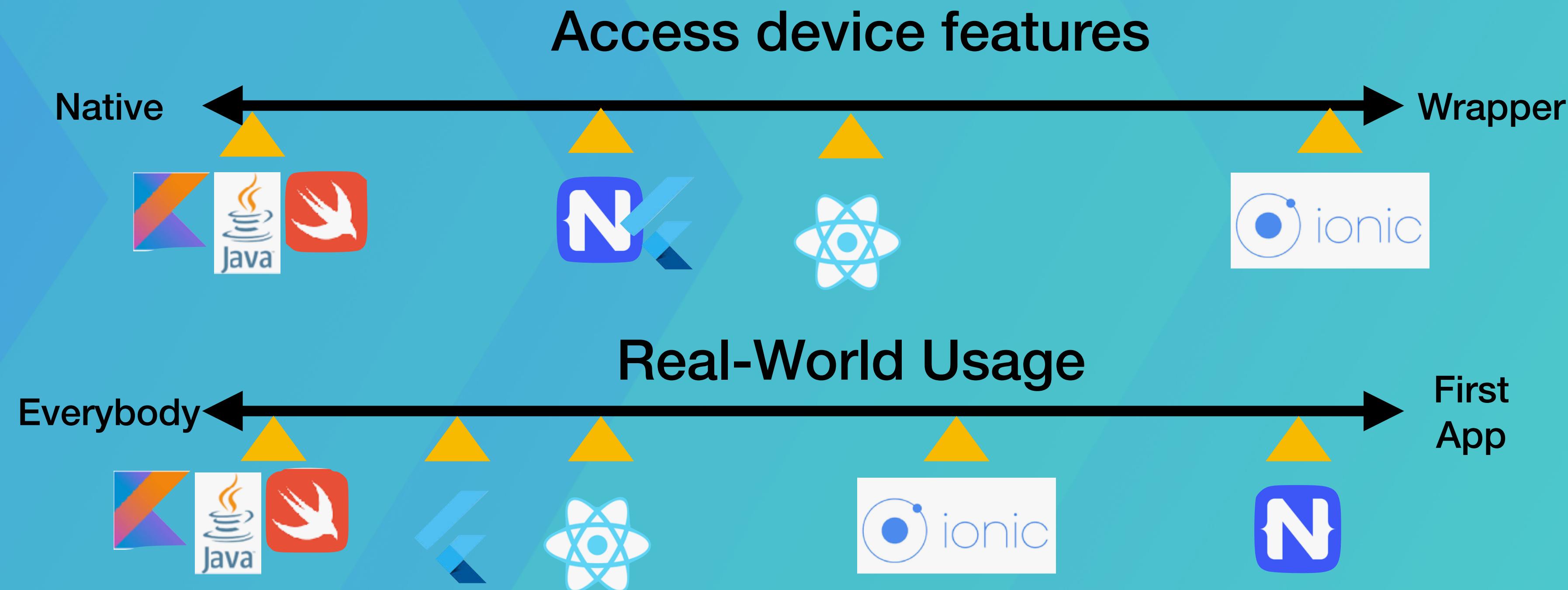
Comparison



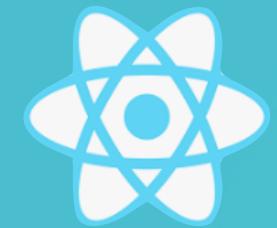
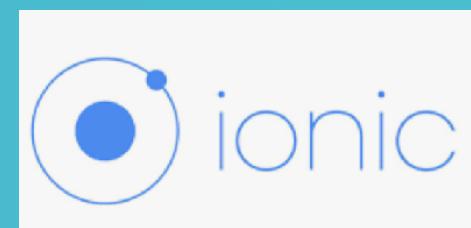
Comparison



Comparison



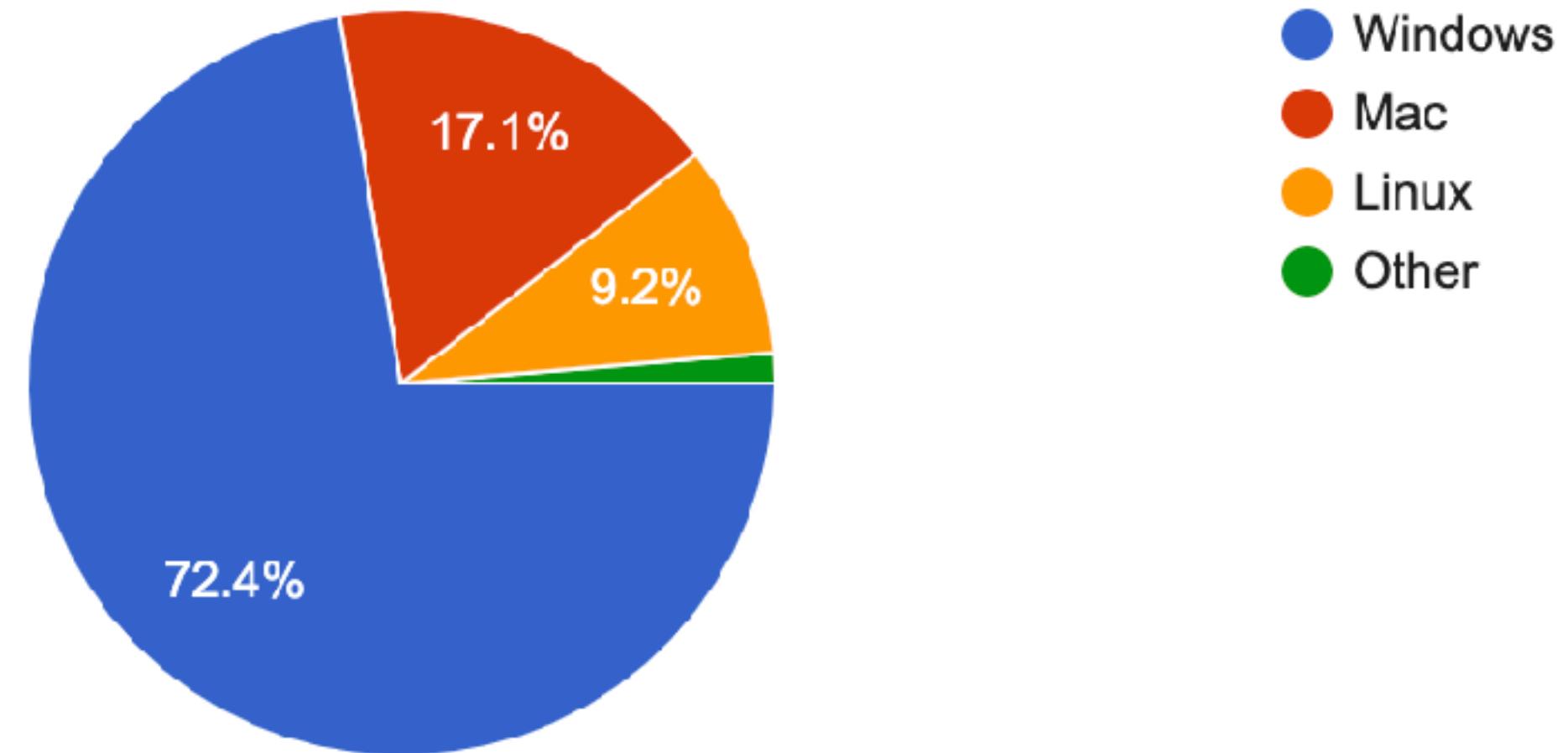
Previous years



Responses from 2018

What operating system is your development machine using?

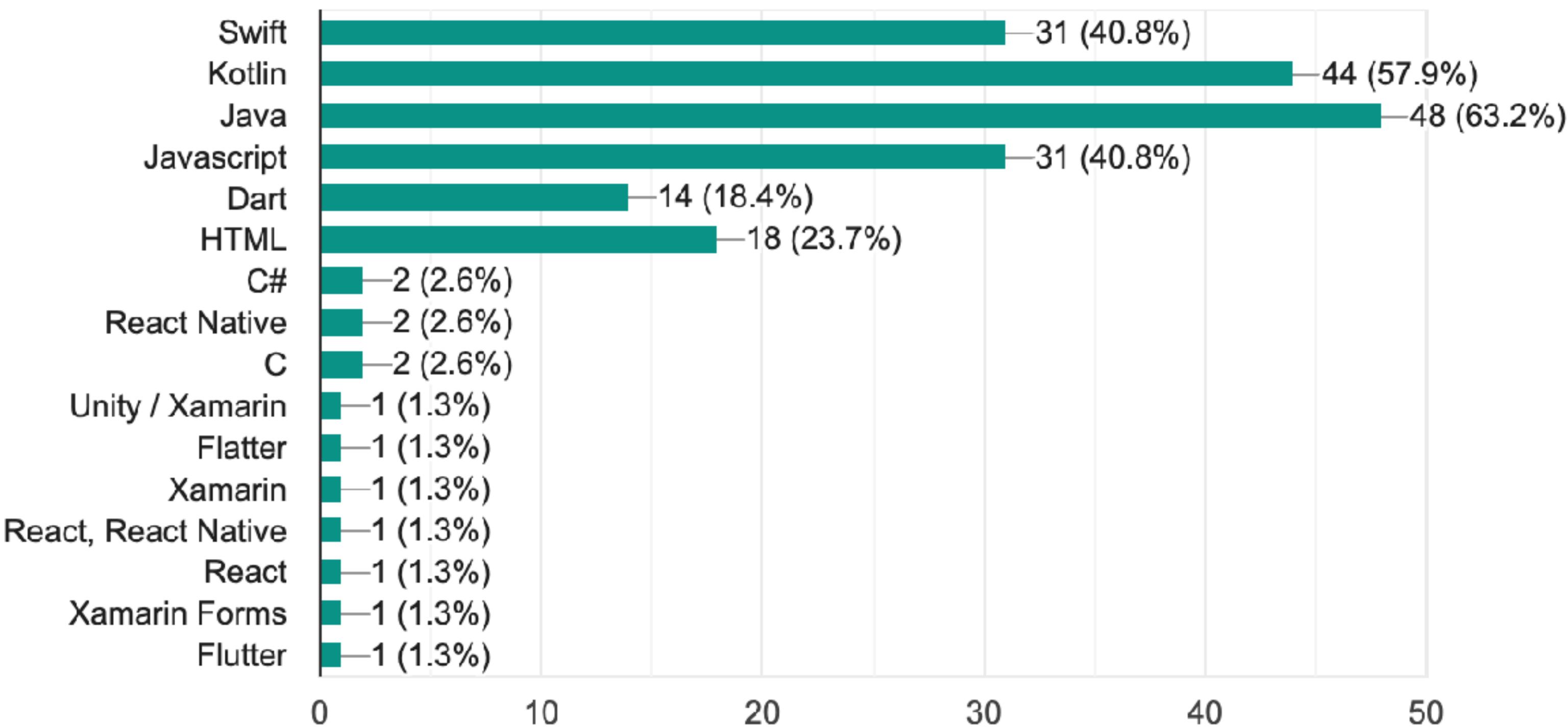
76 responses



Responses from 2018

What language would you like to use/learn?

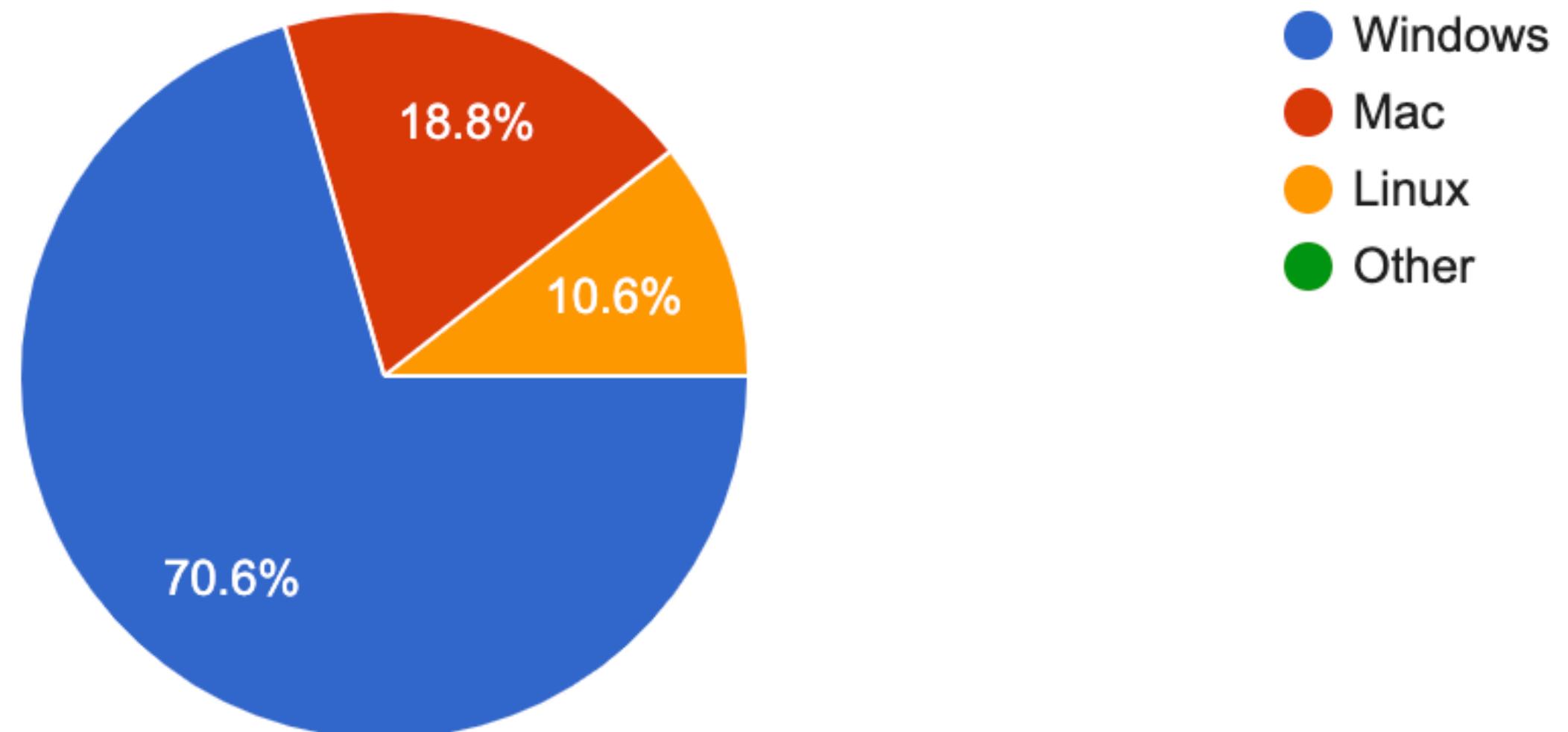
76 responses



Responses from 2019

What operating system is your development machine using?

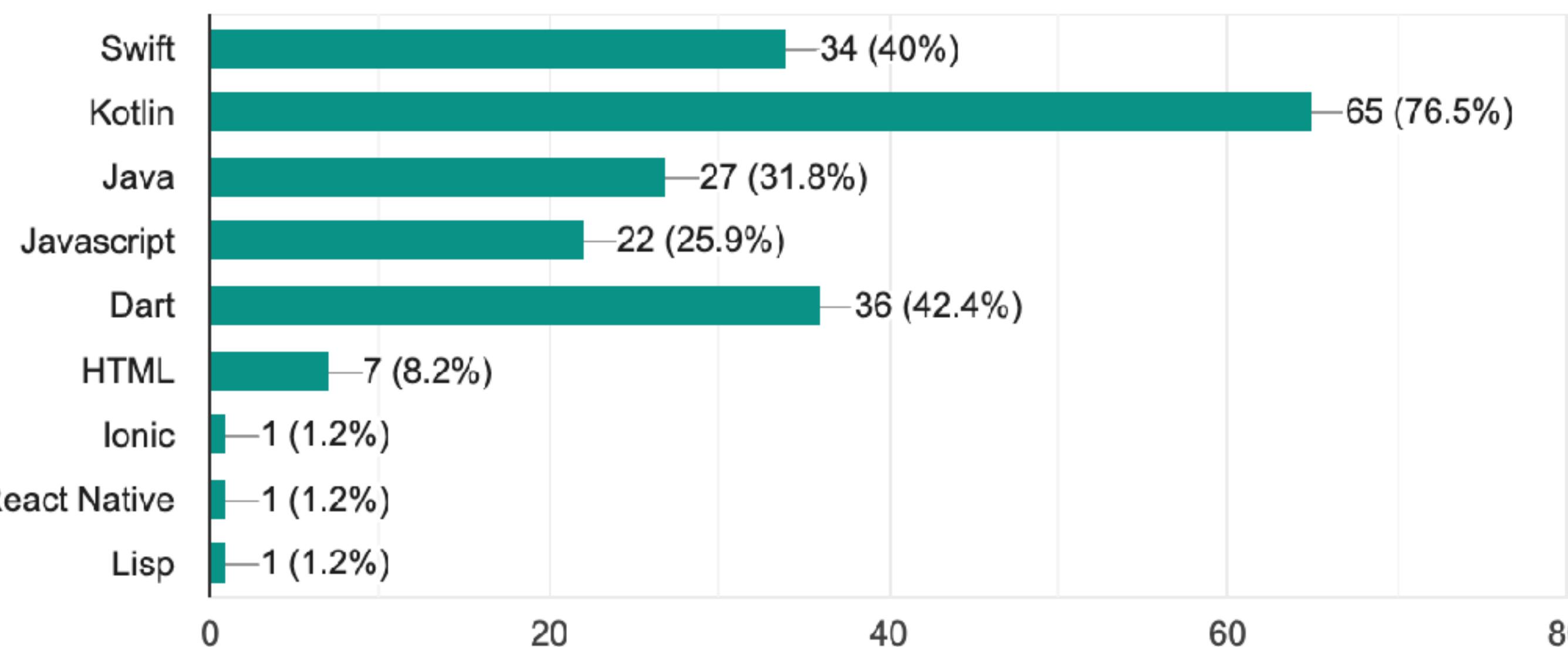
85 responses



Responses from 2019

What language would you like to use/learn?

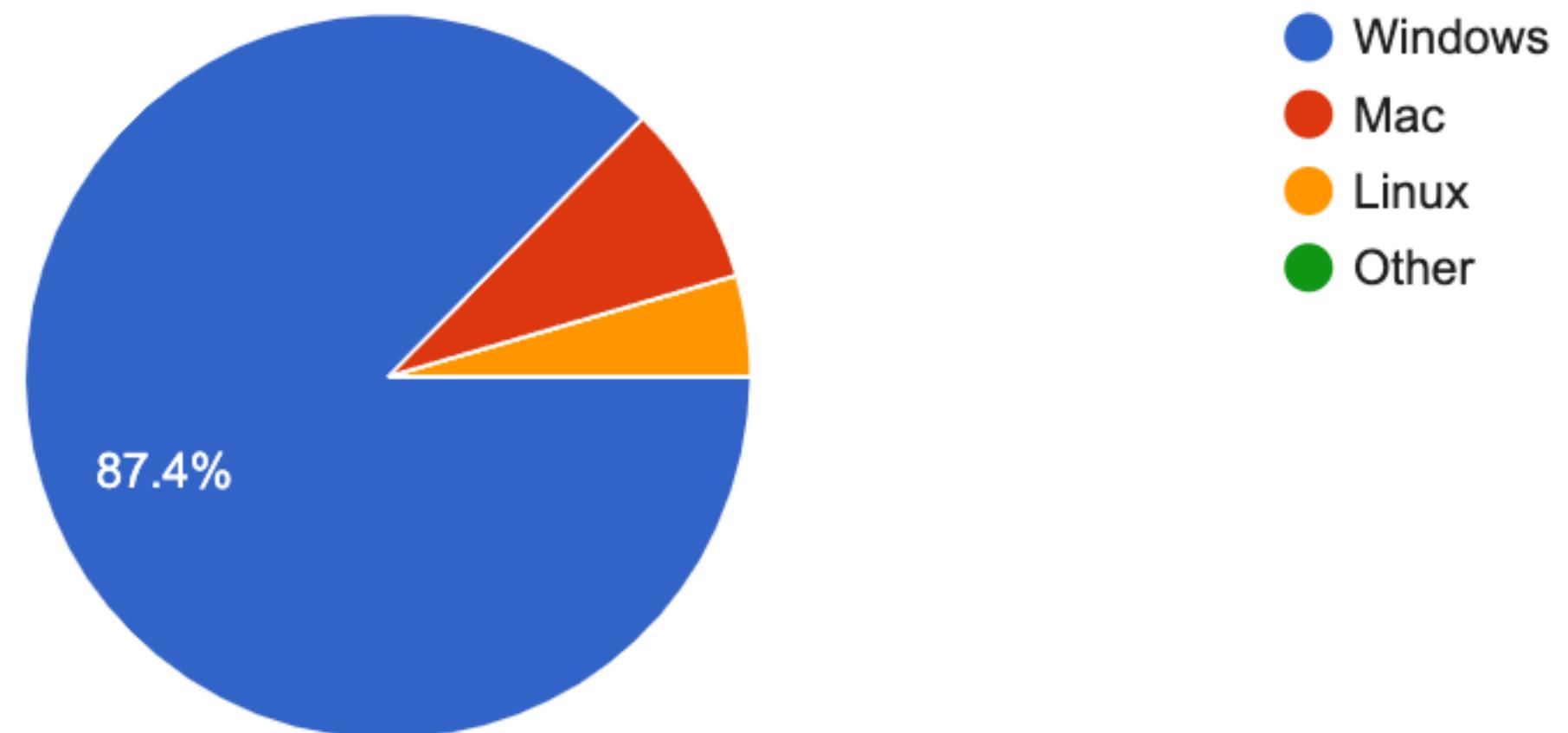
85 responses



Responses from 2020

What operating system is your development machine using?

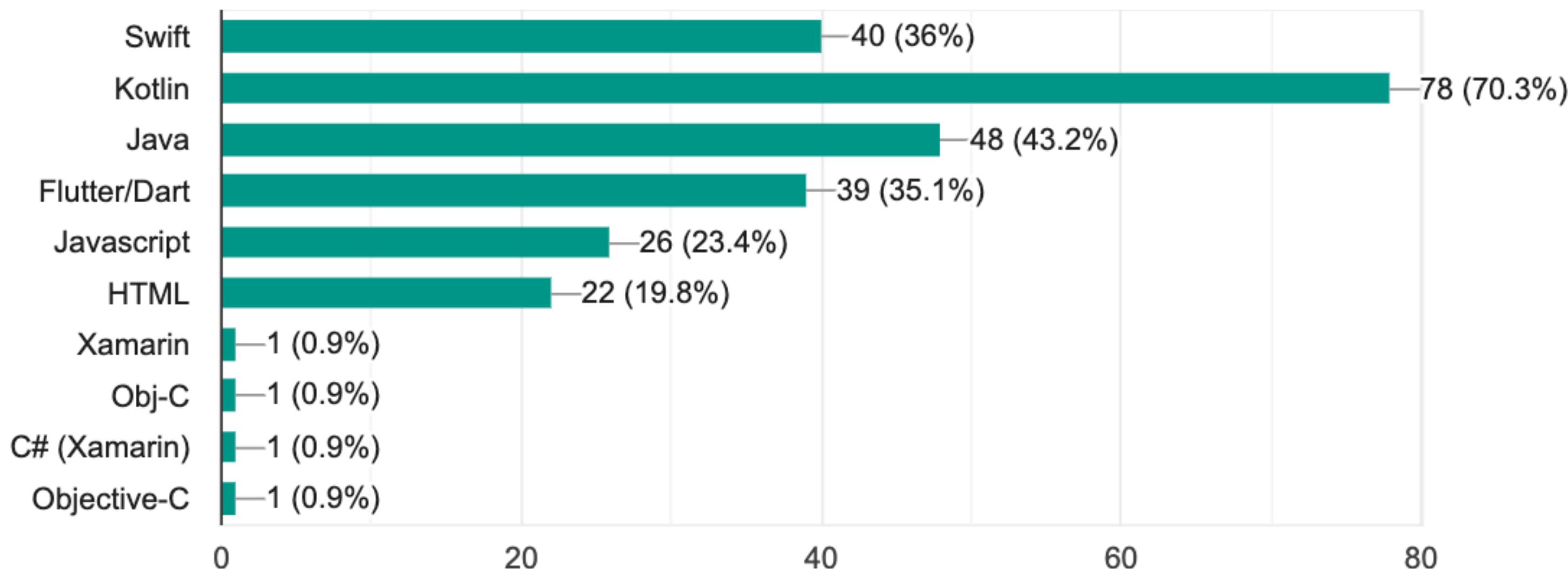
111 responses



Responses from 2020

What language would you like to use/learn?

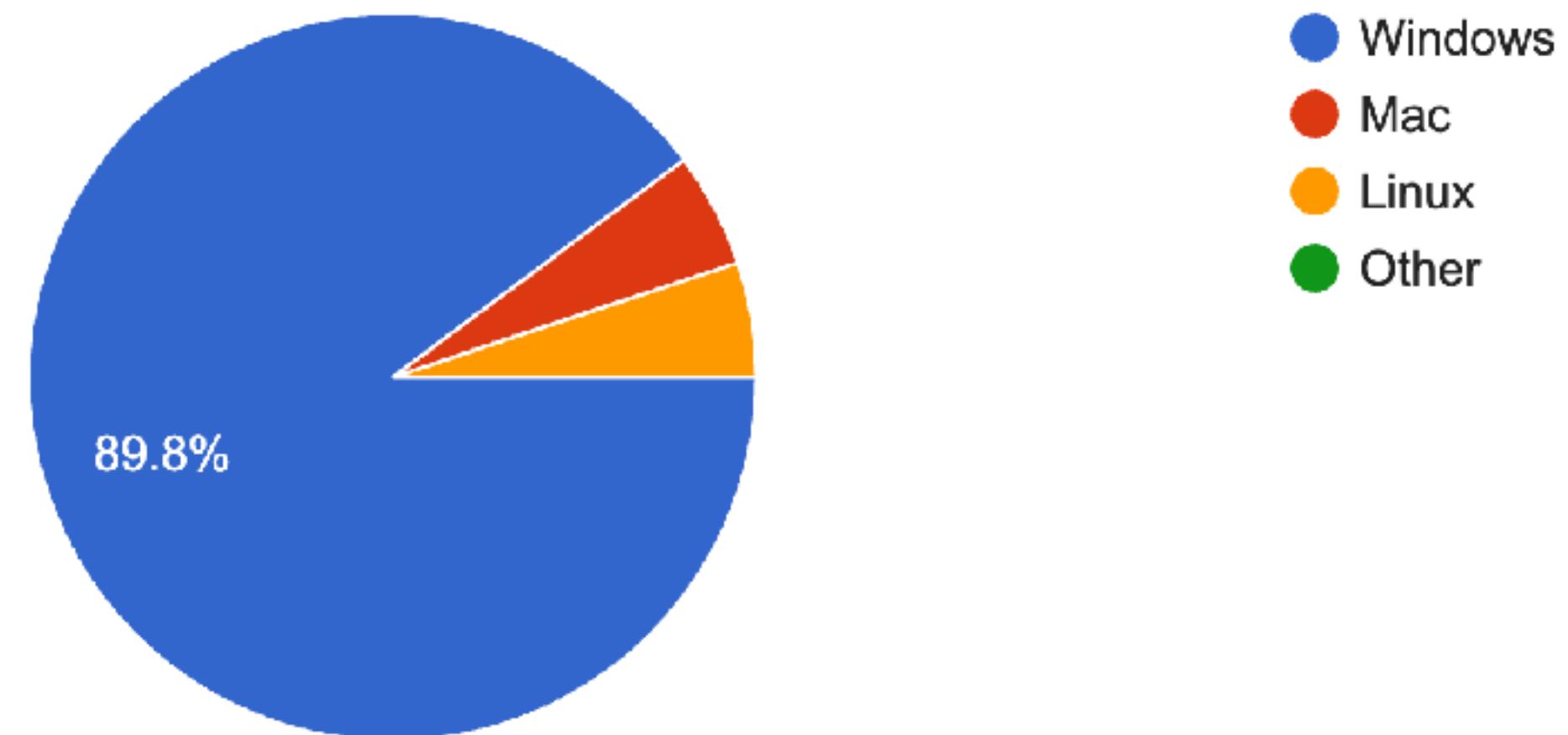
111 responses



Responses from 2021

What operating system is your development machine using?

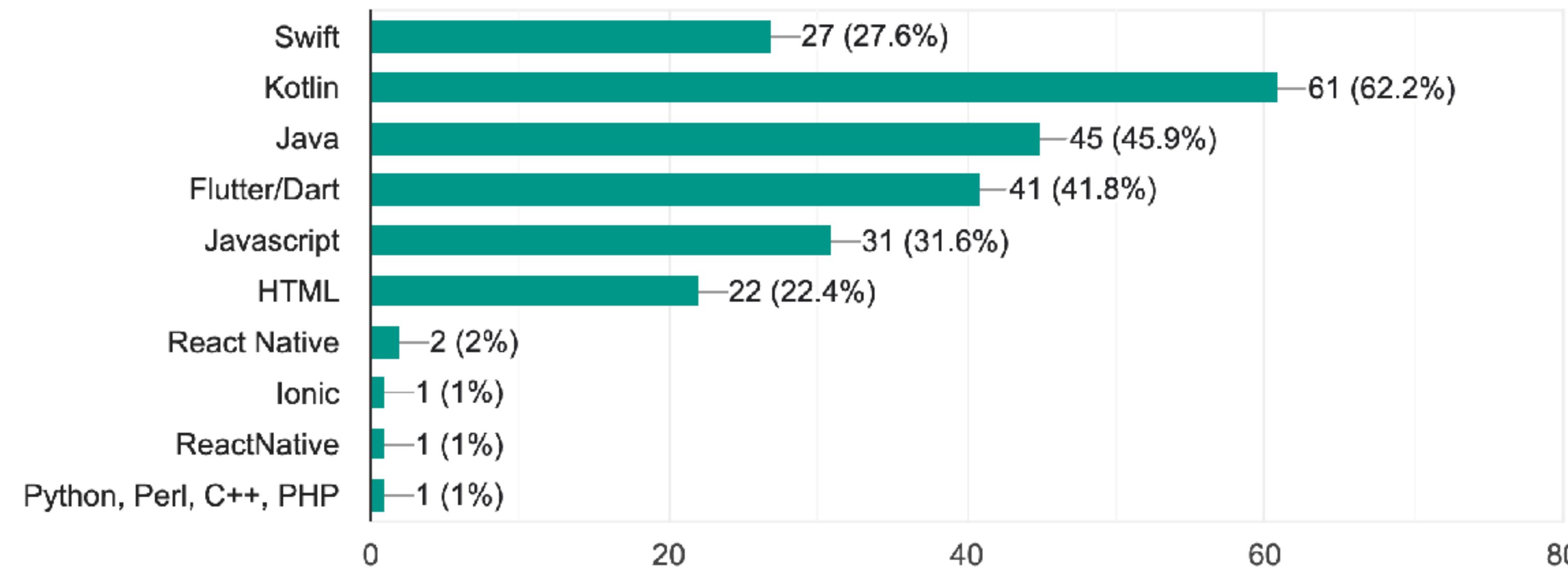
98 responses



Responses from 2021

What language would you like to use/learn?

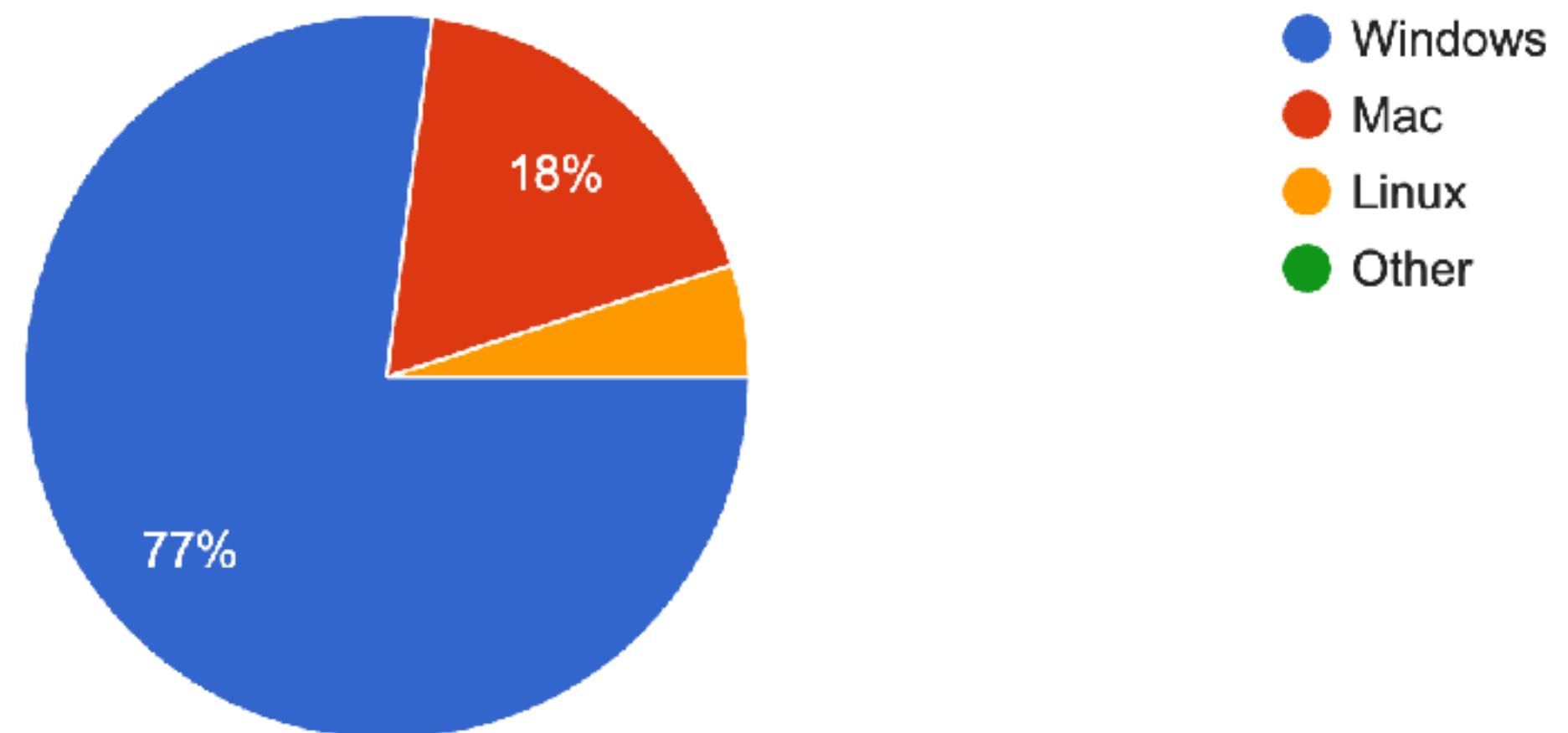
98 responses



Responses from 2022

What operating system is your development machine using?

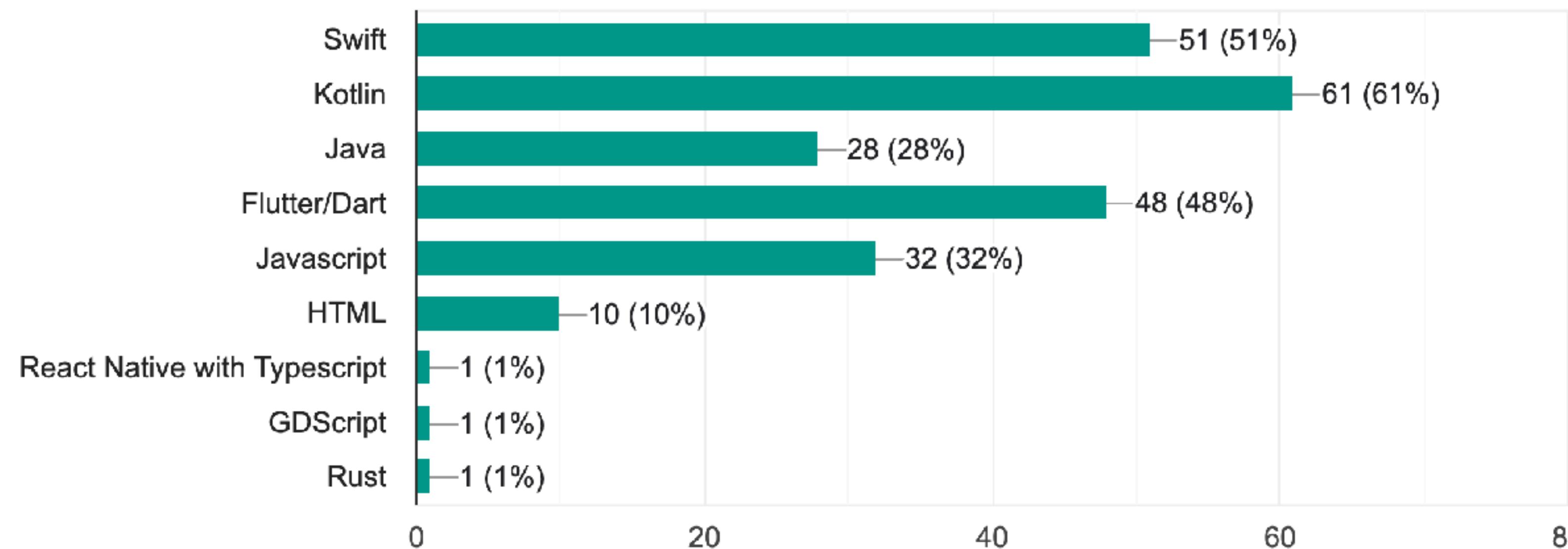
100 responses



Responses from 2022

What language would you like to use/learn?

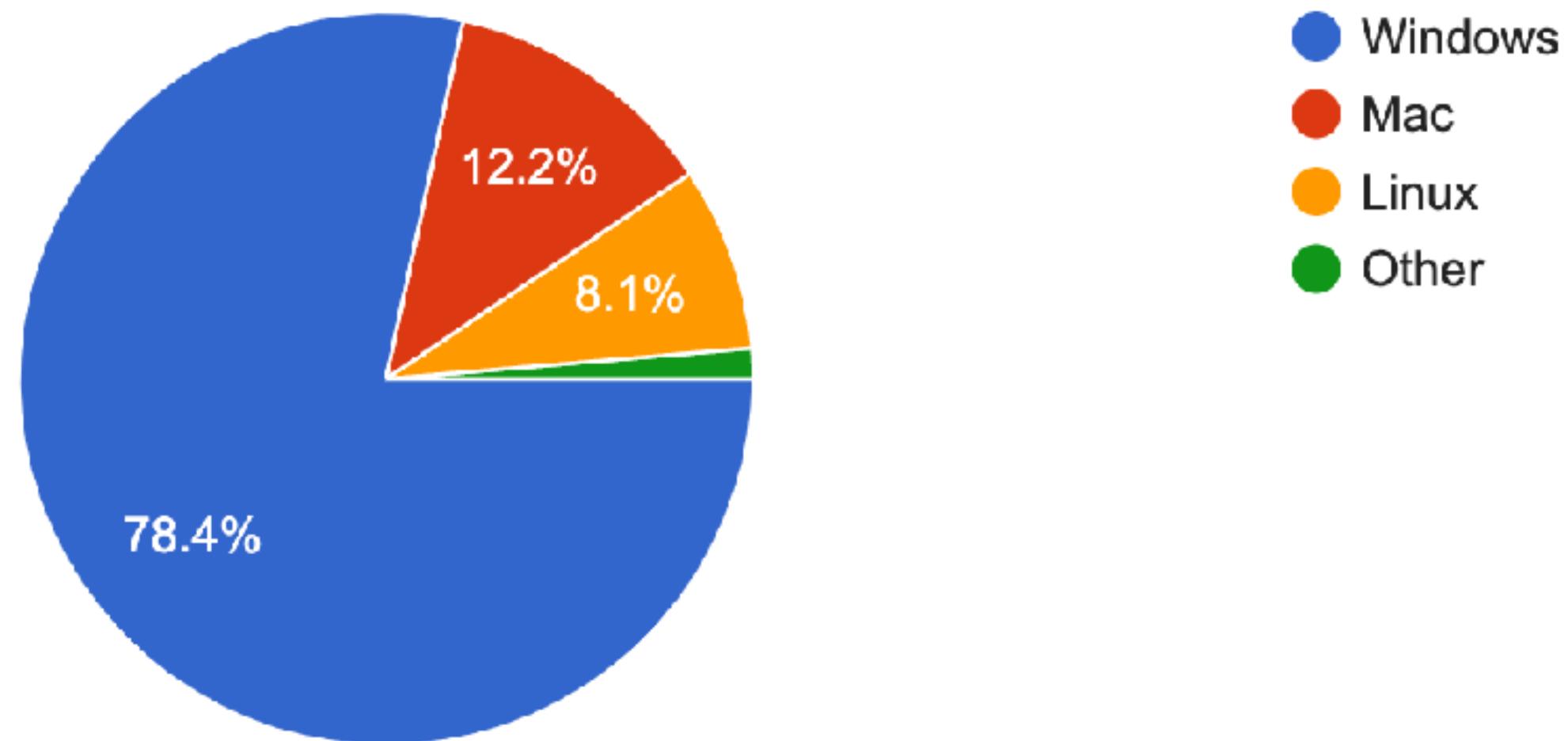
100 responses



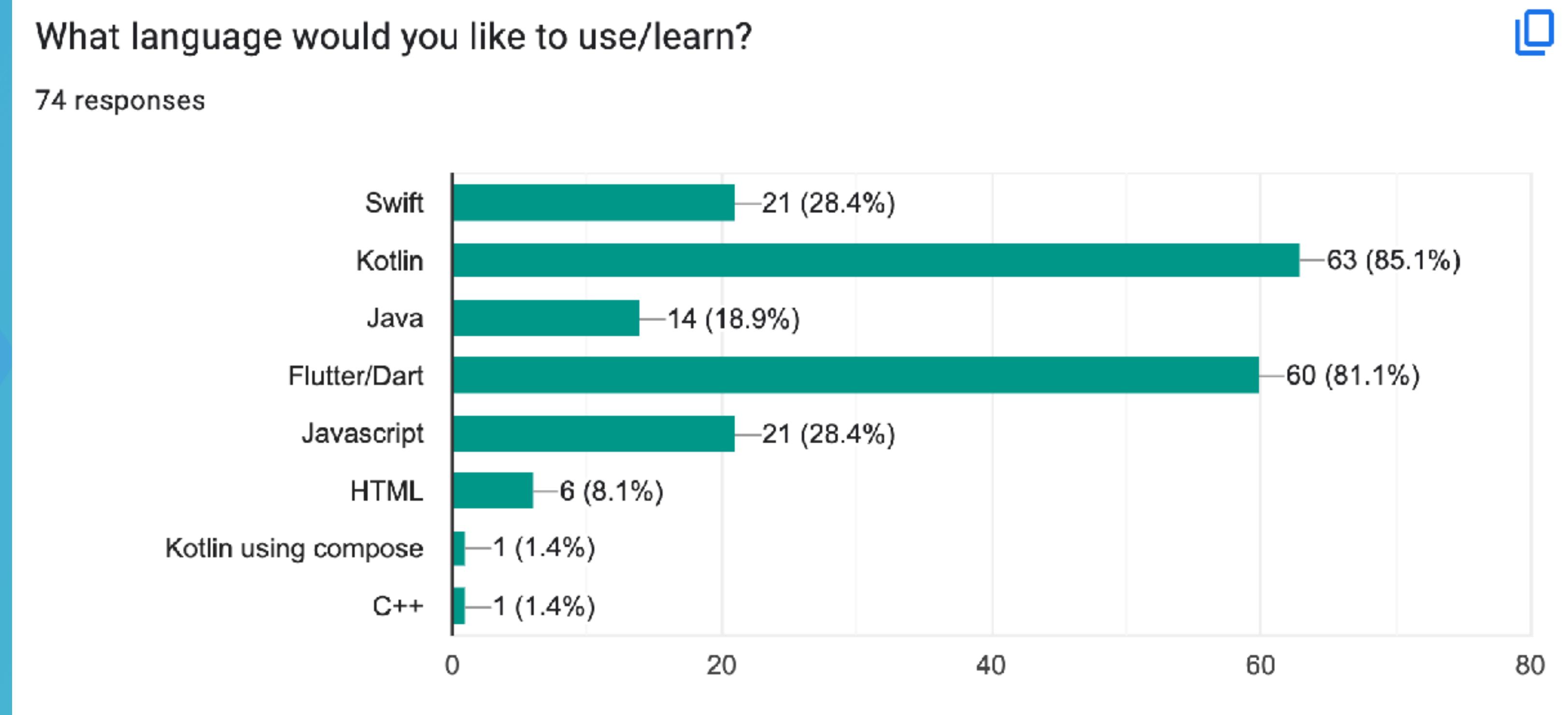
Responses from 2023

What operating system is your development machine using?

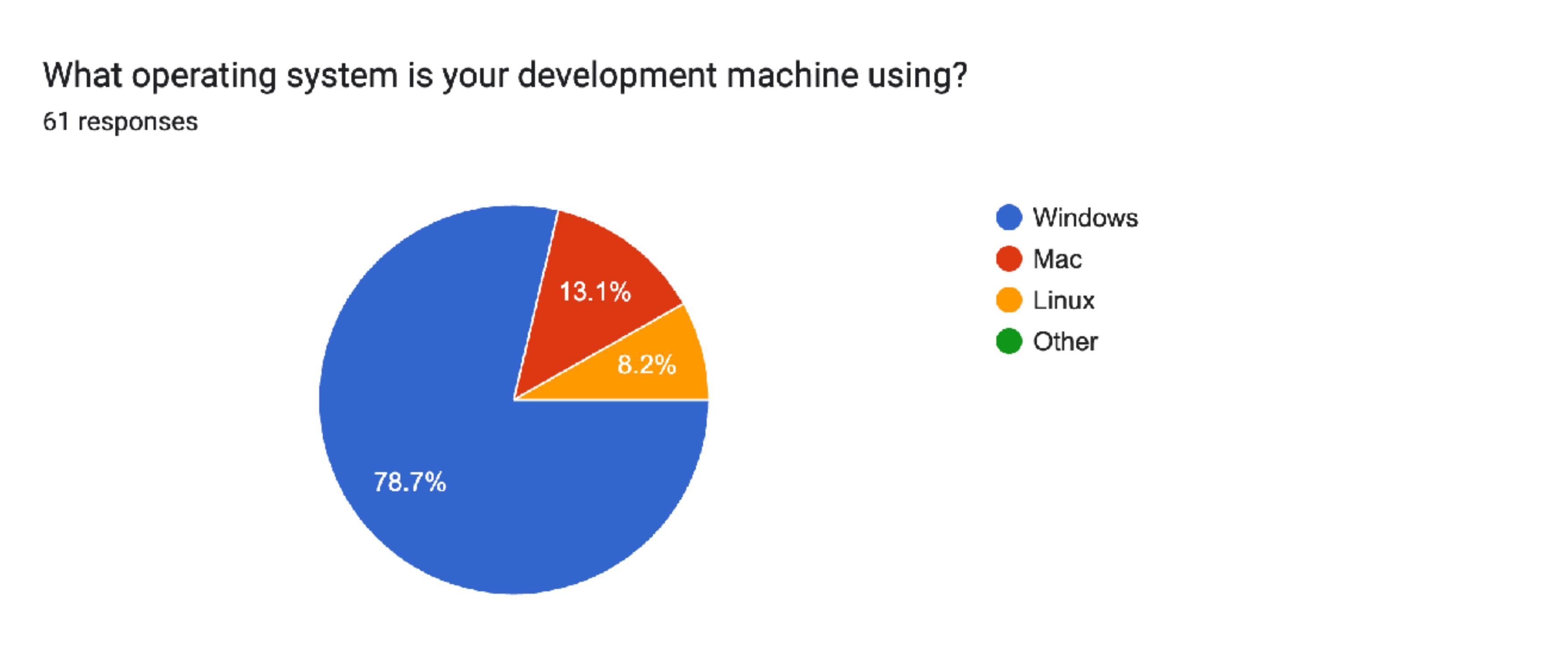
74 responses



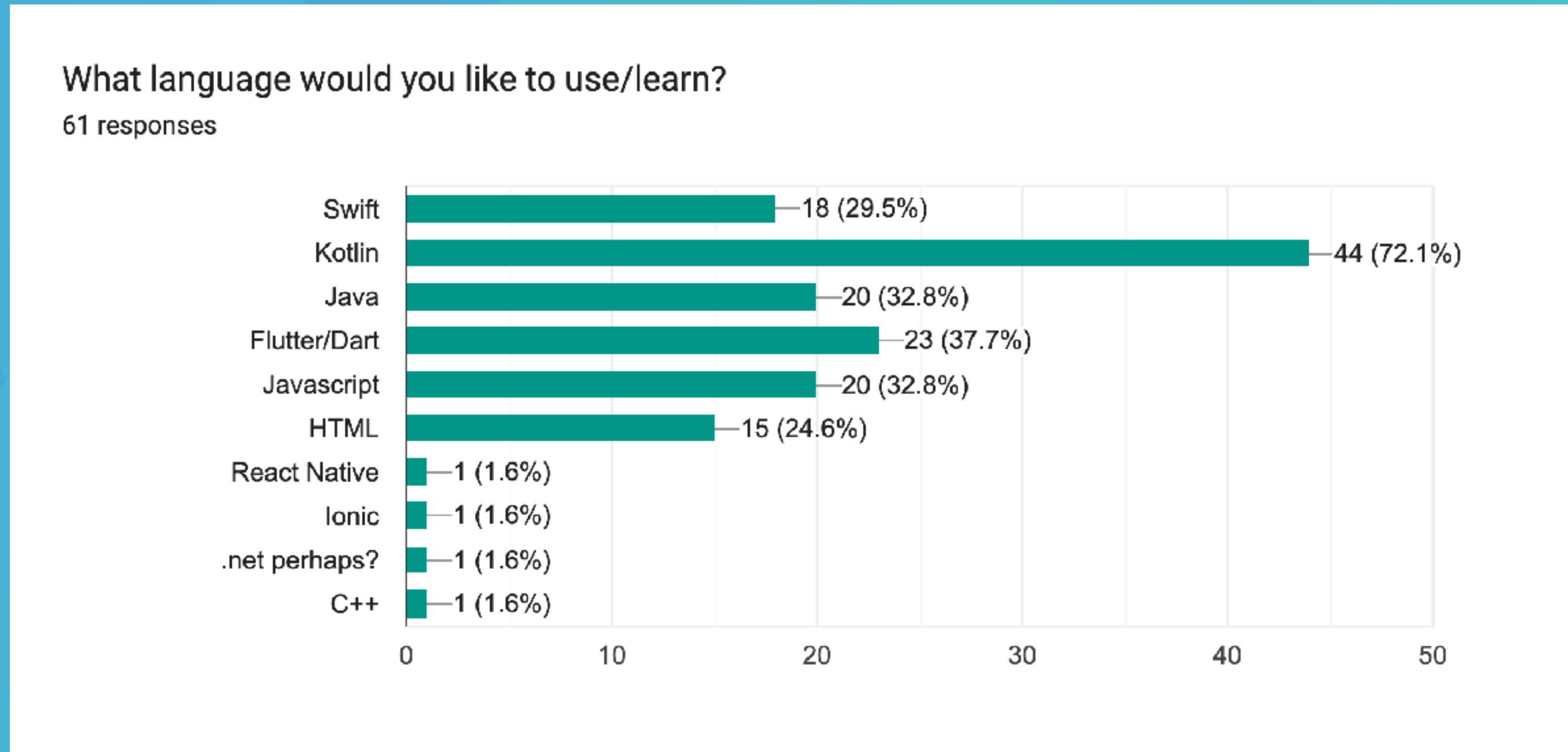
Responses from 2023



Responses from 2024



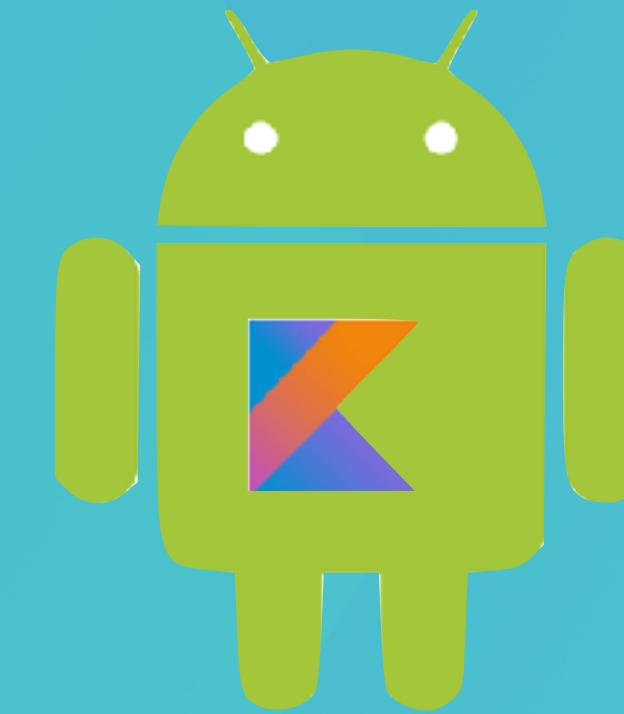
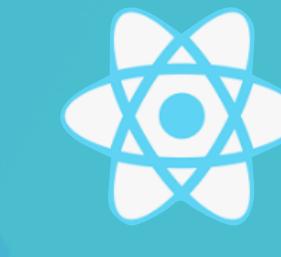
Responses from 2023



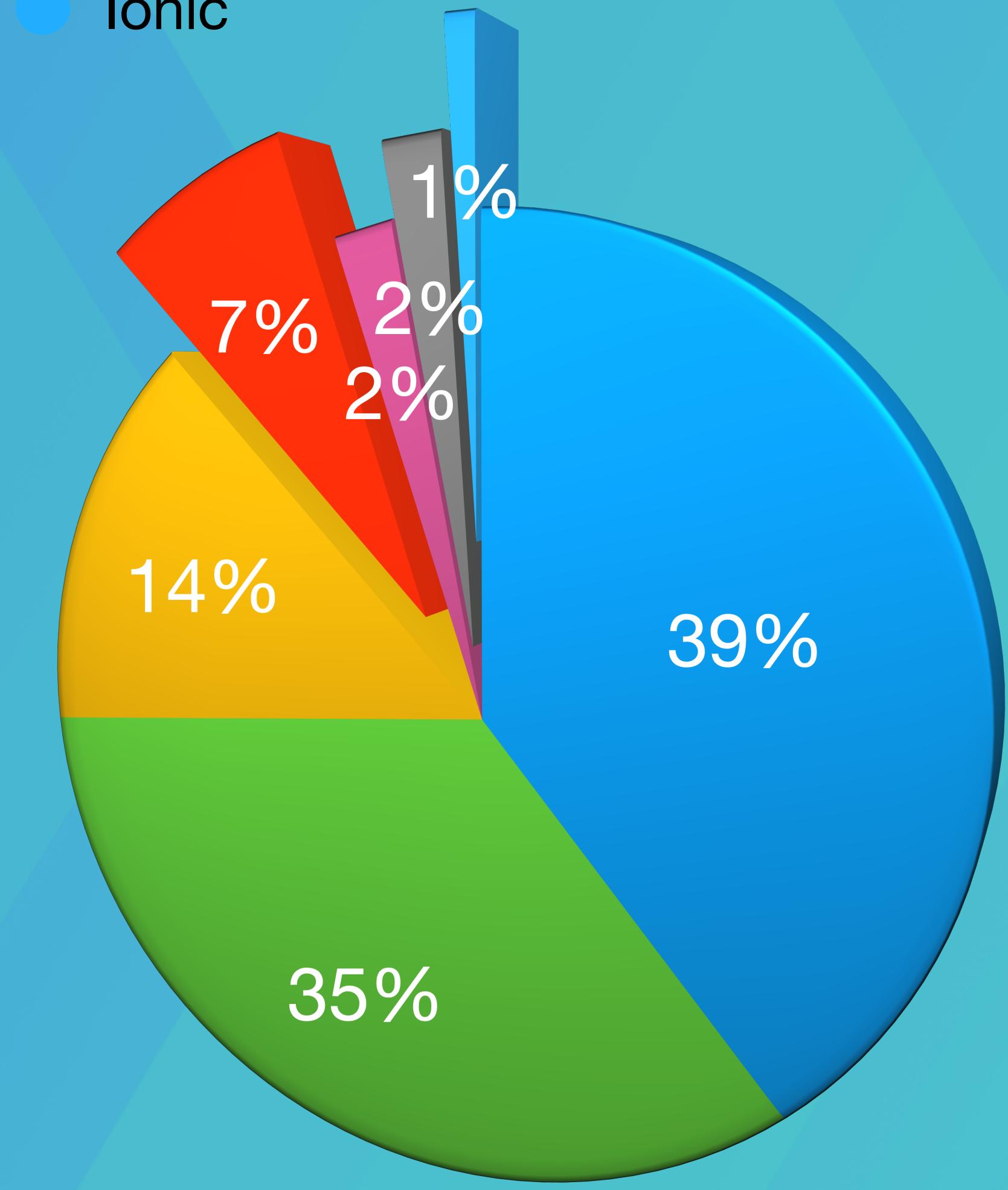
Check the quiz



Previous Year

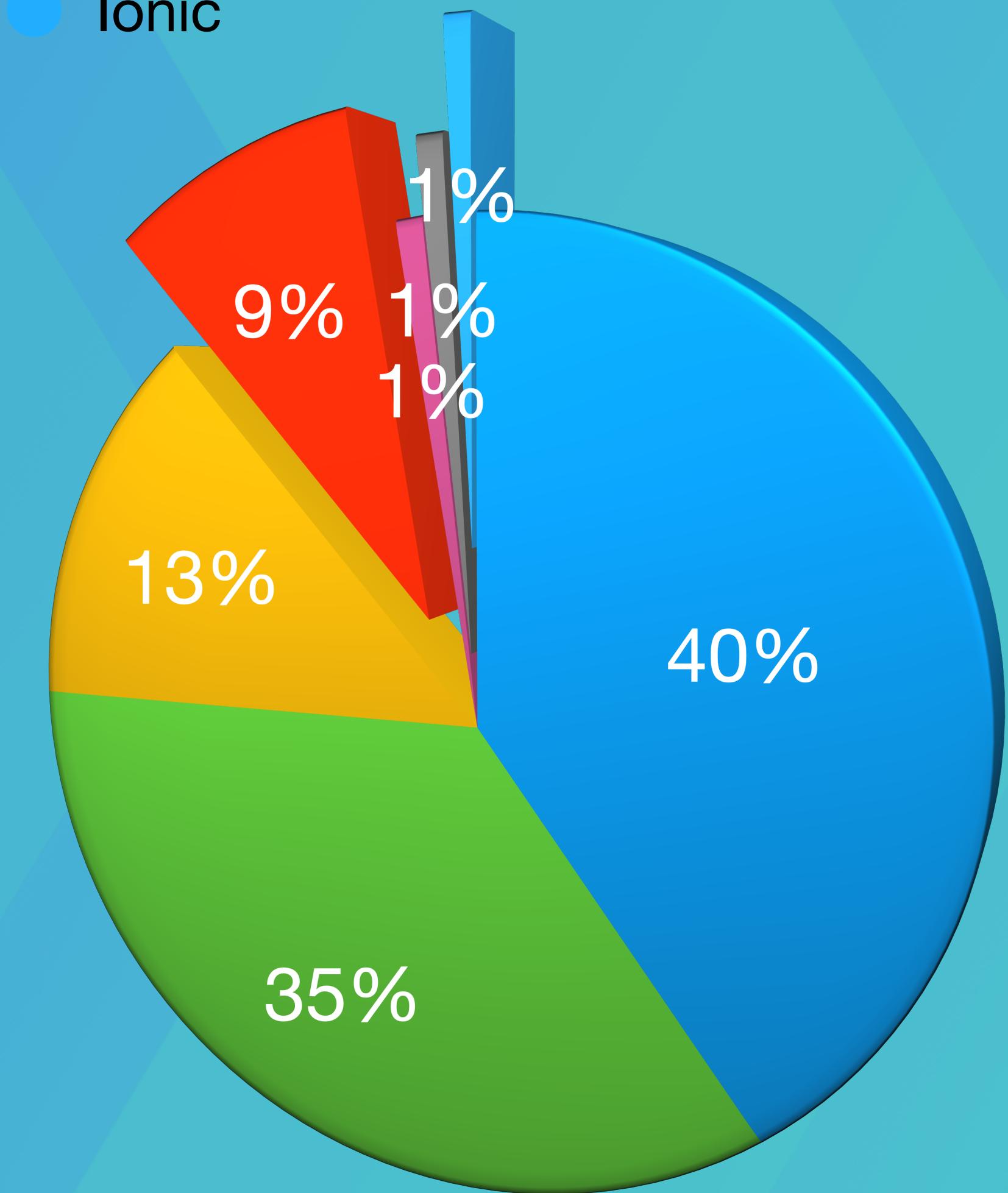


Kotlin Flutter ReactNative Java Xamarin
Swift Ionic



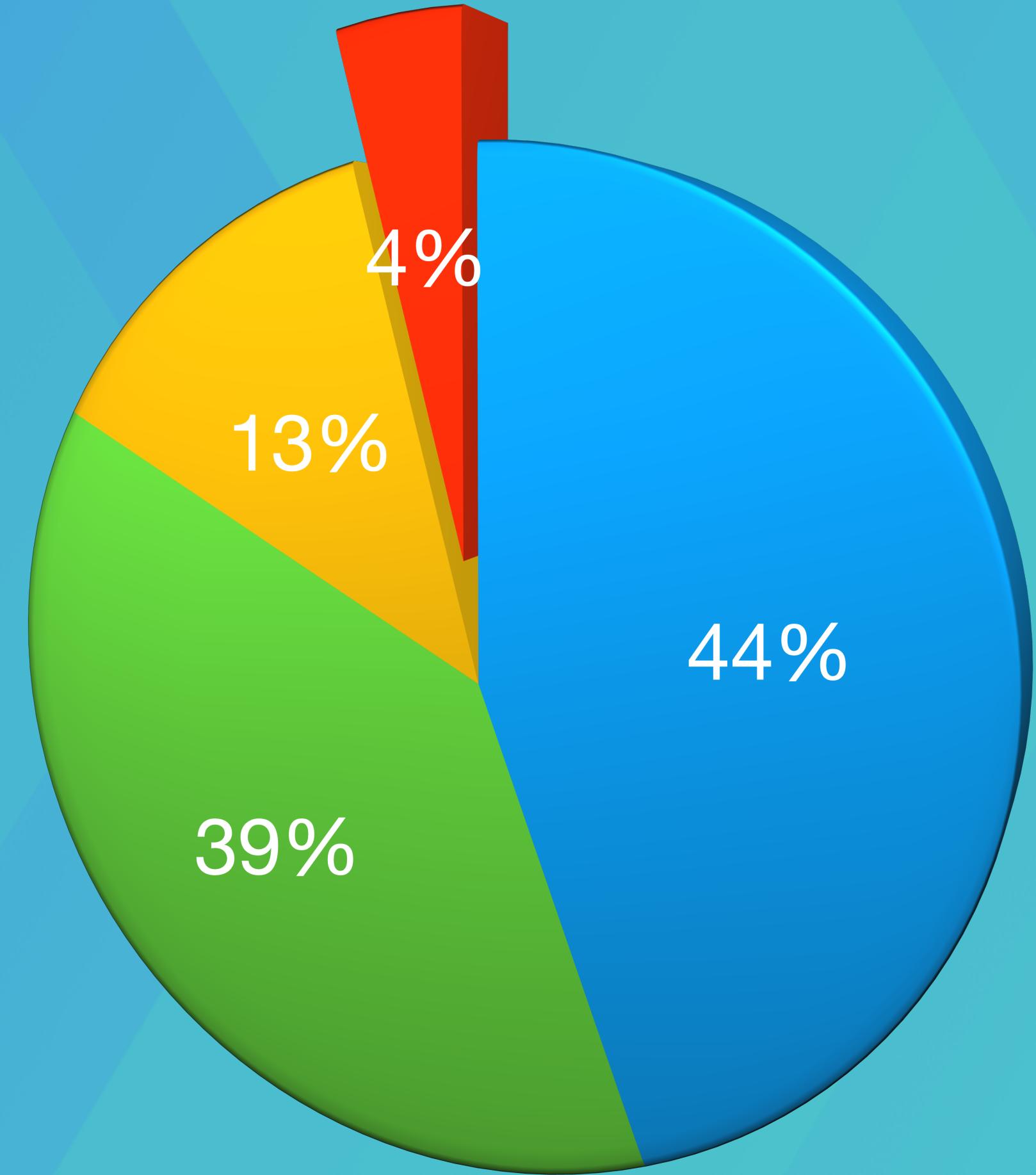
2019

Kotlin Flutter ReactNative Java Xamarin
Swift Ionic



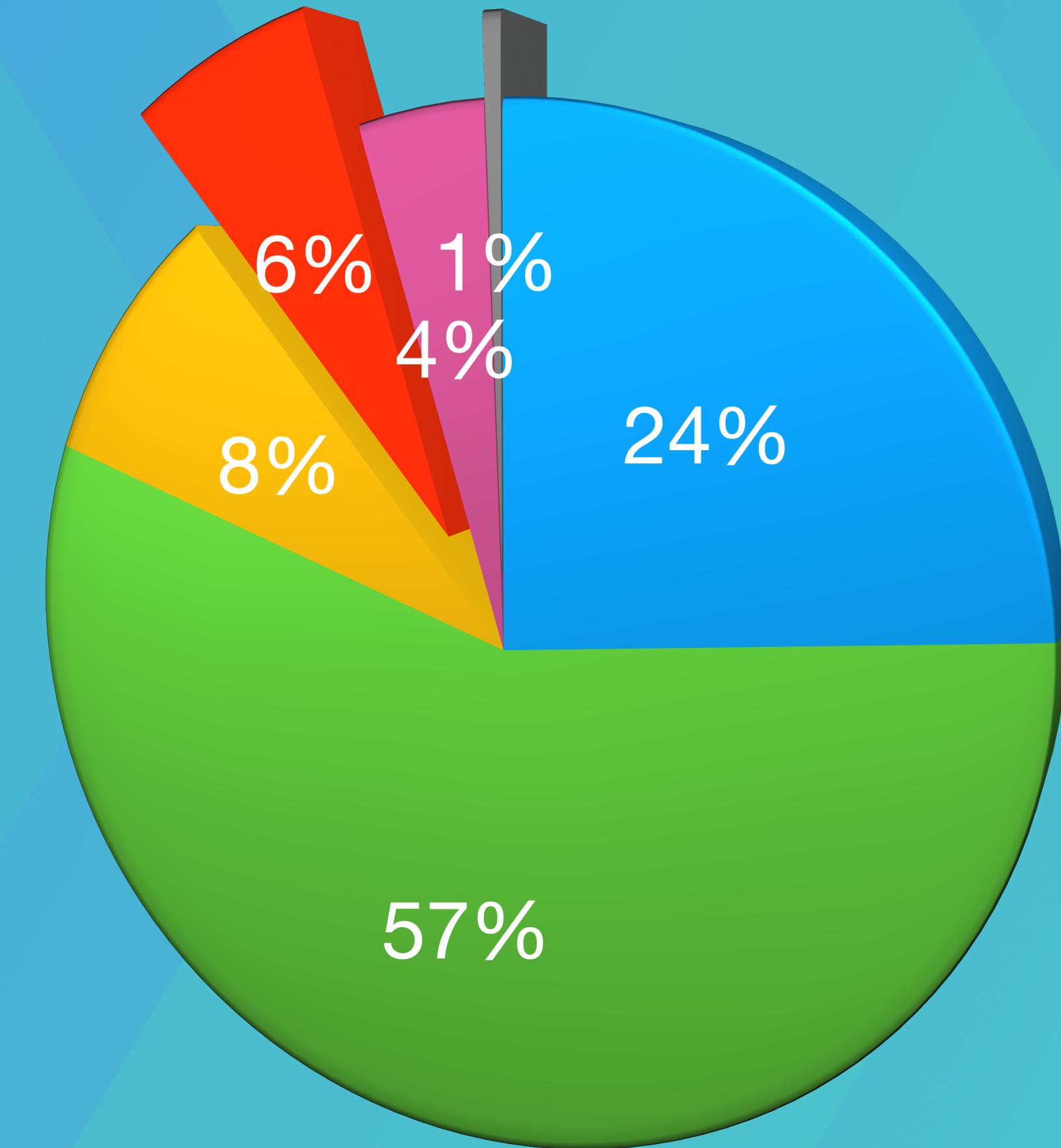
2020

Kotlin Flutter ReactNative Java



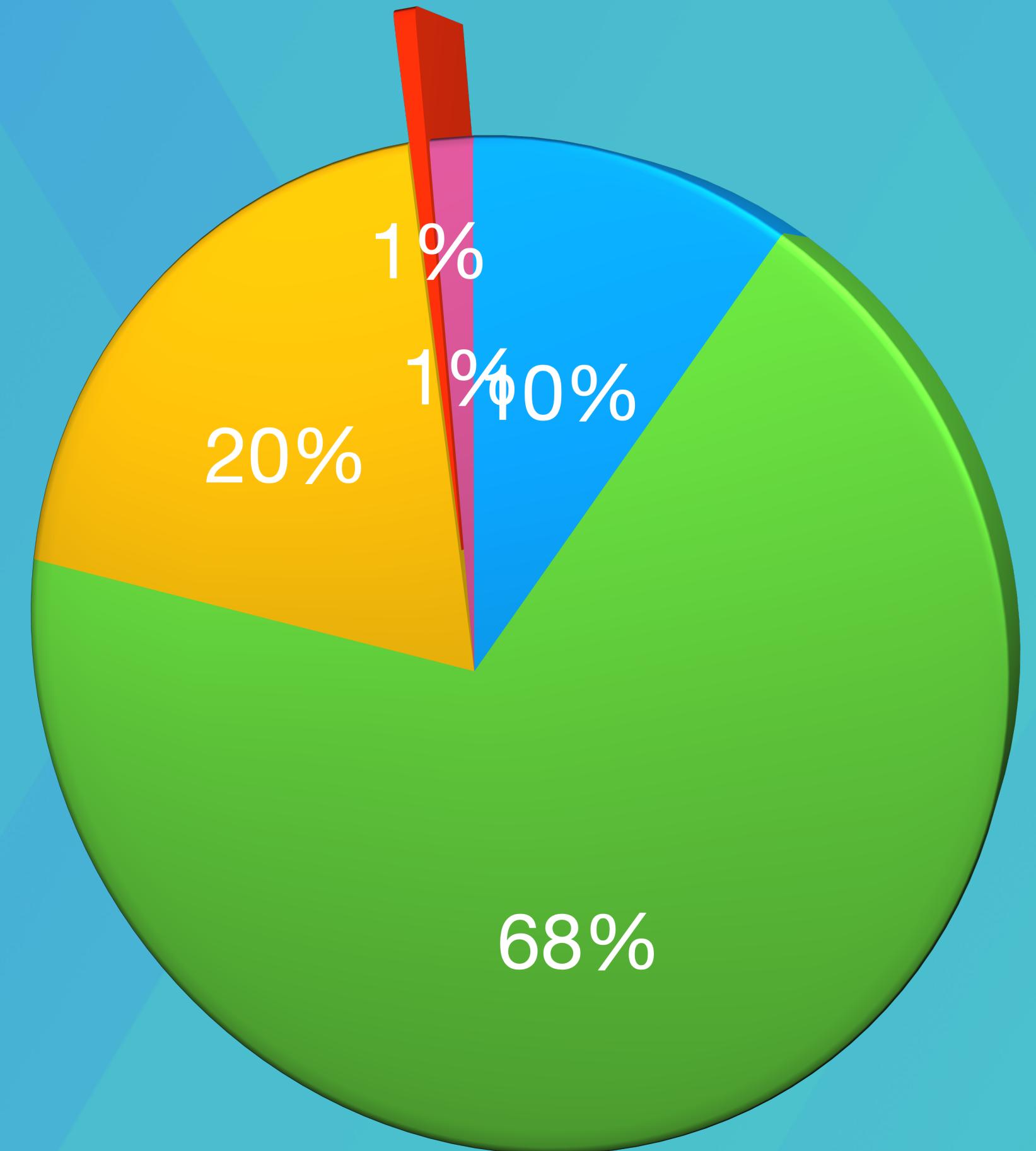
2021

Kotlin Flutter ReactNative Java iOS
Angular



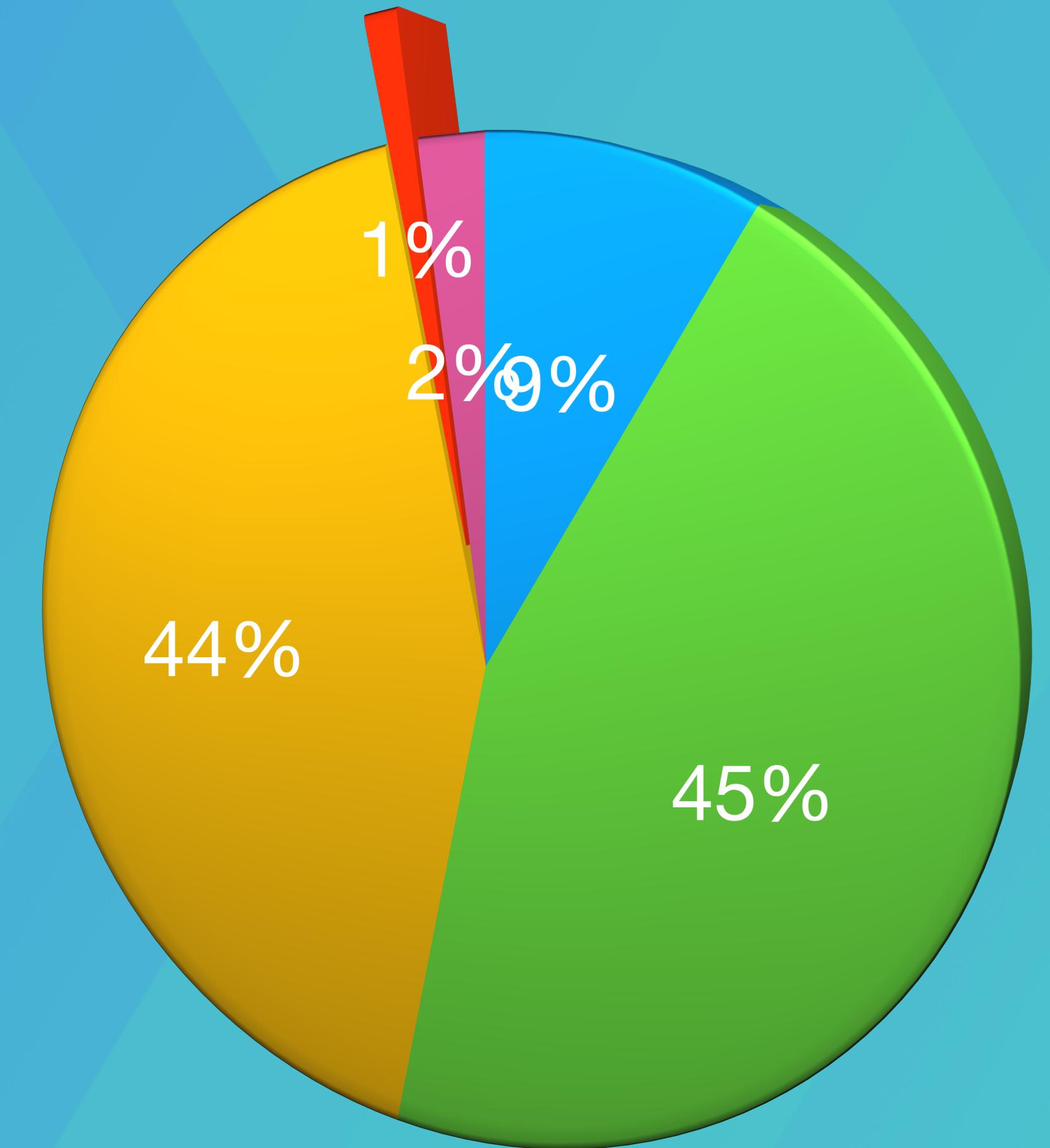
2022

Kotlin Flutter ReactNative Java iOS

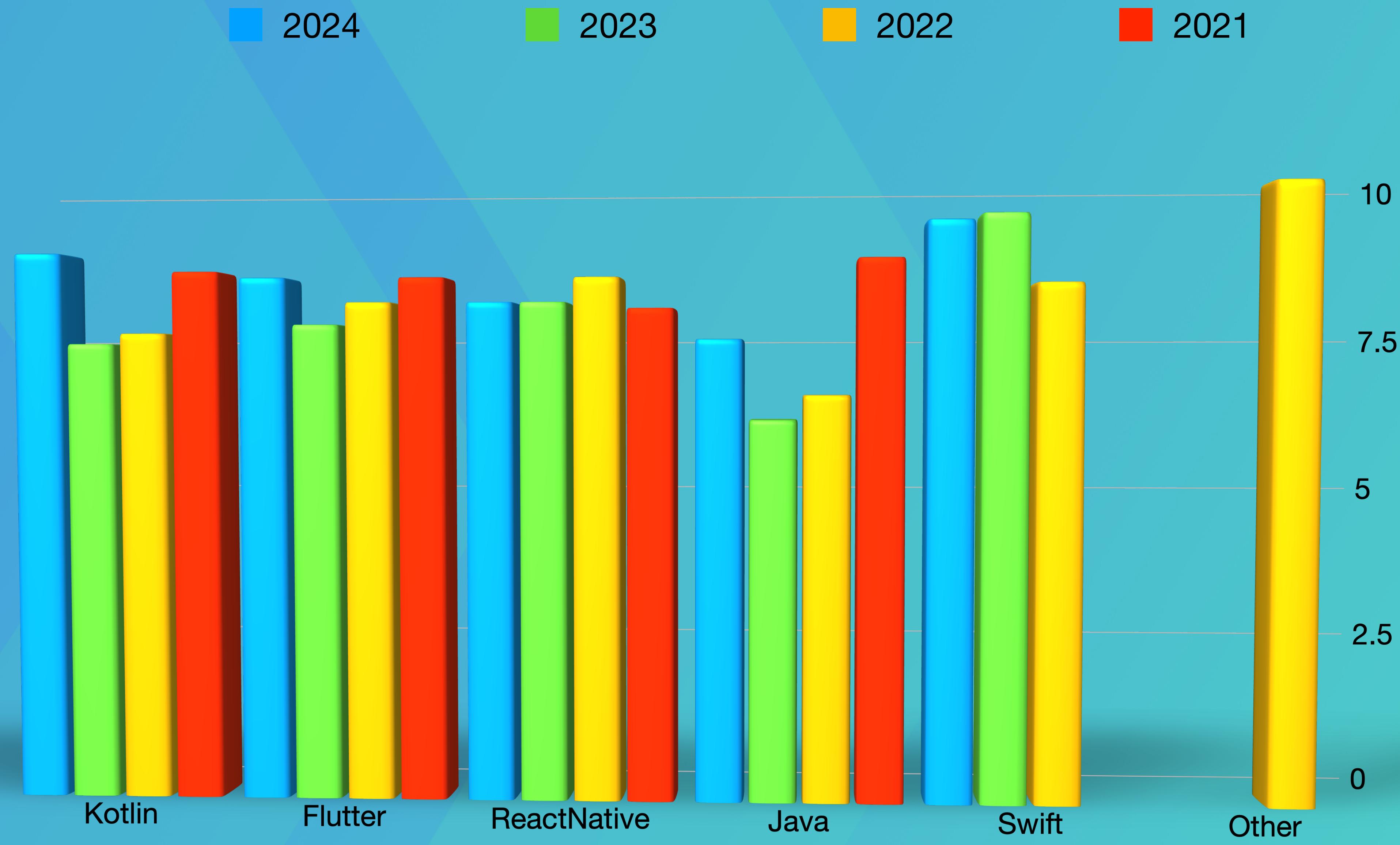


2023

Kotlin Flutter ReactNative Java iOS



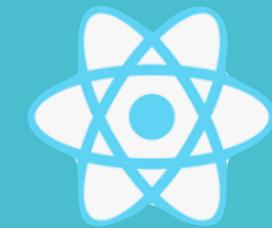
2024



This year

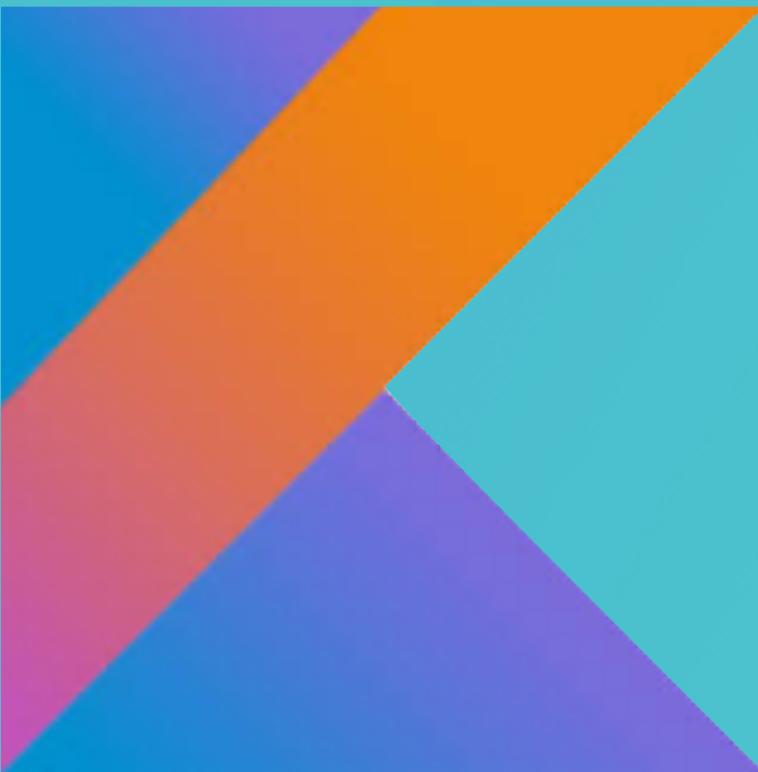


OBJ-C



Why Kotlin

- Modern programming language
- Object oriented
- Lambdas, Coroutines, Properties
- Since 2011
- Open Sources 2012
- Official First Class Android Citizen since 2017
- IntelliJ and Android Studio 3.0+



Why Kotlin



```
public class Aquarium {  
  
    private int mTemperature;  
  
    public Aquarium() { }  
  
    public int getTemperature() {  
        return mTemperature;  
    }  
  
    public void setTemperature(int mTemperature) {  
        this.mTemperature = mTemperature;  
    }  
  
    @Override  
    public String toString() {  
        return "Aquarium{" +  
            "mTemperature=" + mTemperature +  
            '}';  
    }  
}
```

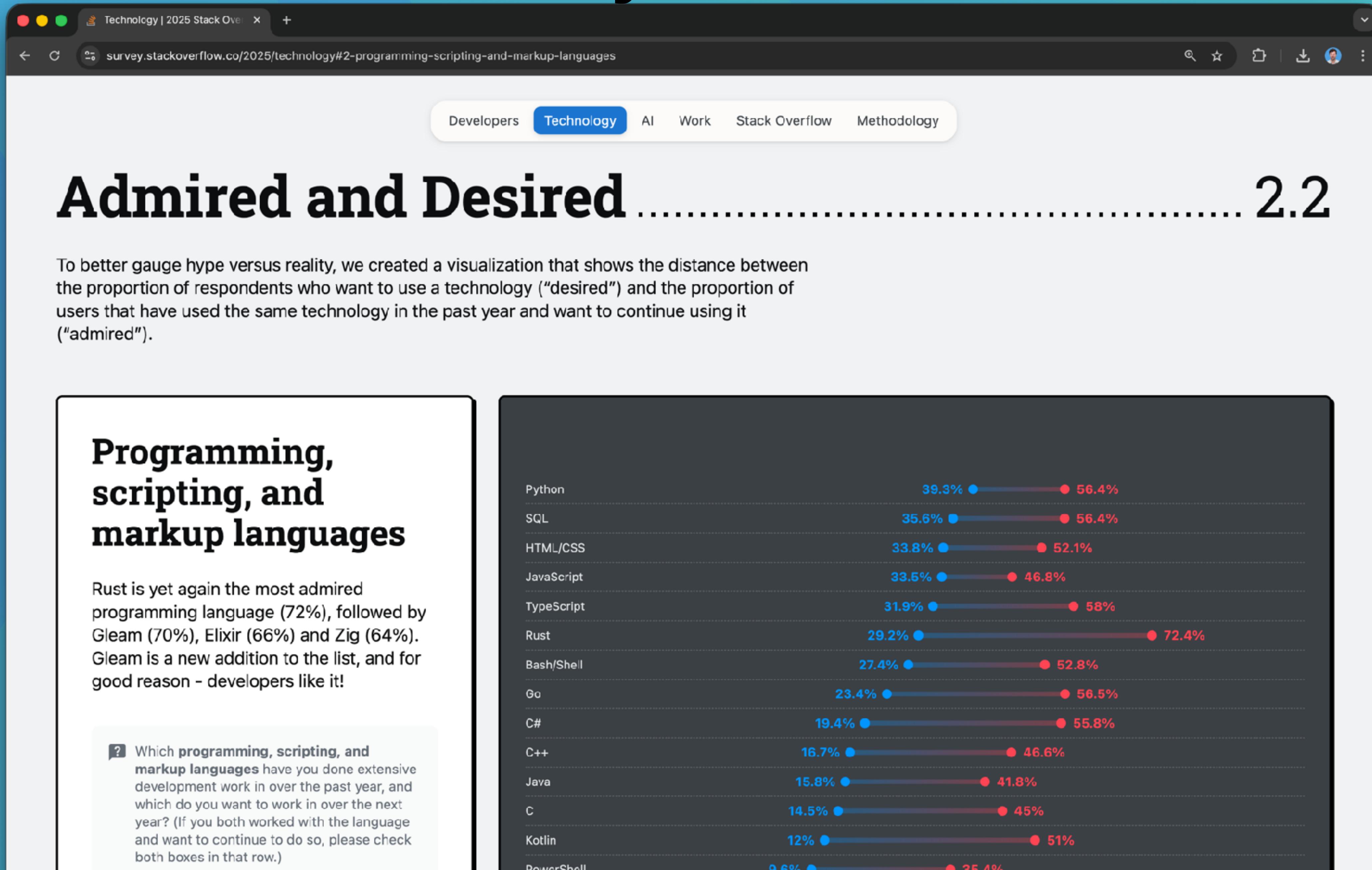
Why Kotlin

```
class Aquarium (var temperature: Int = 0)
```

Kotlin equivalent



Why Kotlin



Kotlin Multiplatform | Kotlin Docs

kotlinlang.org/docs/multiplatform.html

Solutions Docs Community Teach Play

Kotlin Multiplatform

Edit page Last modified: 25 September 2024

The Kotlin Multiplatform technology is designed to simplify the development of cross-platform projects. It reduces time spent writing and maintaining the same code for different platforms while retaining the flexibility and benefits of native programming.

Kotlin Multiplatform

Kotlin Multiplatform use cases

Android and iOS applications

Sharing code between mobile platforms is a major [Kotlin Multiplatform use case](#). With Kotlin Multiplatform, you can build cross-platform mobile applications that share code between Android and iOS projects to implement networking, data storage and data validation, analytics, computations, and other application logic.

Check out the [Get started with Kotlin Multiplatform](#) and [Create a multiplatform app using Ktor and SQLDelight](#) tutorials, where you will create applications for Android and iOS that include a module with shared code for both platforms.

Thanks to [Compose Multiplatform](#), a Kotlin-based declarative UI framework developed by JetBrains, you can also share UIs across Android and iOS to create fully cross-platform apps:

UI

Why Kotlin

Kotlin and Android | Android developer.android.com/kotlin

Developers Essentials Search / Language Android Studio

Overview Build Better Apps Samples Guides Developer Stories

Apps built with Kotlin

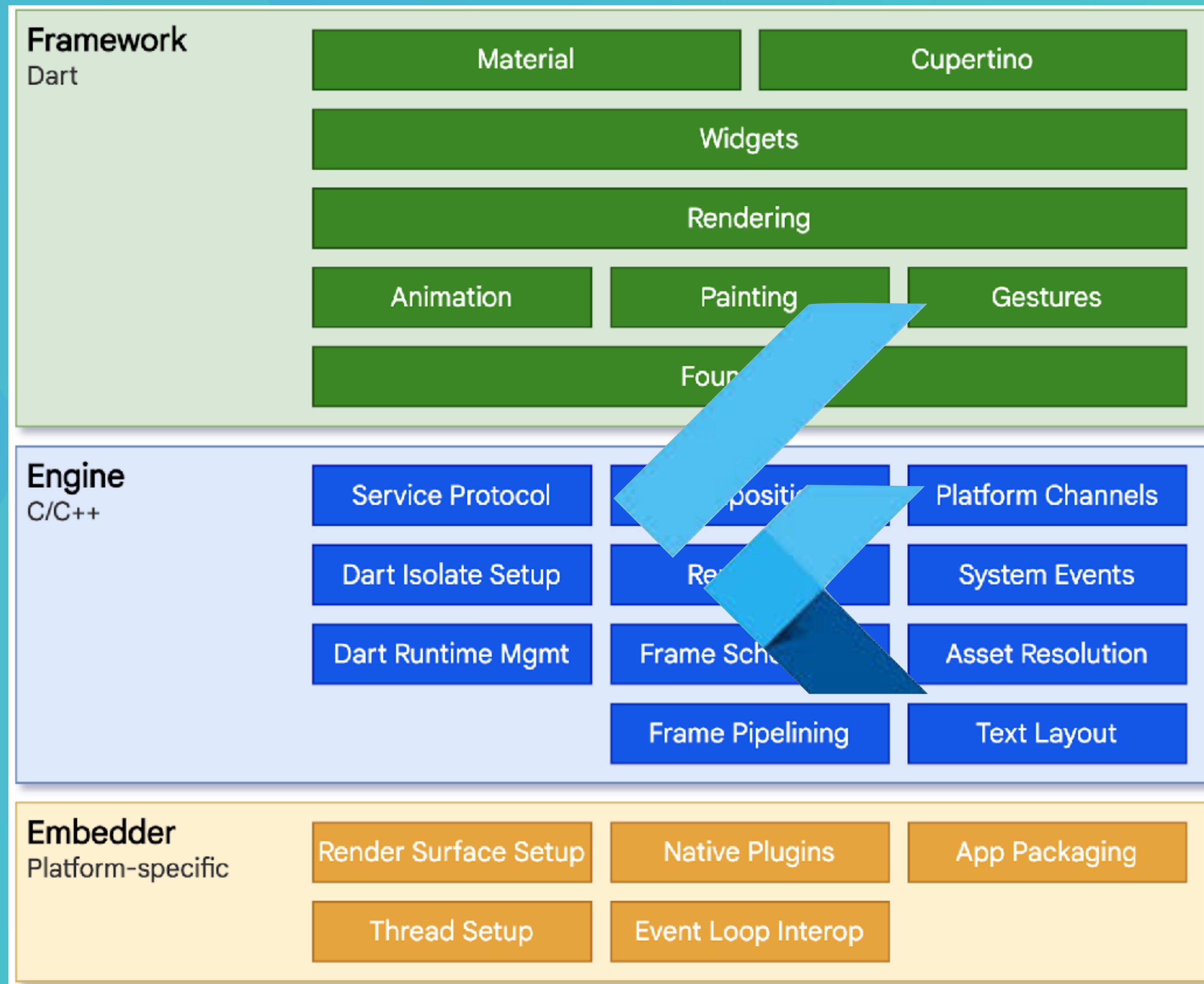
Many apps are already built with Kotlin—from the hottest startups to Fortune 500 companies. Learn how Kotlin has helped their teams become more productive and write higher quality apps.

See developer stories

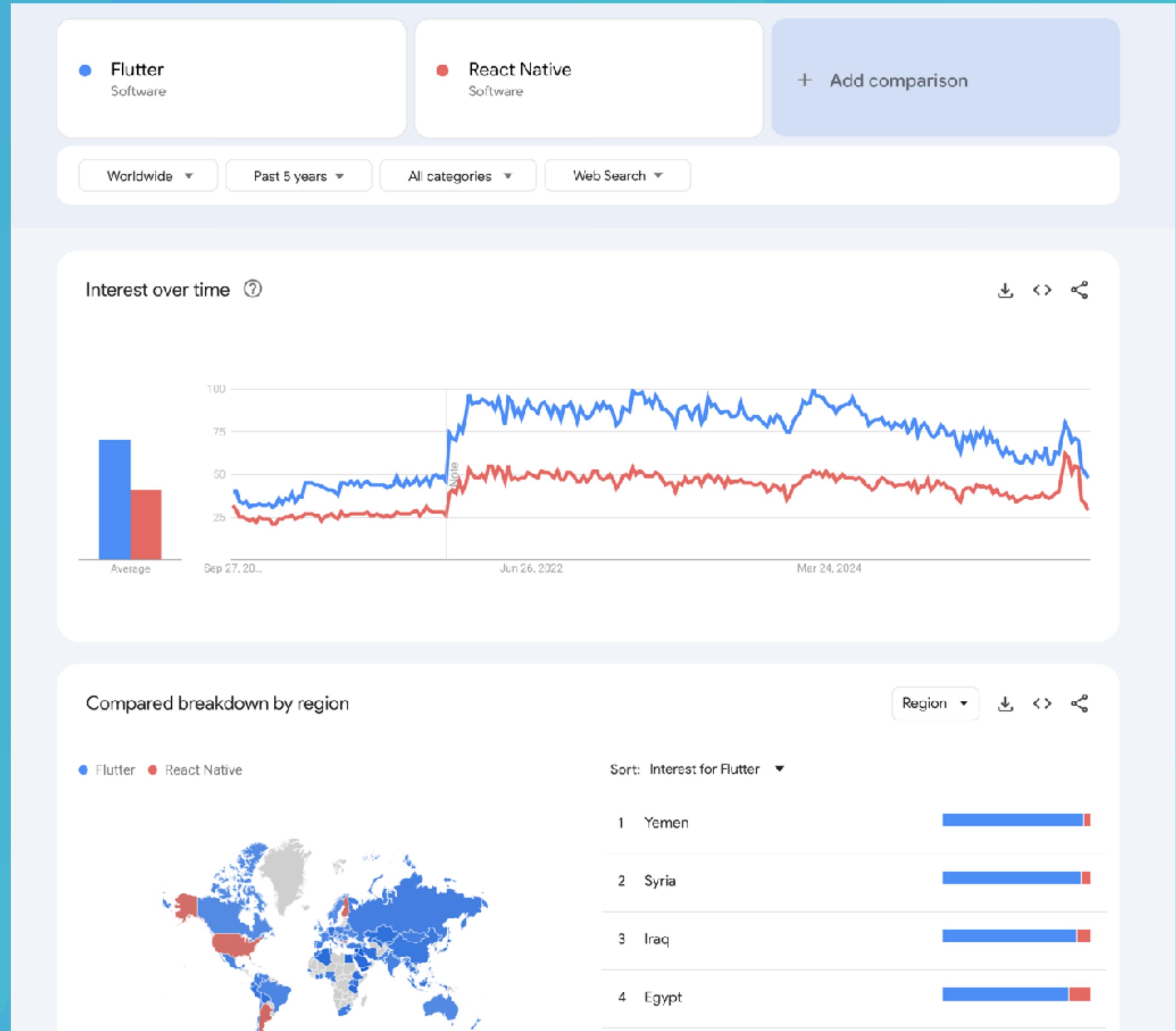
The page displays a collection of 30 app icons arranged in three rows of ten. The icons represent well-known companies and services that have adopted Kotlin, such as Slack, Lyft, Evernote, Square, LinkedIn, Pinterest, GitHub, Netflix, Expedia, Airbnb, Twitter, Facebook, and many others. This visual emphasizes the language's popularity and its use in building high-profile mobile applications.

Why Flutter

- Platform-agnostic
- Simplifies and speeds application development
- Easy to learn and easy to use
- Scales well
- Offer an excellent user experience



Why Flutter



Flutter
Software

React Native
Software

+ Add comparison

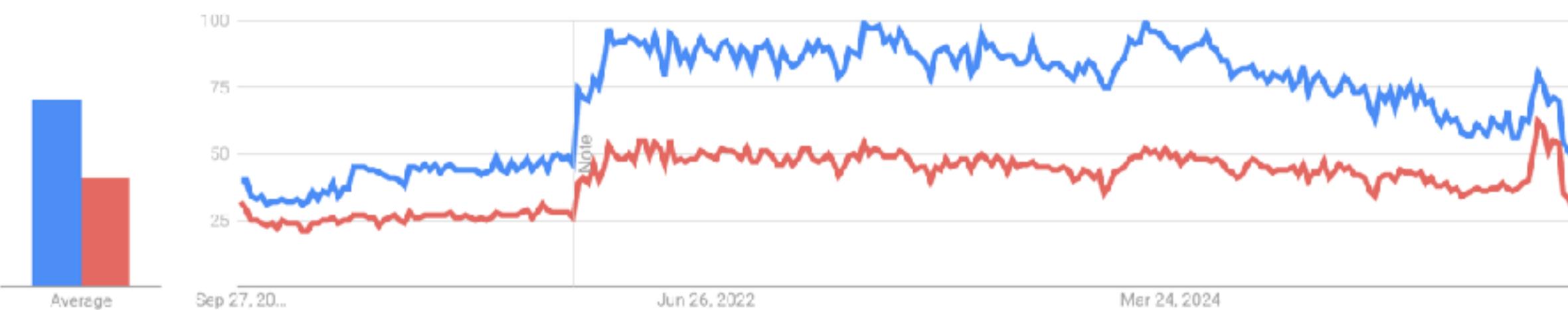
Worldwide ▾

Past 5 years ▾

All categories ▾

Web Search ▾

Interest over time ②



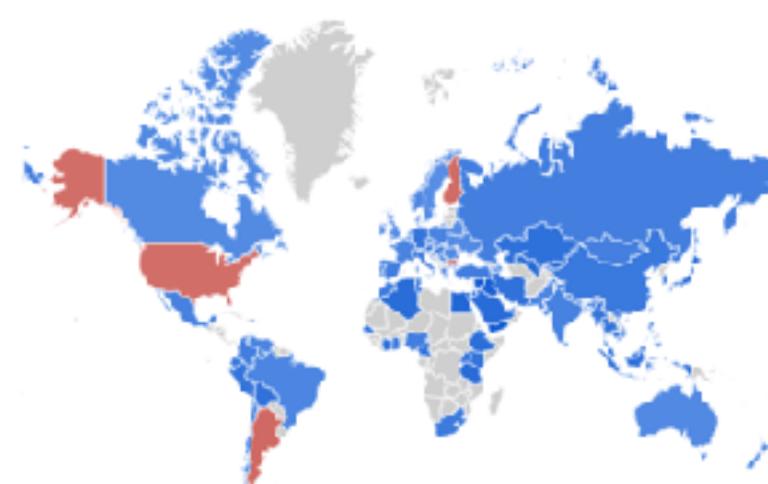
Download Share Embed

Compared breakdown by region

Region ▾ Download Share Embed

Flutter React Native

Sort: Interest for Flutter ▾



1	Yemen	
2	Syria	
3	Iraq	
4	Egypt	
5	Japan	

Region ▾ Download Share Embed

Color Intensity represents percentage of searches [LEARN MORE](#)

< Showing 1-5 of 90 regions >

Include low search volume regions

Flutter
Software

React Native
Software

+ Add comparison

Romania

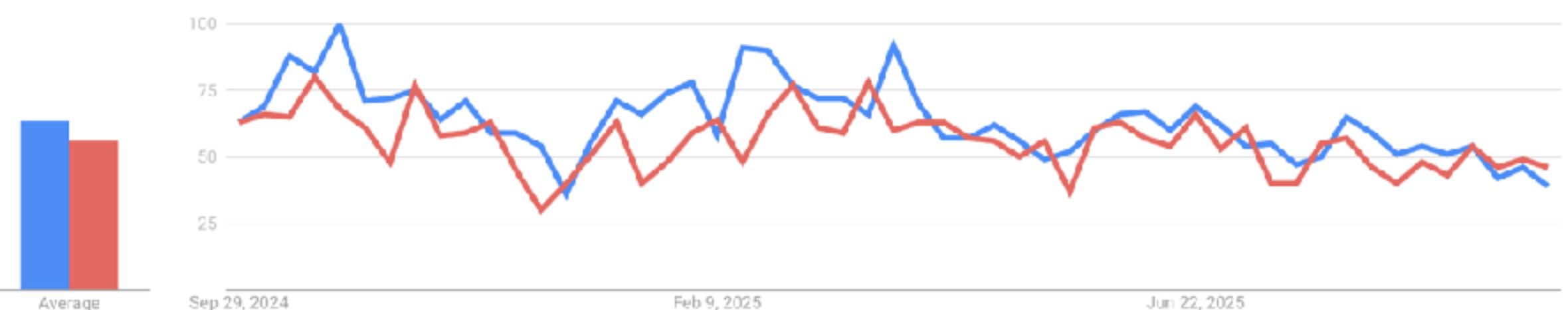
Past 12 months

All categories

Web Search

Interest over time ?

↓ ↷ ↸

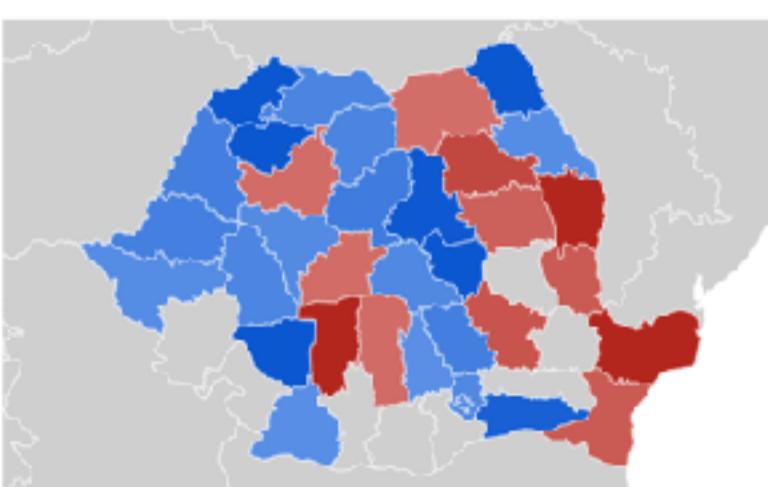


Compared breakdown by subregion

Subregion ▼ ↓ ↷ ↸

Flutter React Native

Sort: Interest for Flutter ▼



1	Covasna County	
2	Satu Mare County	
3	Sălaj	
4	Botoșani County	
5	Gorj County	

Color intensity represents percentage of searches [LEARN MORE](#)

Showing 1-5 of 34 subregions ▼

Why Flutter

The image shows two side-by-side GitHub repository search results. Both searches were conducted with the query `q=react-native&type=repositories`.

Left Search (React Native):

- Filter by:** Code, Repositories (selected), Issues, Pull requests, Discussions, Users, More.
- Results:** 561k results (558 ms).
 - React Native:** React Native is a JavaScript mobile framework developed by Facebook.
 - [github.com](#)
 - [Wikipedia](#)
 - [facebook/react-native](#)
 - facebook/react-native:** A framework for building native applications using React.
 - [react](#)
 - [android](#)
 - [ios](#)
 - [mobile](#)
 - [react-native](#)

Dart · 124k · Updated 48 minutes ago
 - react-native-elements/react-native-elements:** Cross-Platform React Native UI Toolkit.
 - [react](#)
 - [android](#)
 - [ios](#)
 - [ui](#)
 - [react-native](#)

Course Goals

- Knowledge of key base concepts for developing mobile applications.
- Learn the Android platform.
- Learn a framework to develop multi-platform applications (Android&iOS)



Lecture outcomes

- Understand the generated artifacts
- Lifecycle of applications, activities and fragments.
- Use logs to debug and study the behavior.

