Mobile Applications

2018-2019

Prerequisites

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

What you should know...

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

Bonus

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

Options

Options

2007

2008

Options

2007

2008

2010

Options

2007

2008

2010

Options

2007

2008

Native Options

2008

2007

Native Options

2008

2007

Native Options

2008

2007

2014

Native Options

2008

2017

2007

2014

Non-Native Options

2013

Non-Native Options

Non-Native Options

Hybrid App

Non-Native Options

2014

Non-Native Options

2014

2015

Non-Native Options

2014

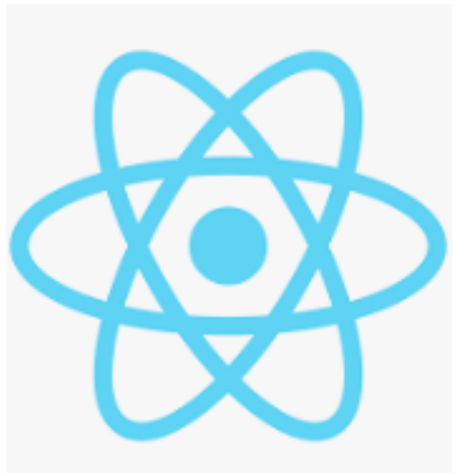
2015

2017

Non-Native Options

2014

2017



2015

Non-Native Options

2014

2017

2015

Non-Native Options

Compiled App

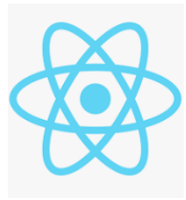
2014

2015

2017

Timeline

Timeline



2007

2008

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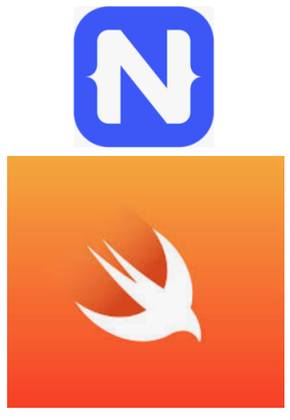
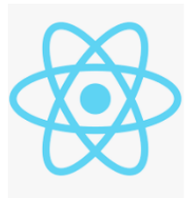
2015

2017



Timeline



2007 2008 2011 2013 2014 2015 2017

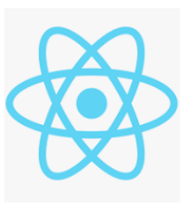
What to learn?

What to learn?

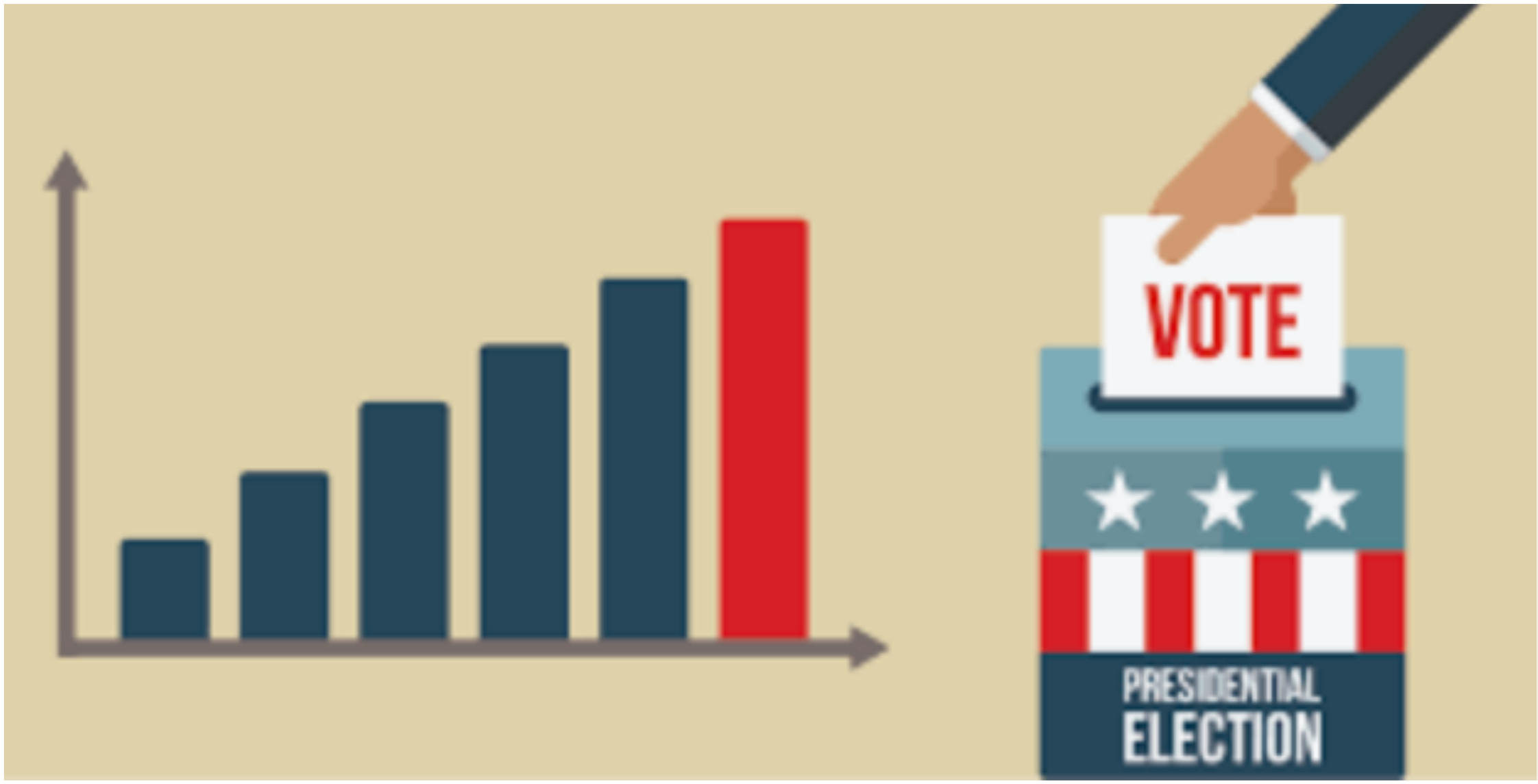
OBJ-C

Java

What to learn?



bit.ly/maQuiz



Comparison

Comparison

Write once, use everywhere

Comparison

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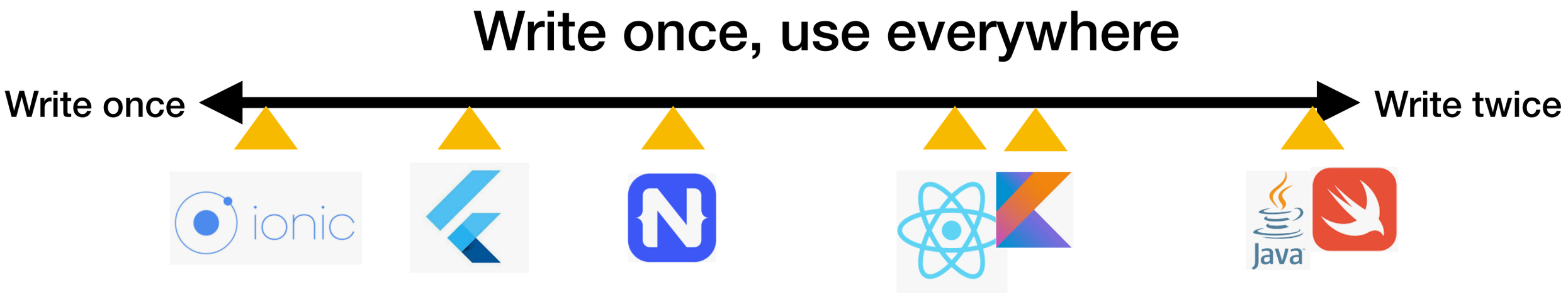
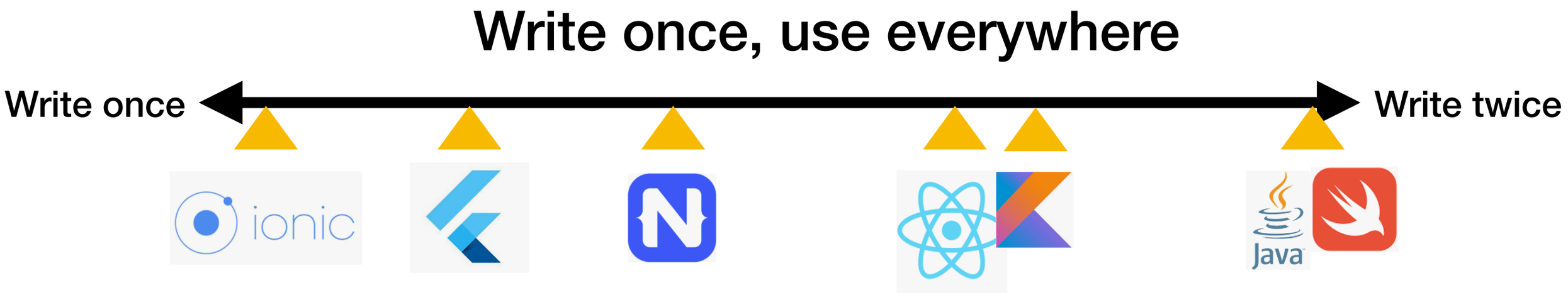

Write once, use everywhere
Write once
Write twice
ionic
Java

Comparison

Write once, use everywhere

Learn once, write everywhere

Comparison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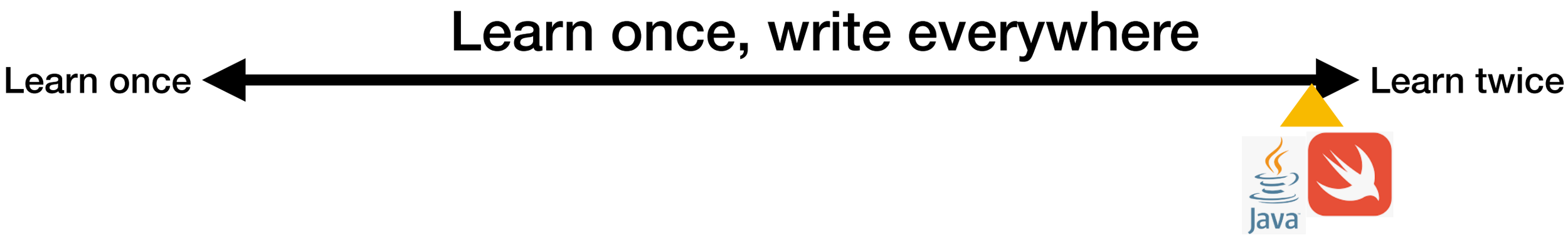
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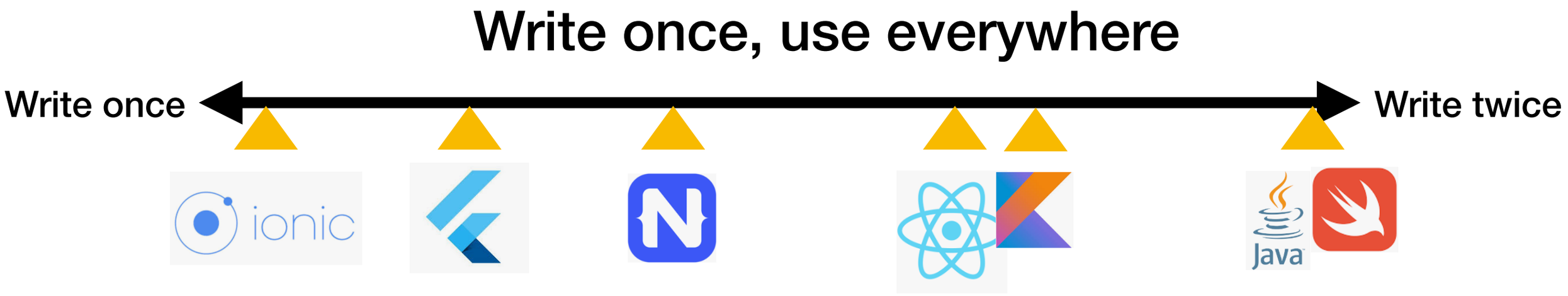
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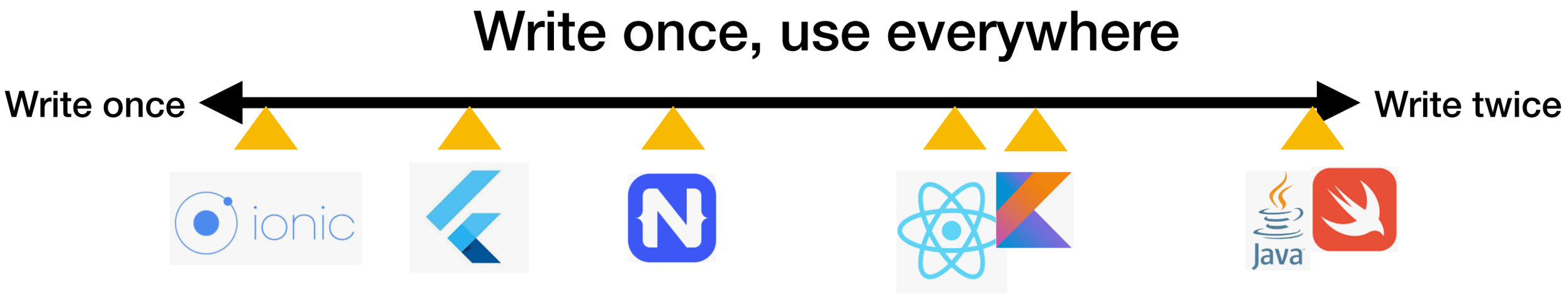
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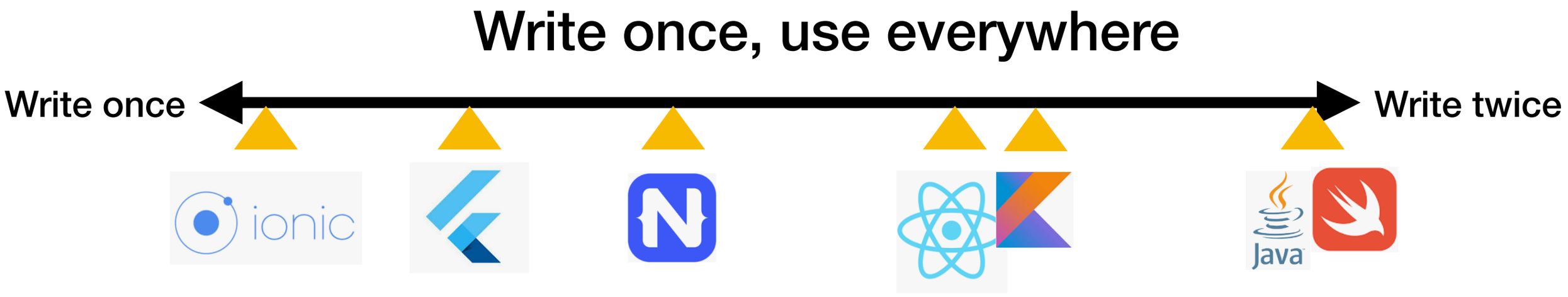
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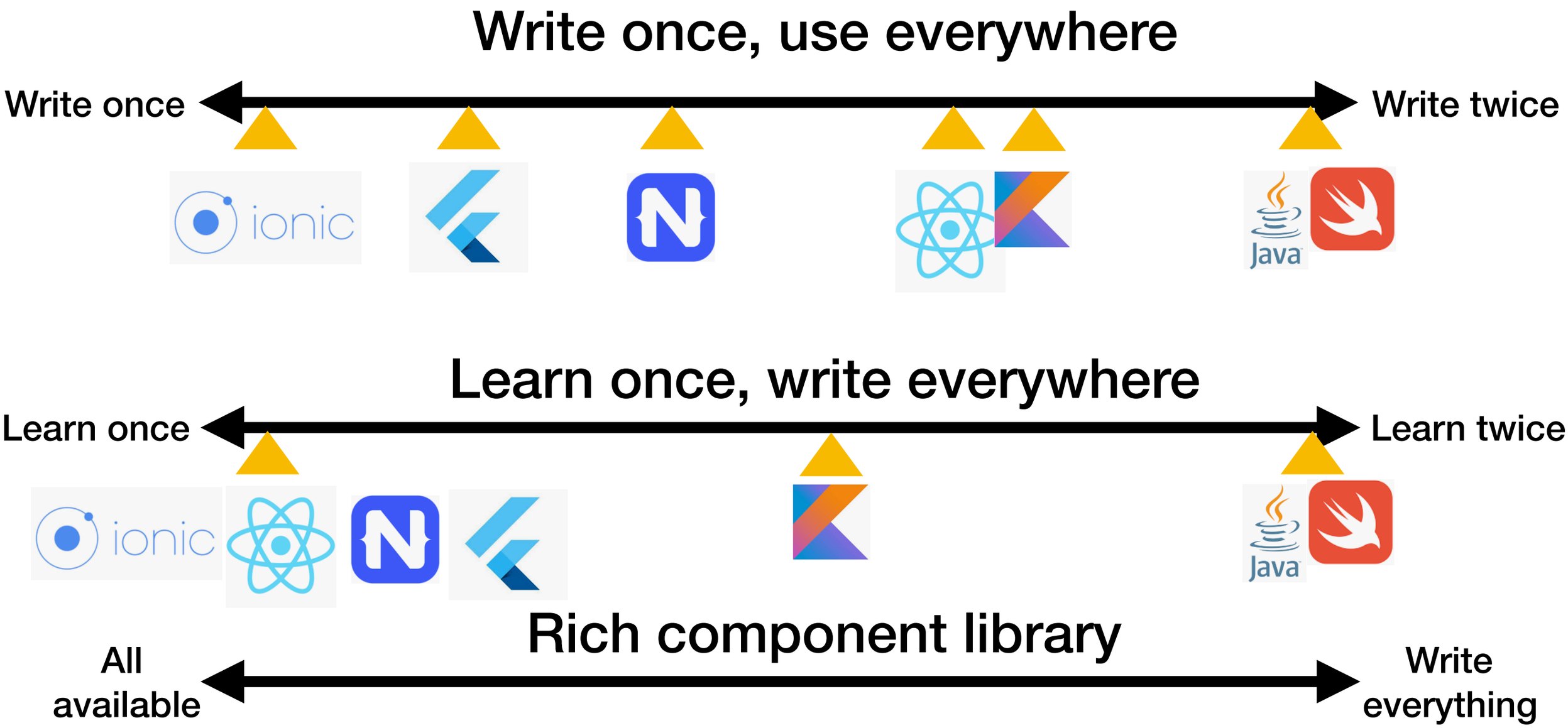
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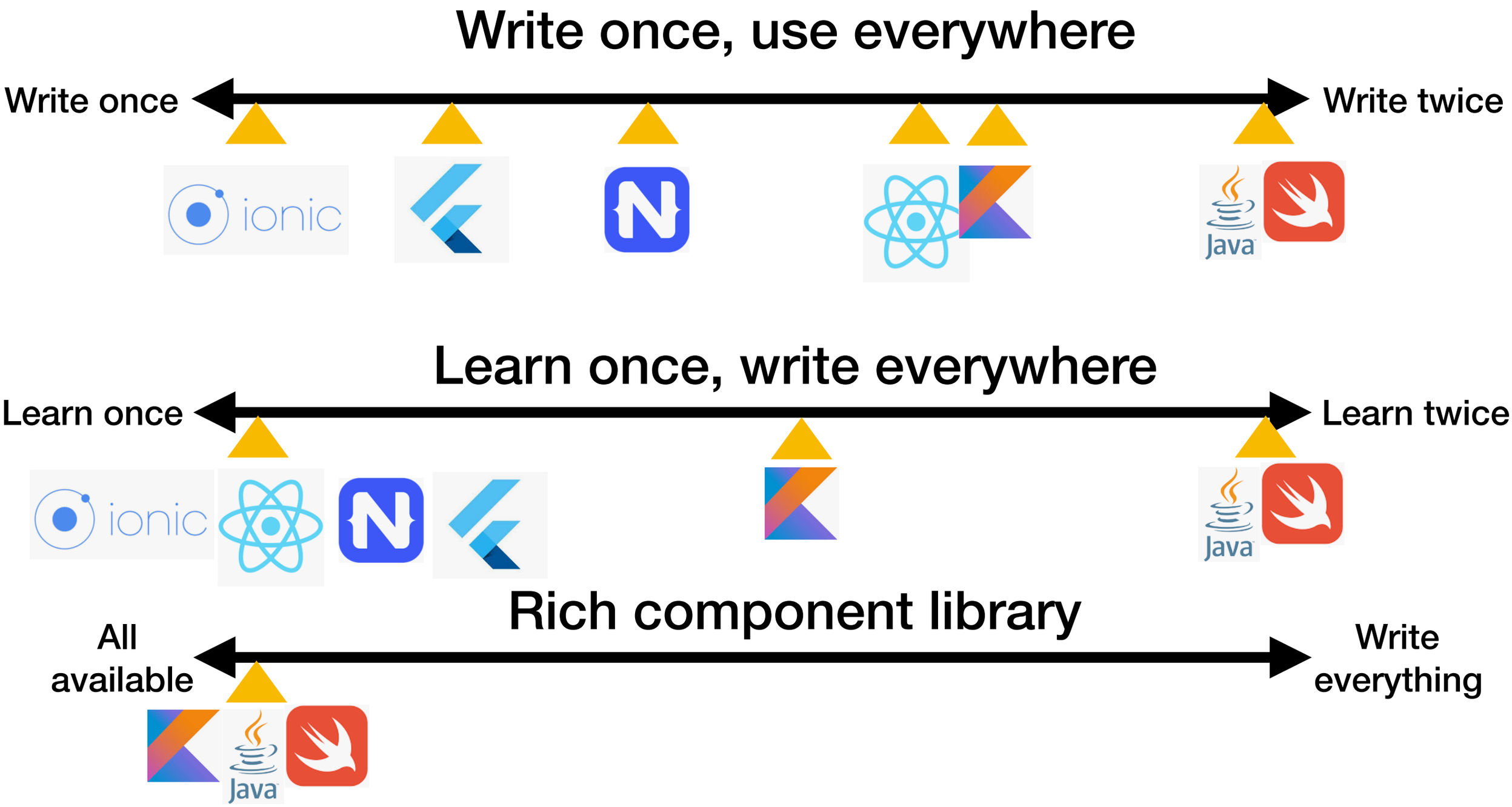
Java
Rich component library
All available
Write everything

Comparison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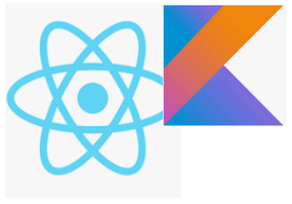

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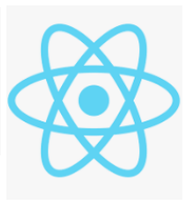

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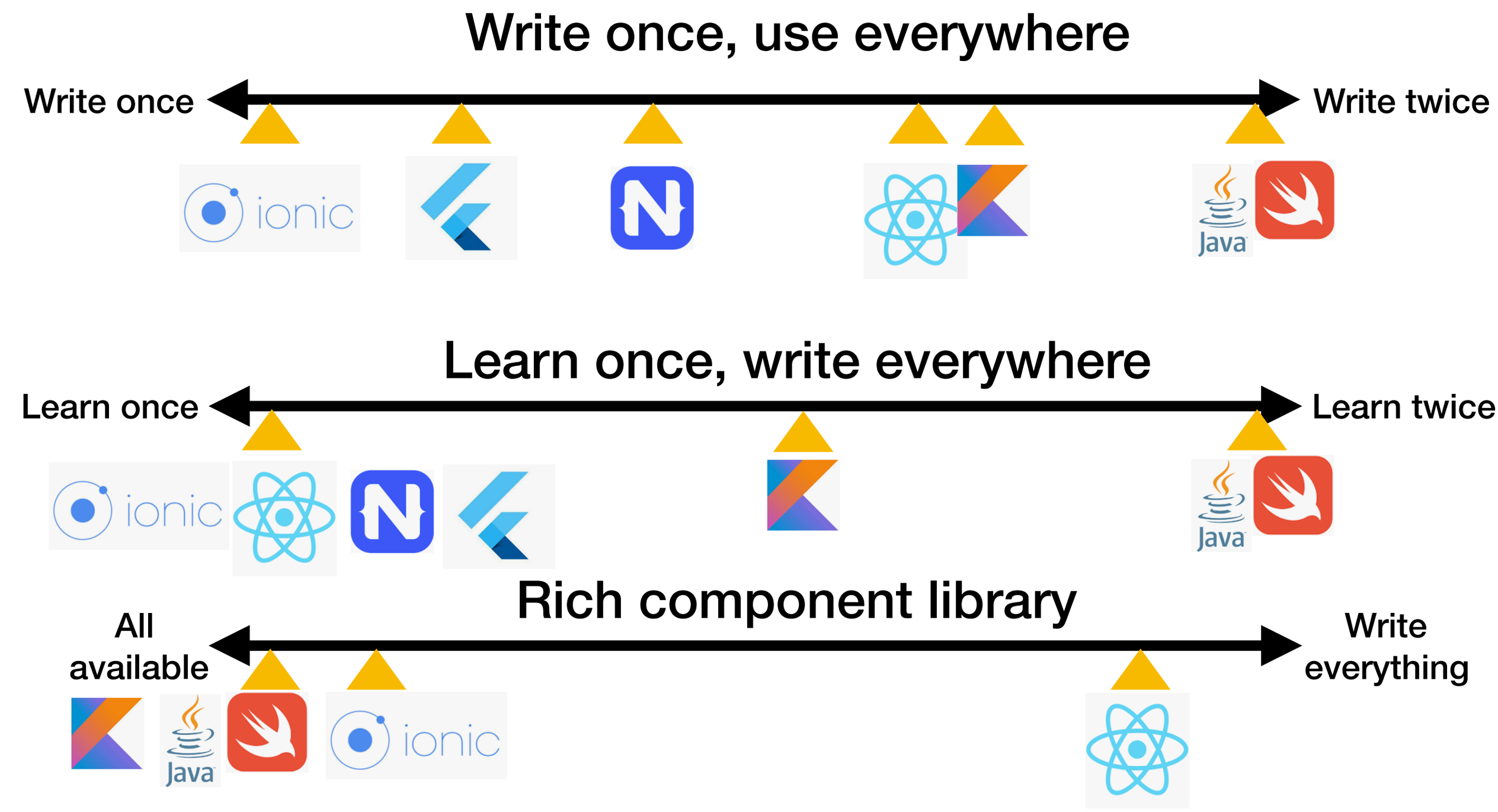
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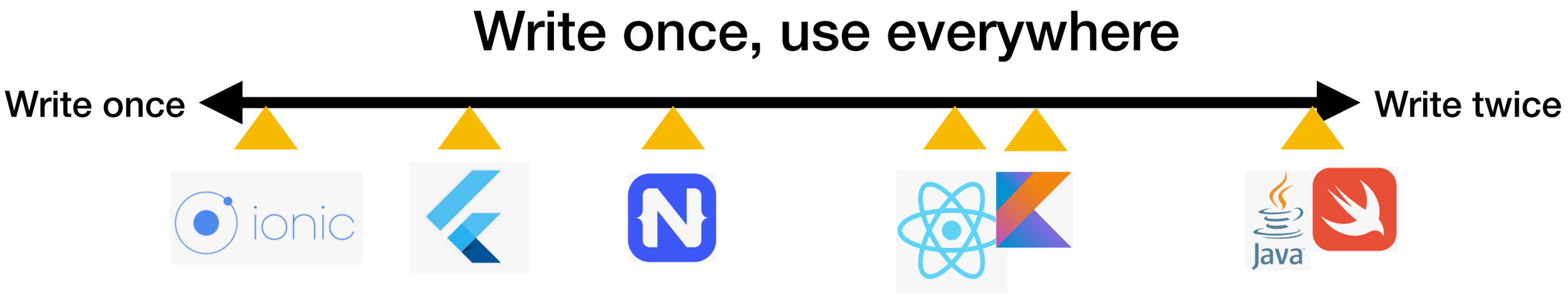
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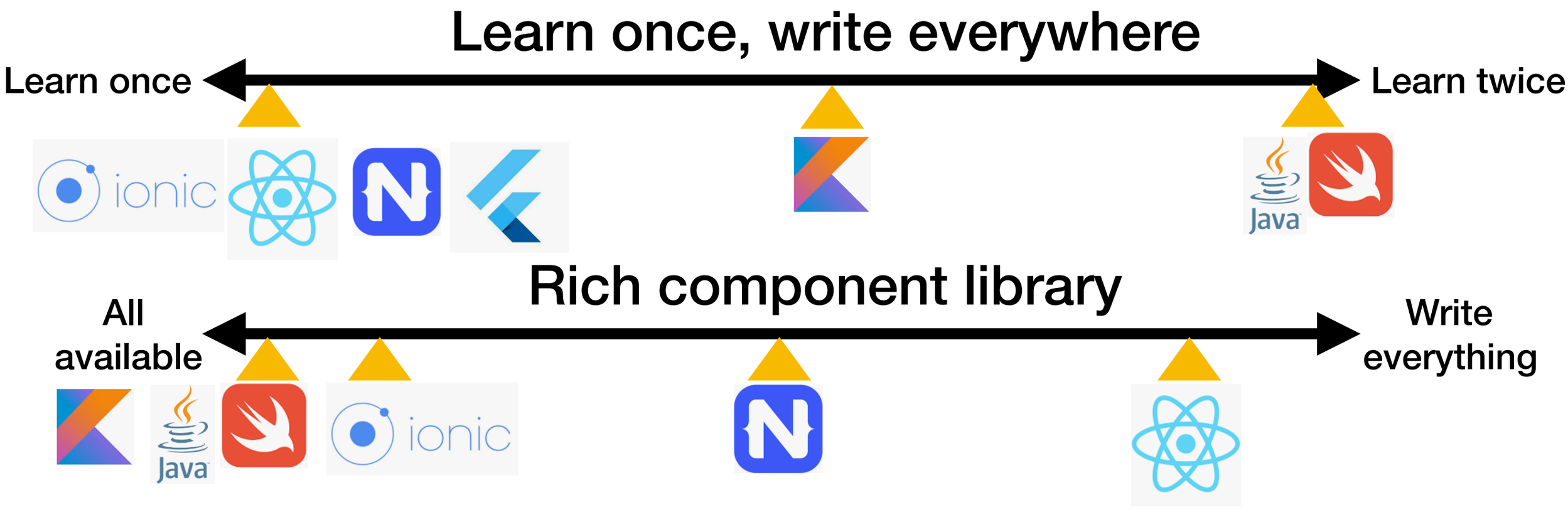
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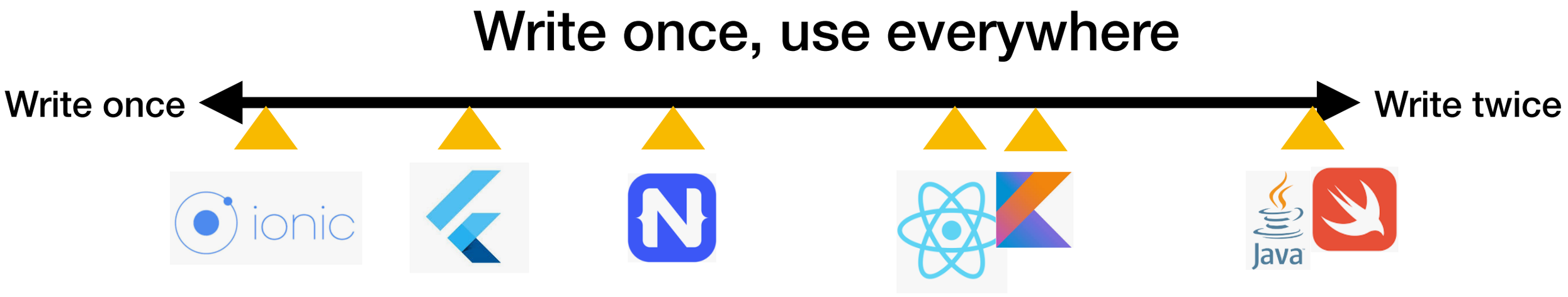
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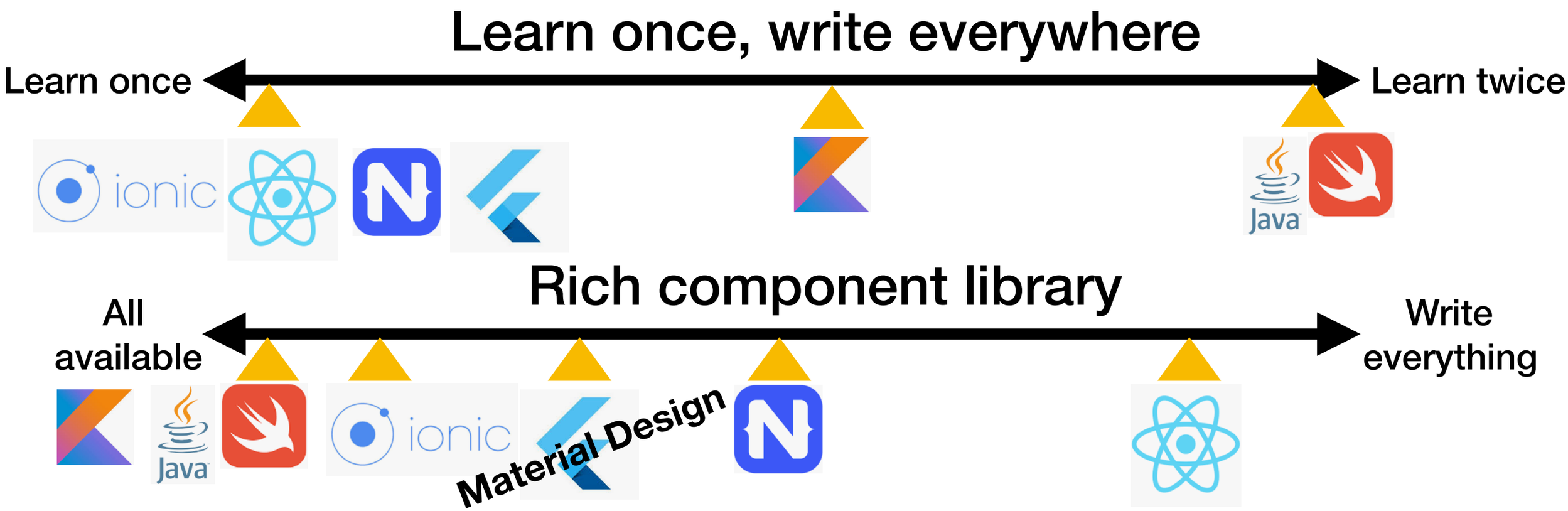
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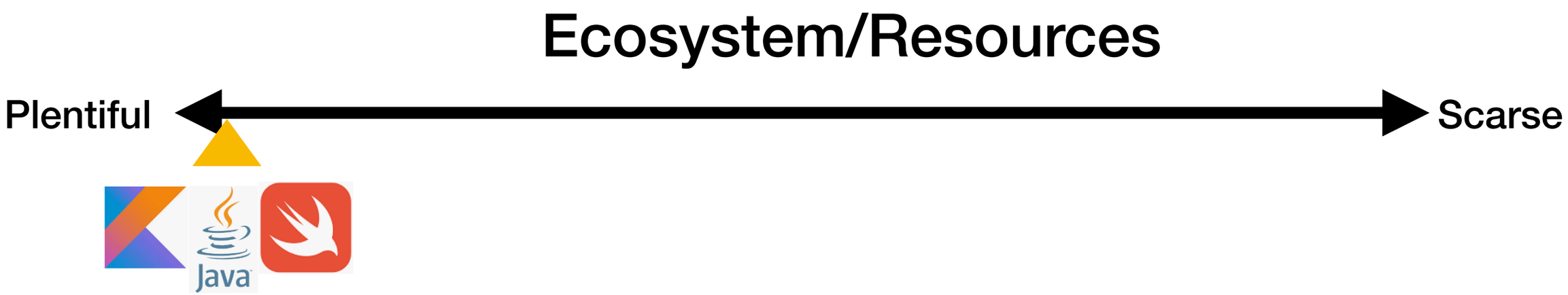
Material Design

Comparison

Comparison

Comparison



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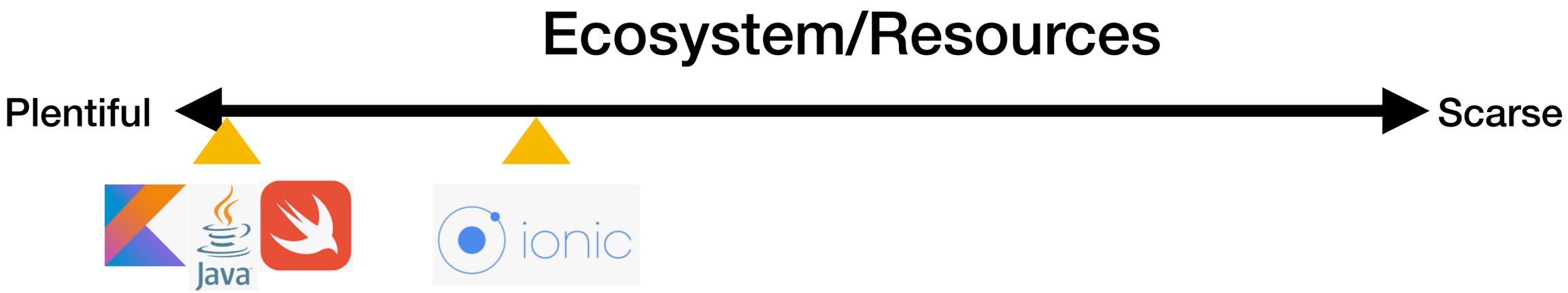

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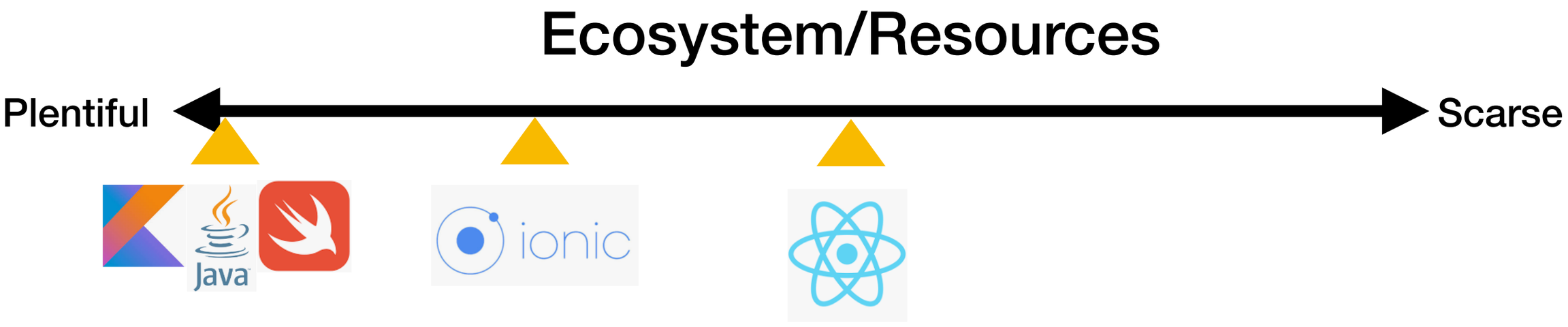

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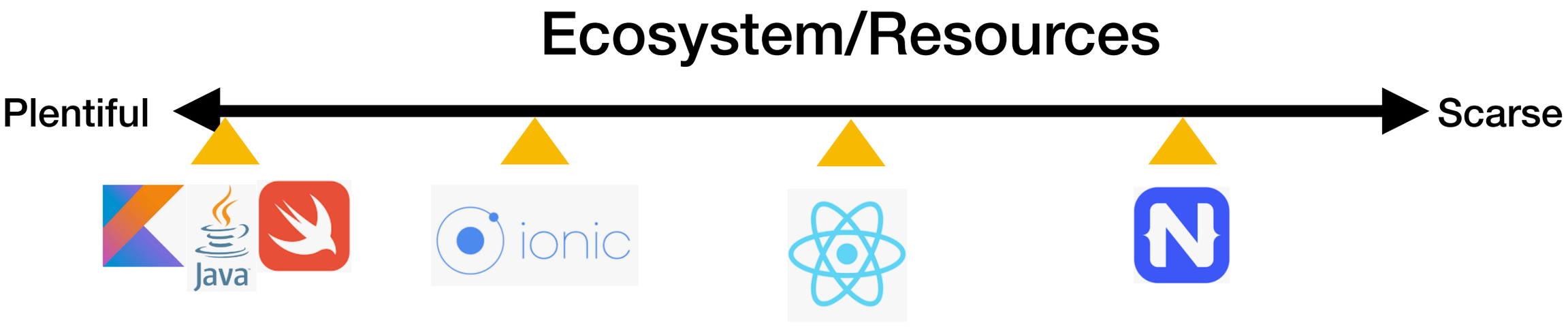

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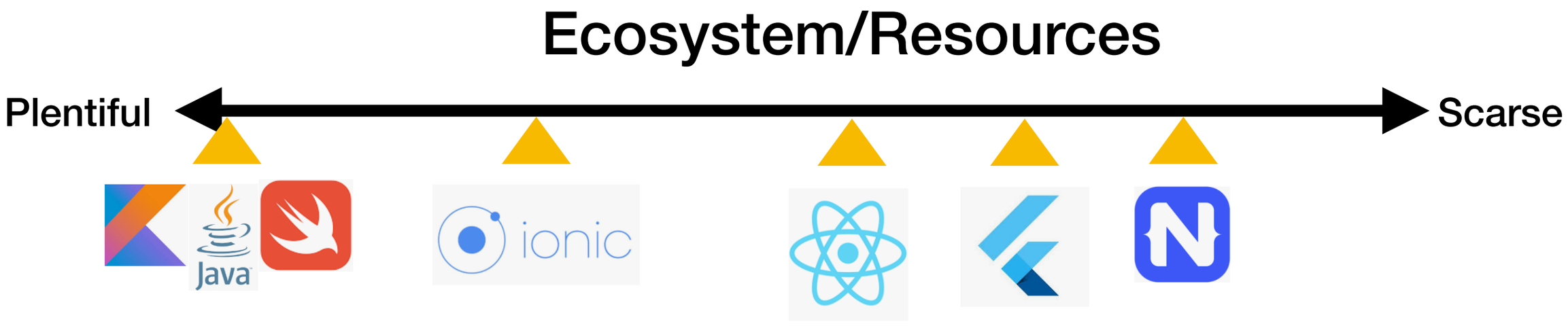

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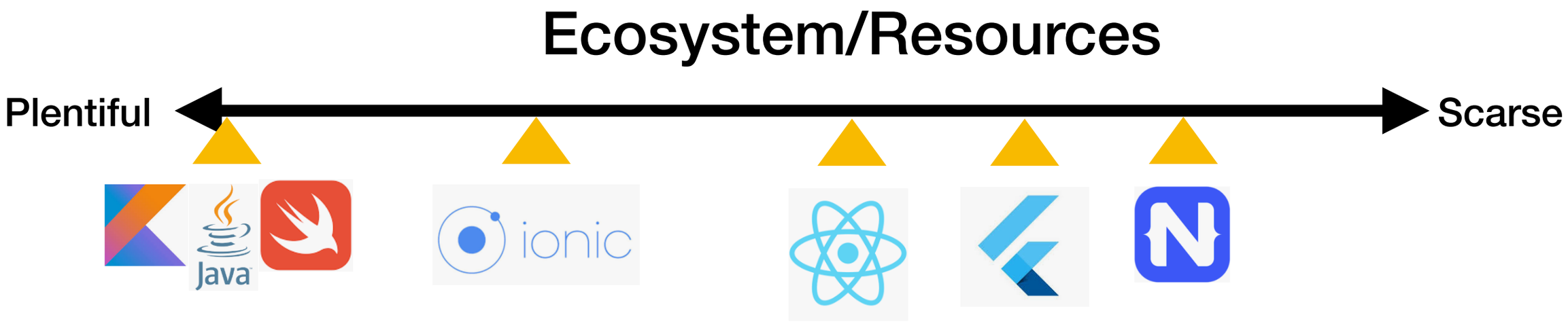
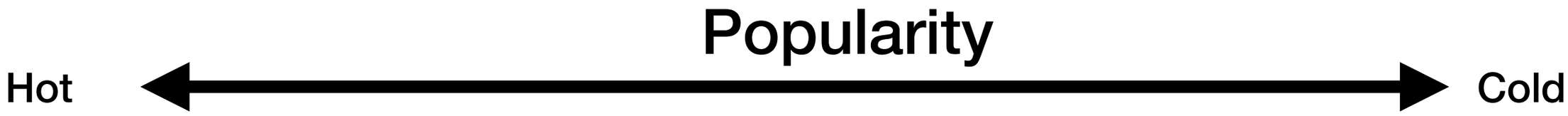
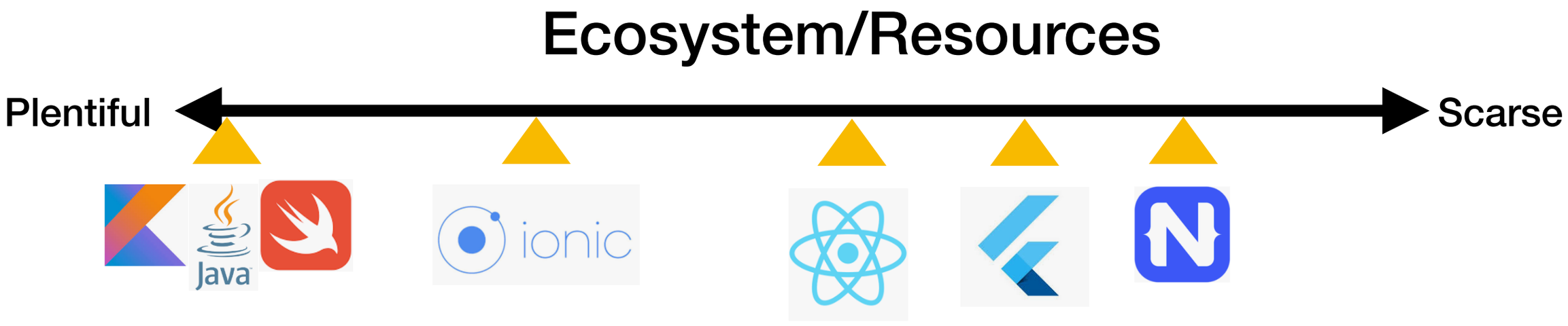

Ecosystem/Resources
Plentiful
Scarse
Java
ionic


Popularity
Hot
Cold

Comparison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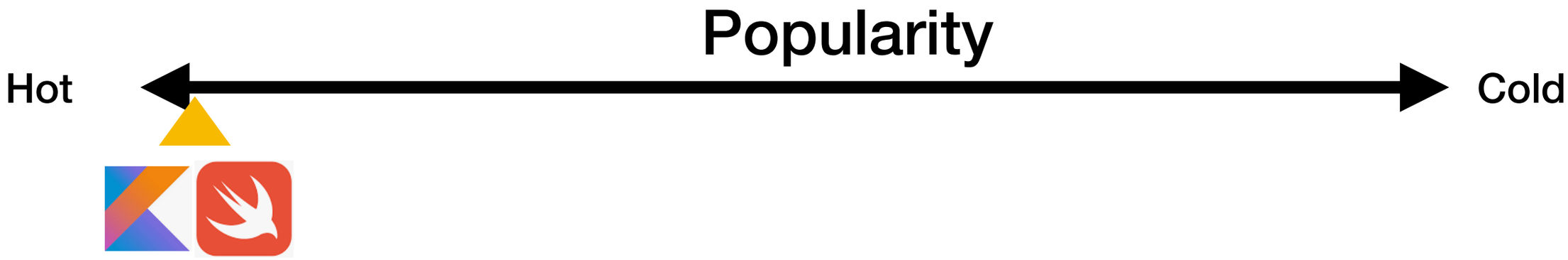
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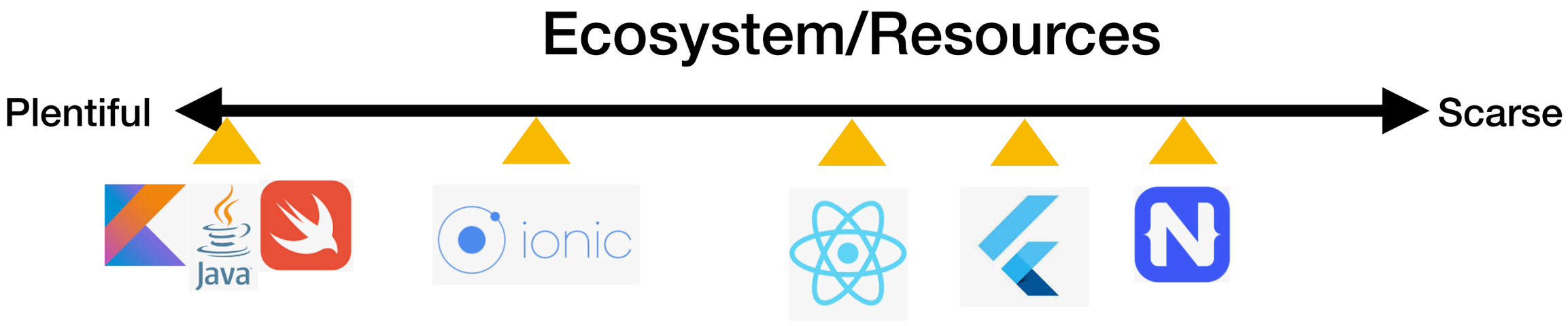
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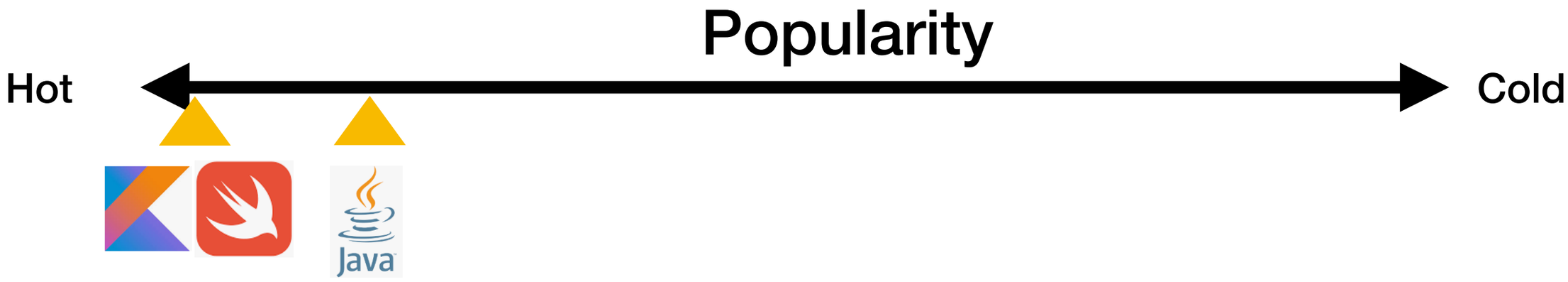
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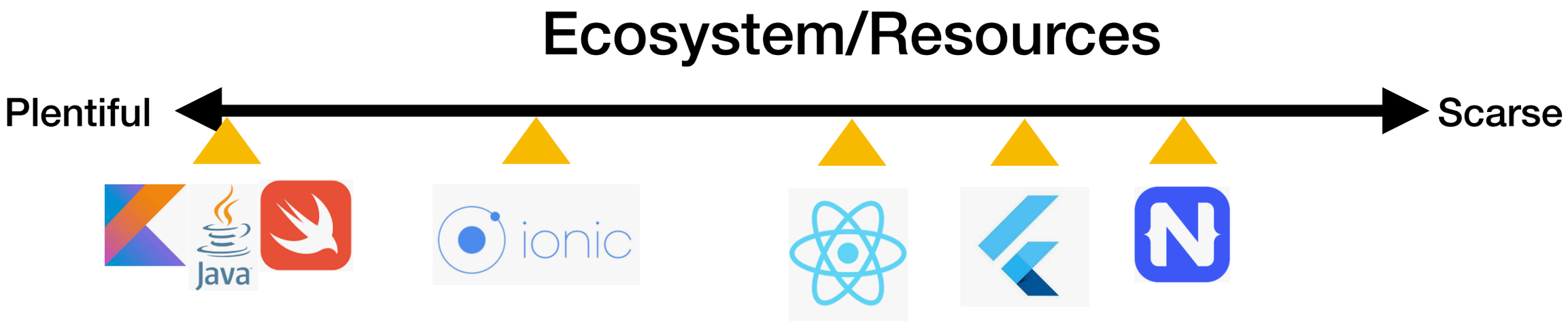
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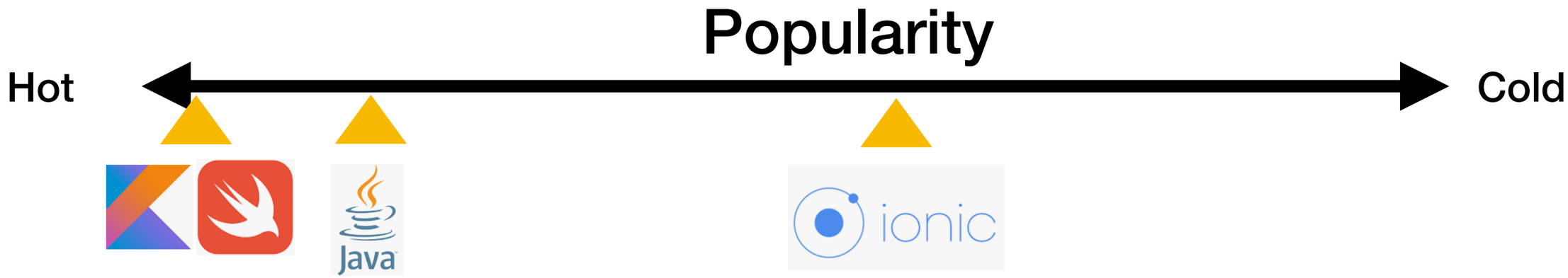
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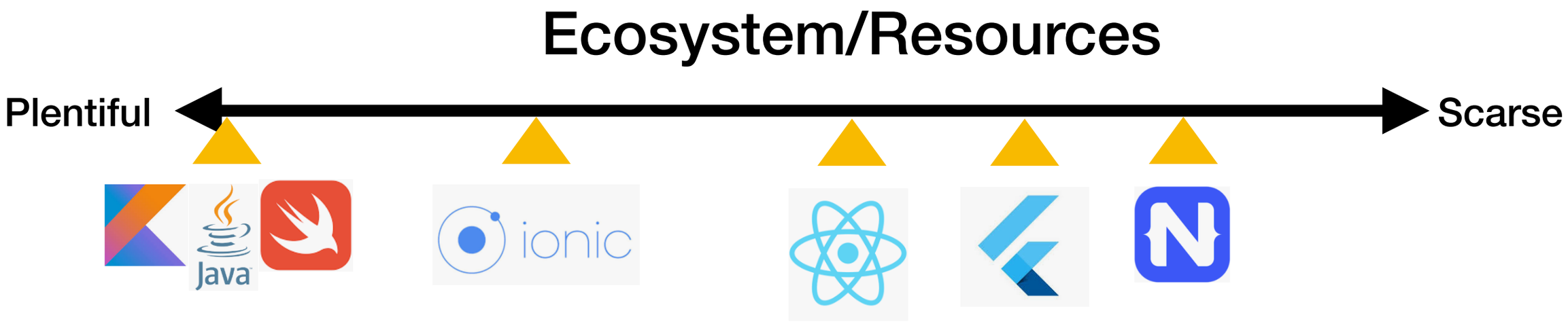
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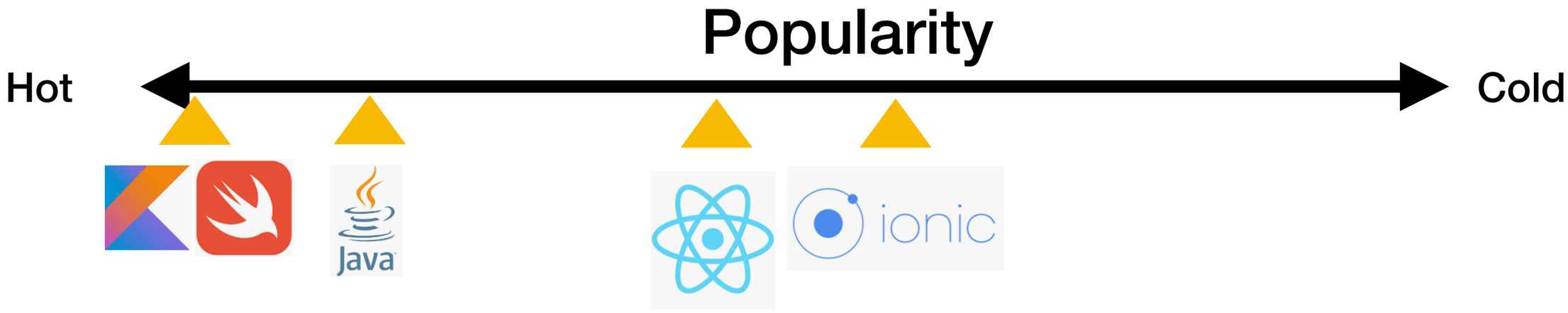
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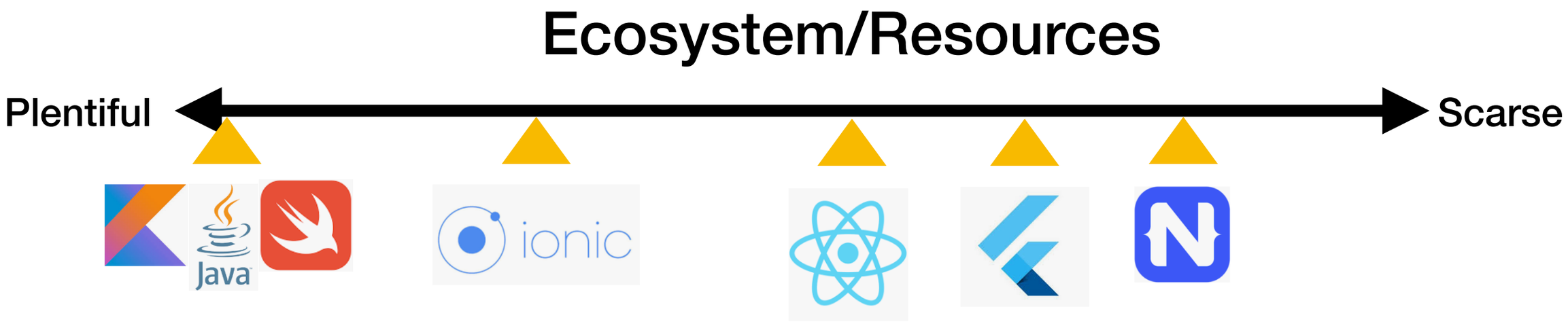
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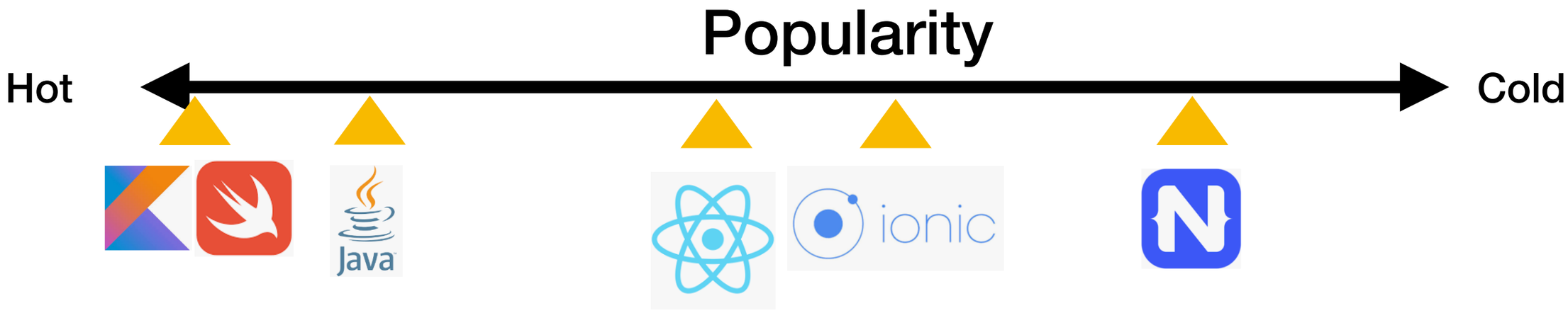
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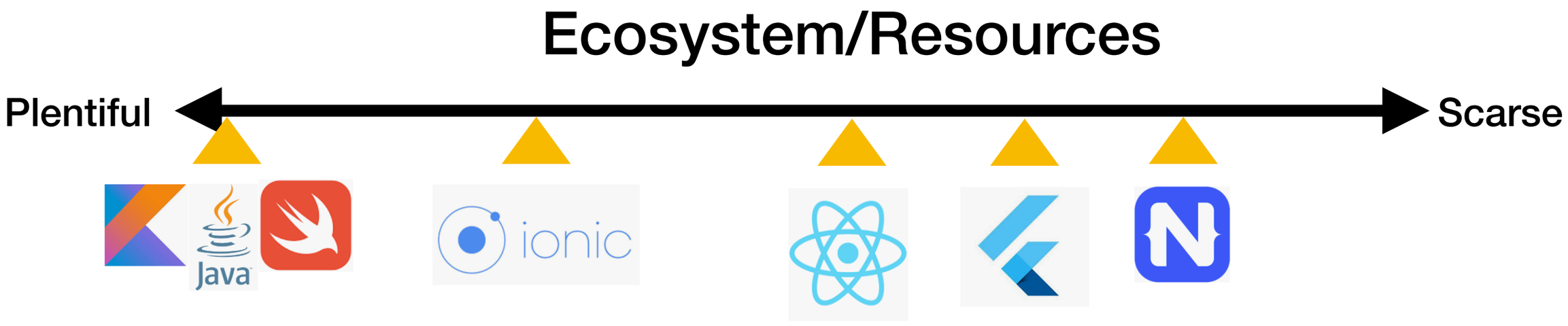
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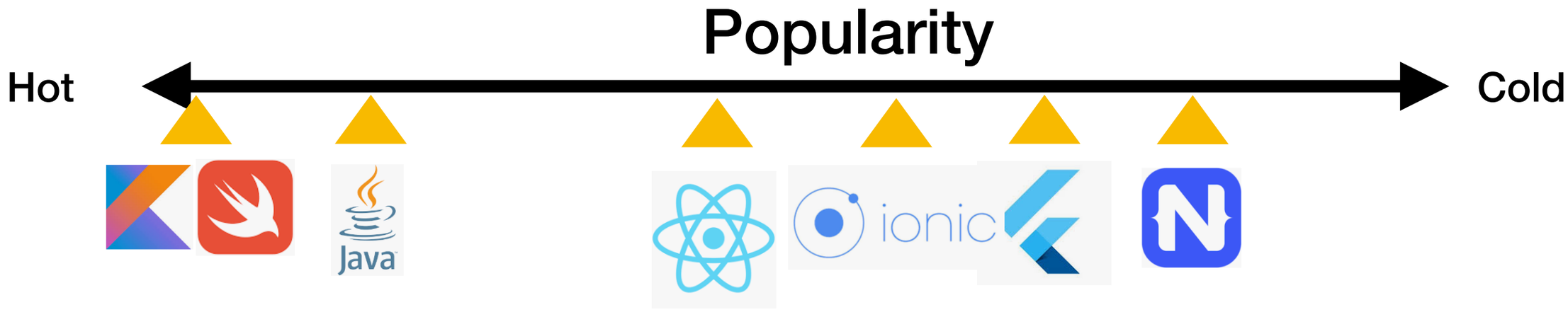
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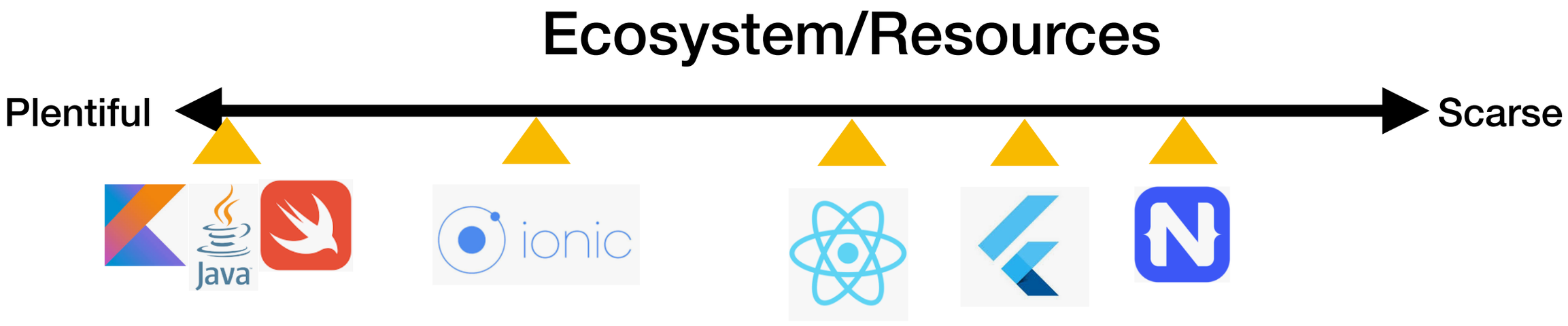
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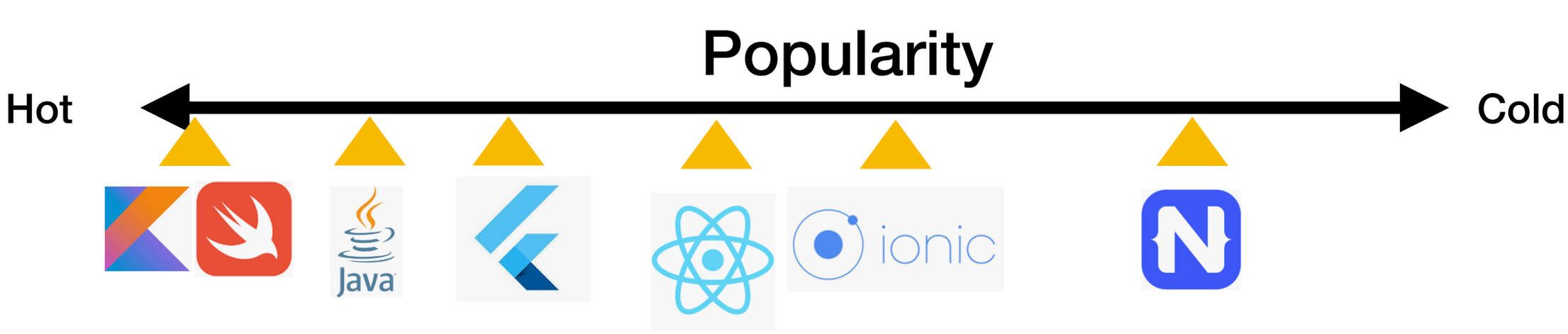
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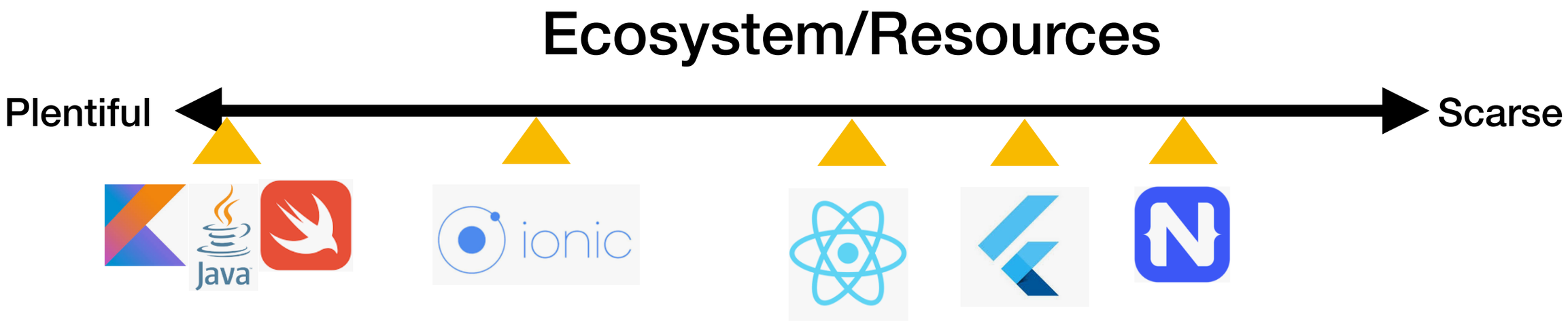
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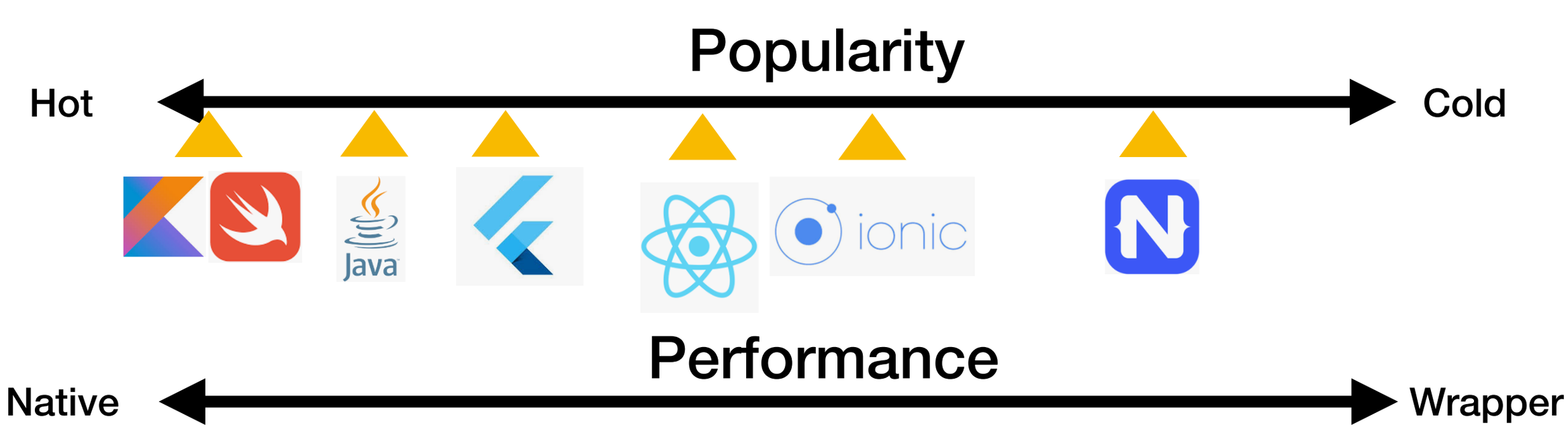
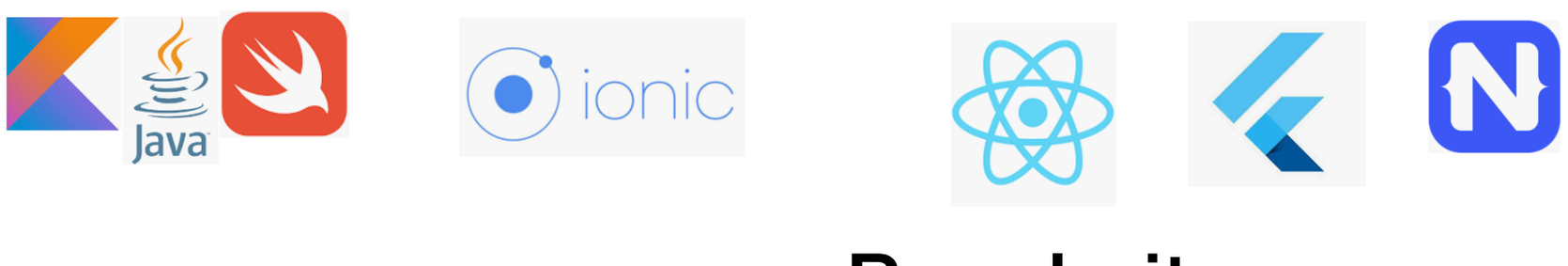

Popularity
Hot
Cold
Java
ionic
Performance
Native
Wrapper

Comparison

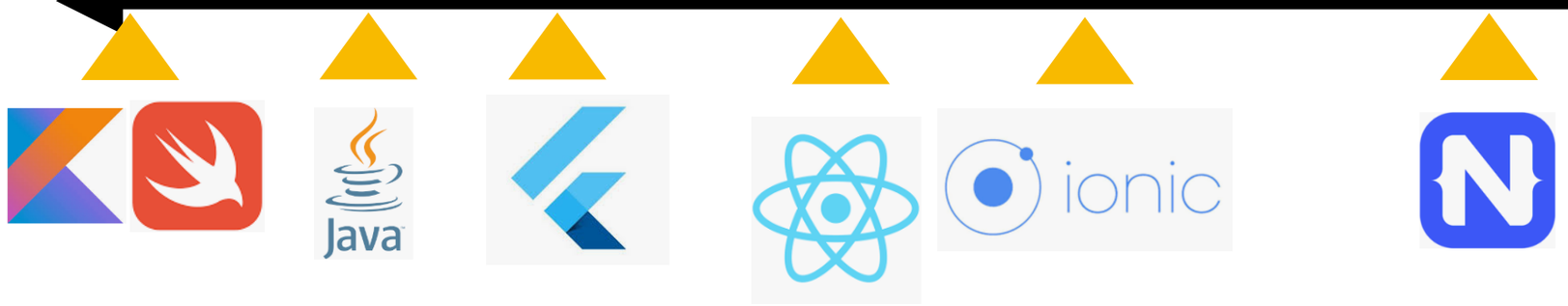
Ecosystem/Resources

Plentiful ⟵ ⟶ Scarse



Popularity

Hot ⟵ ⟶ Cold



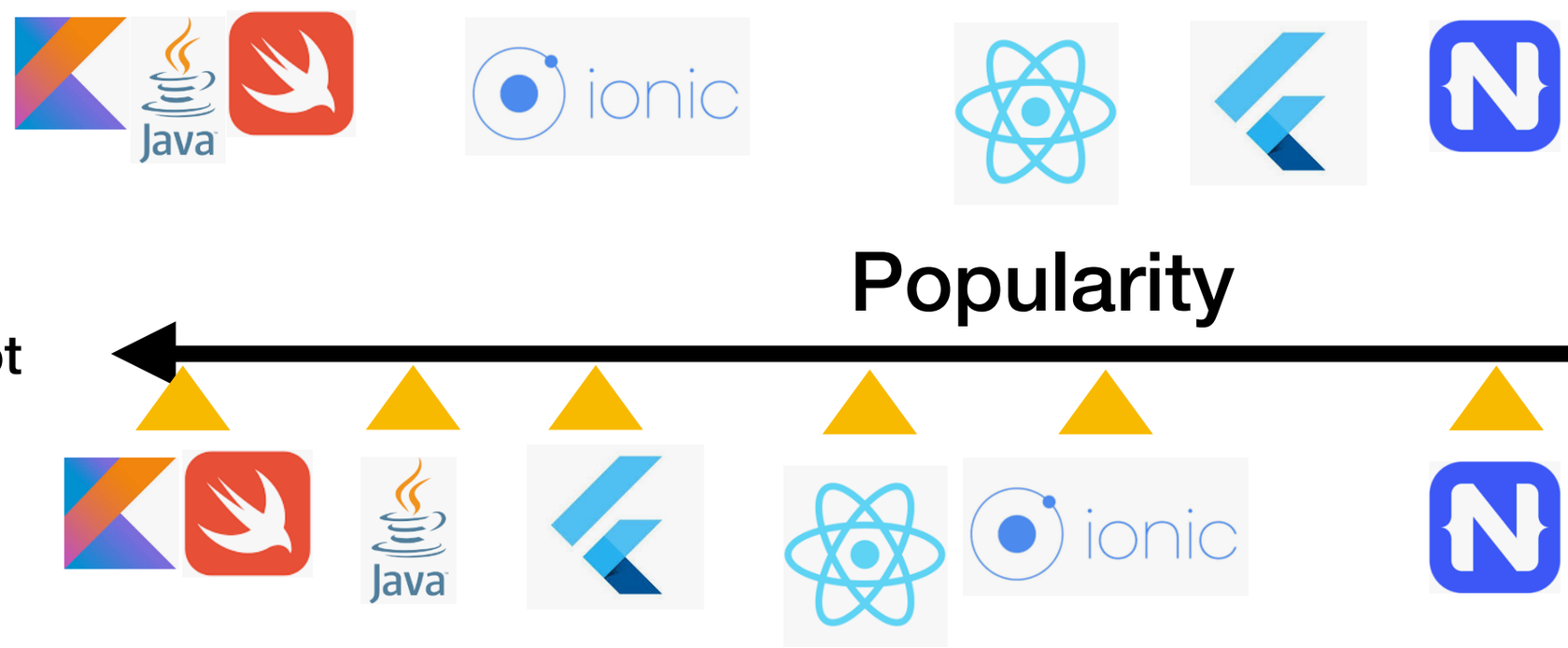
Performance

Native ⟵ ⟶ Wrapper

Comparison

Ecosystem/Resources

Plentiful ⟵ ⟶ Scarse



Popularity

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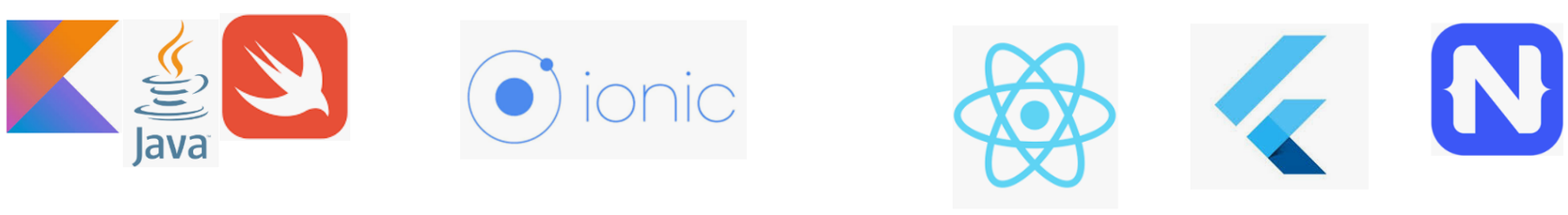

Popularity

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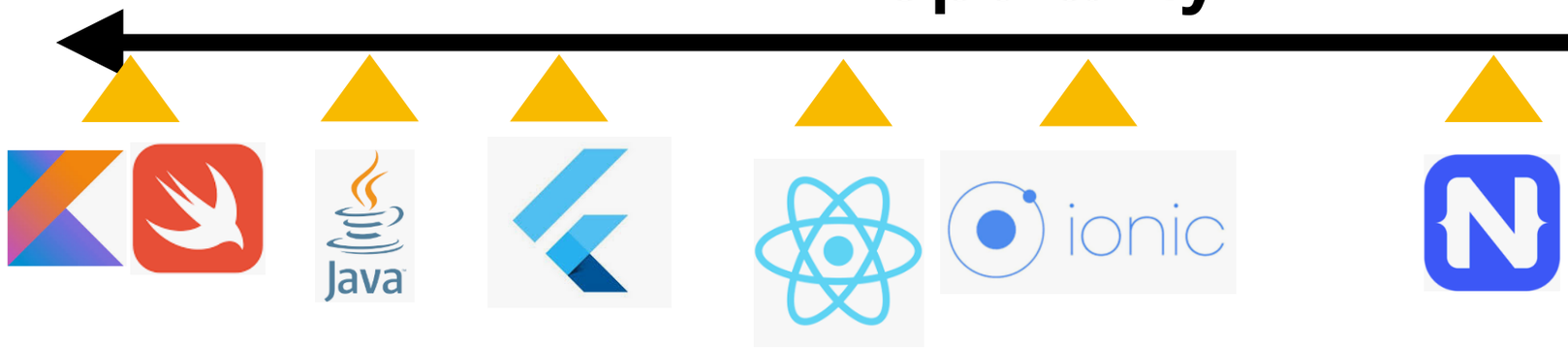

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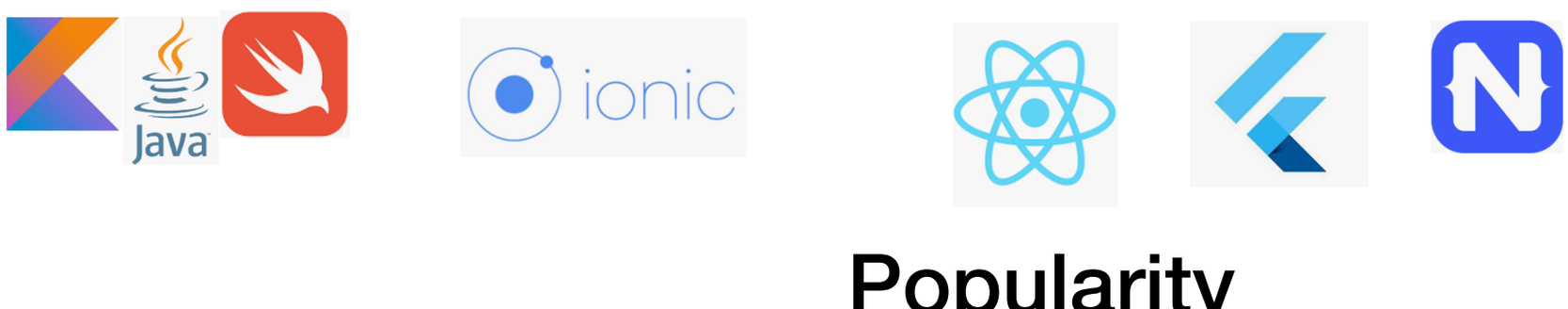

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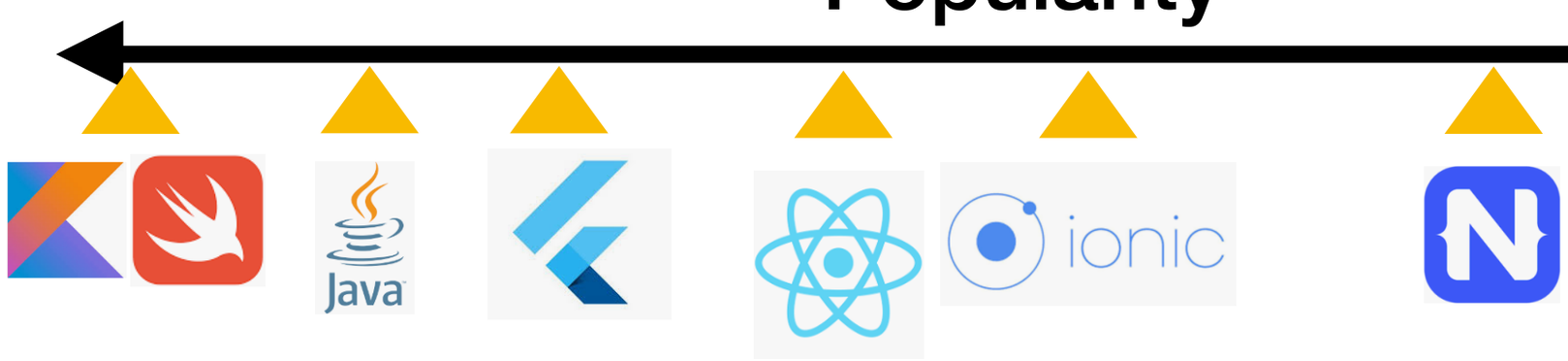

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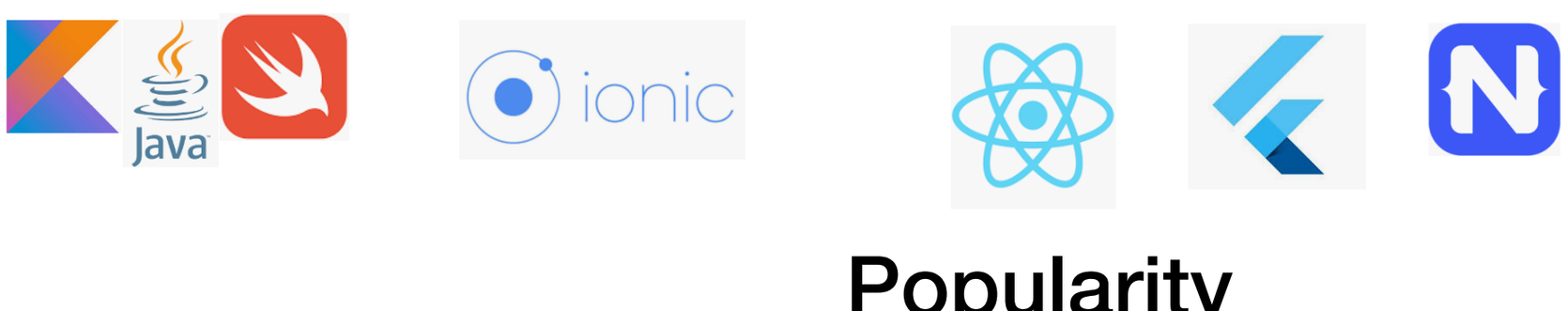

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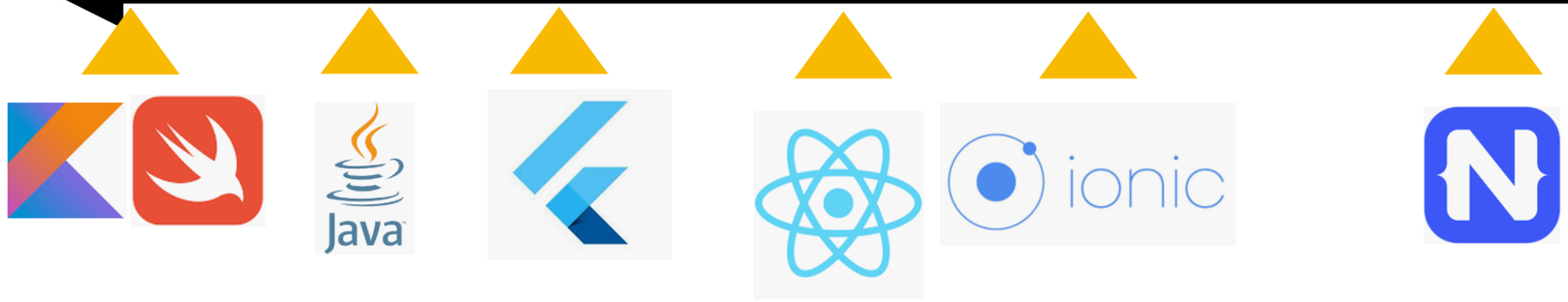


Performance

Native ⟵ ⟶ Wrapper

Comparison

Comparison

Comparison

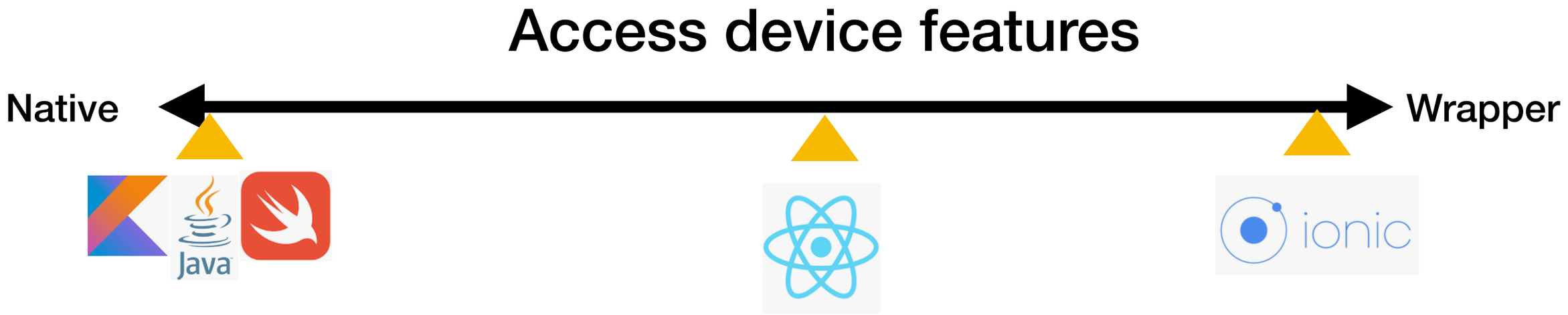
Comparison

Access device features

Native

Wrapper

Comparison



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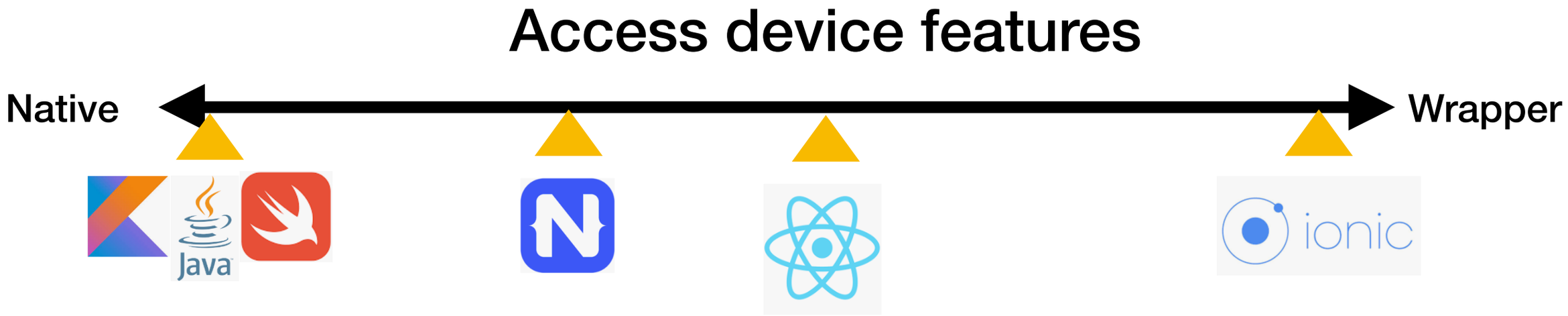

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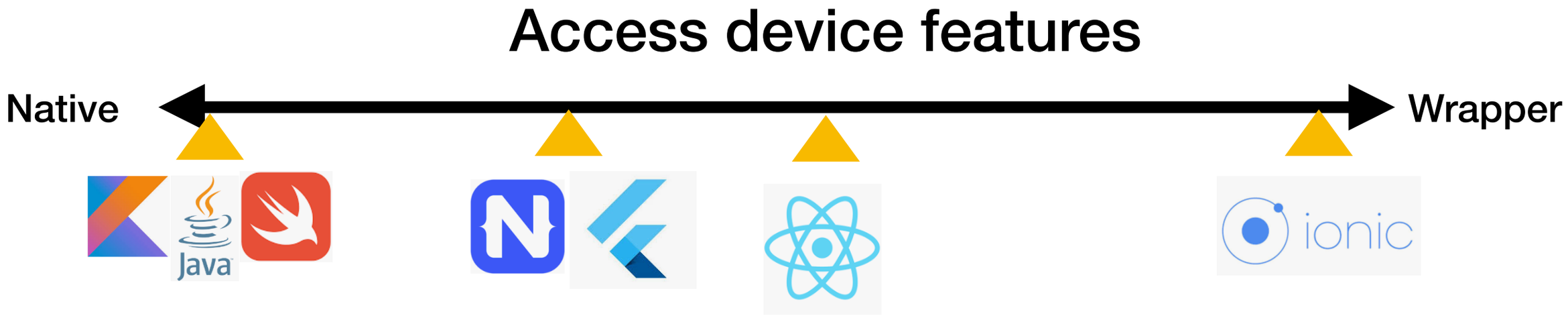

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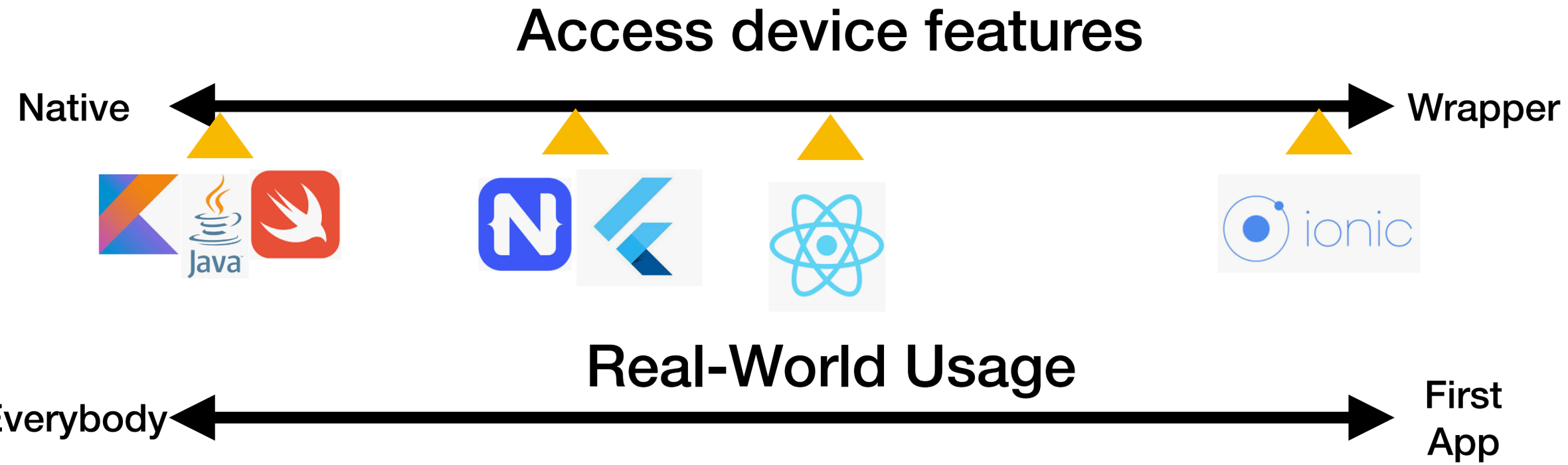
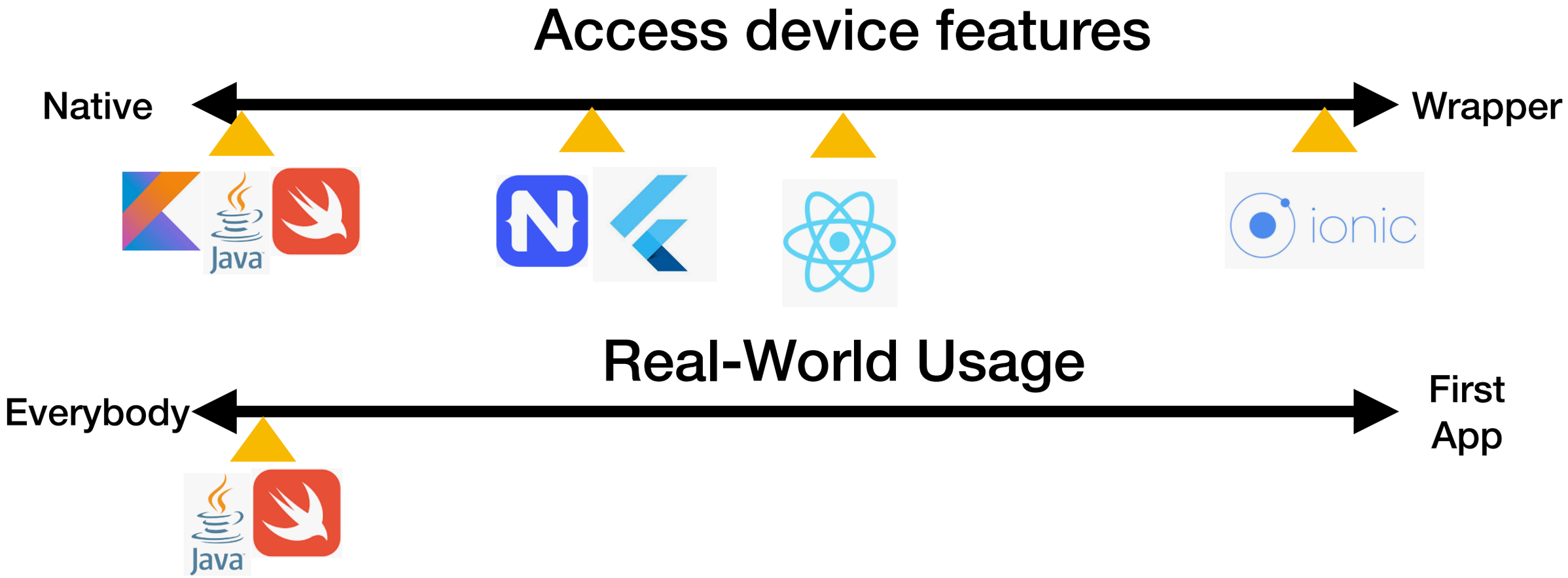

Access device features
Native
Wrapper
Java
ionic
Real-World Usage
Everybody
First App

Comparison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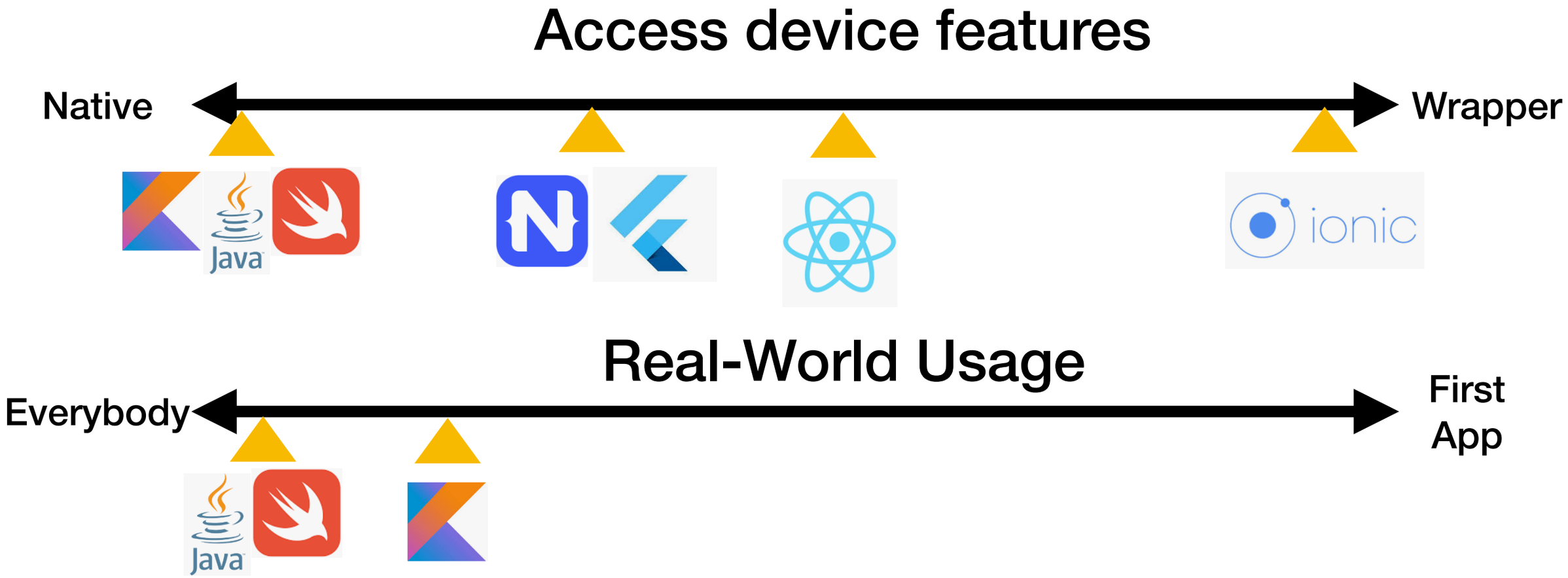
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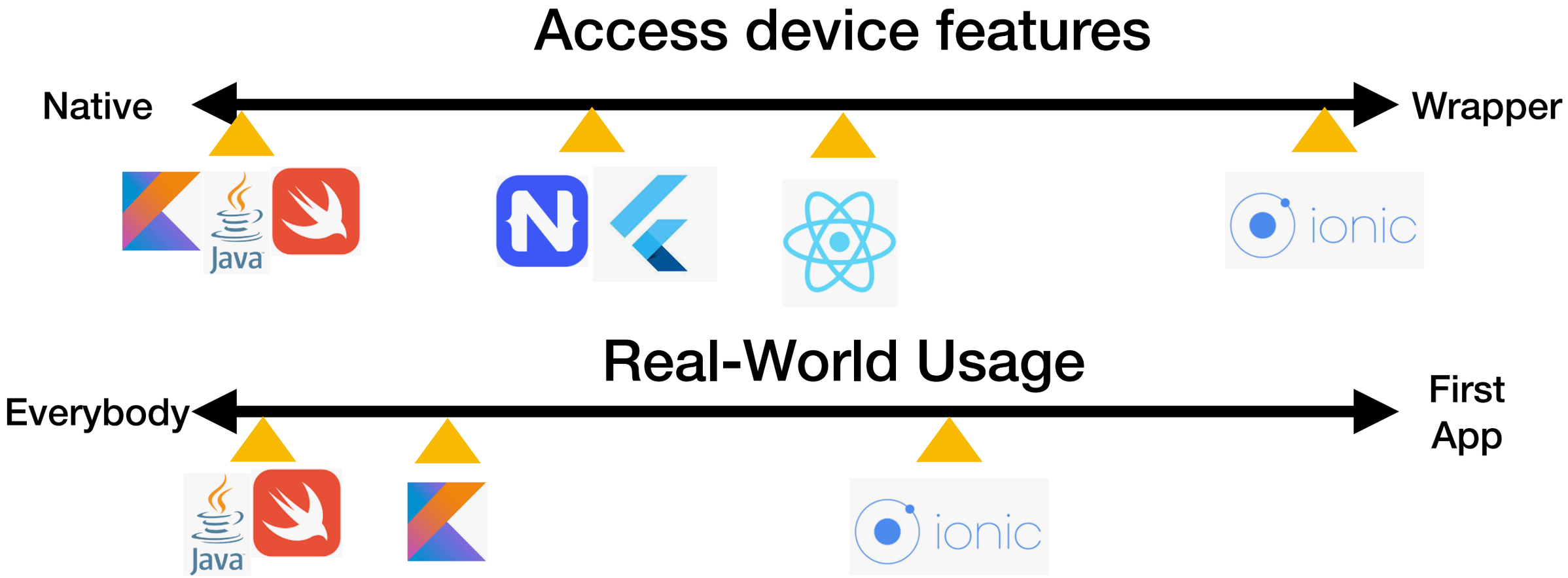
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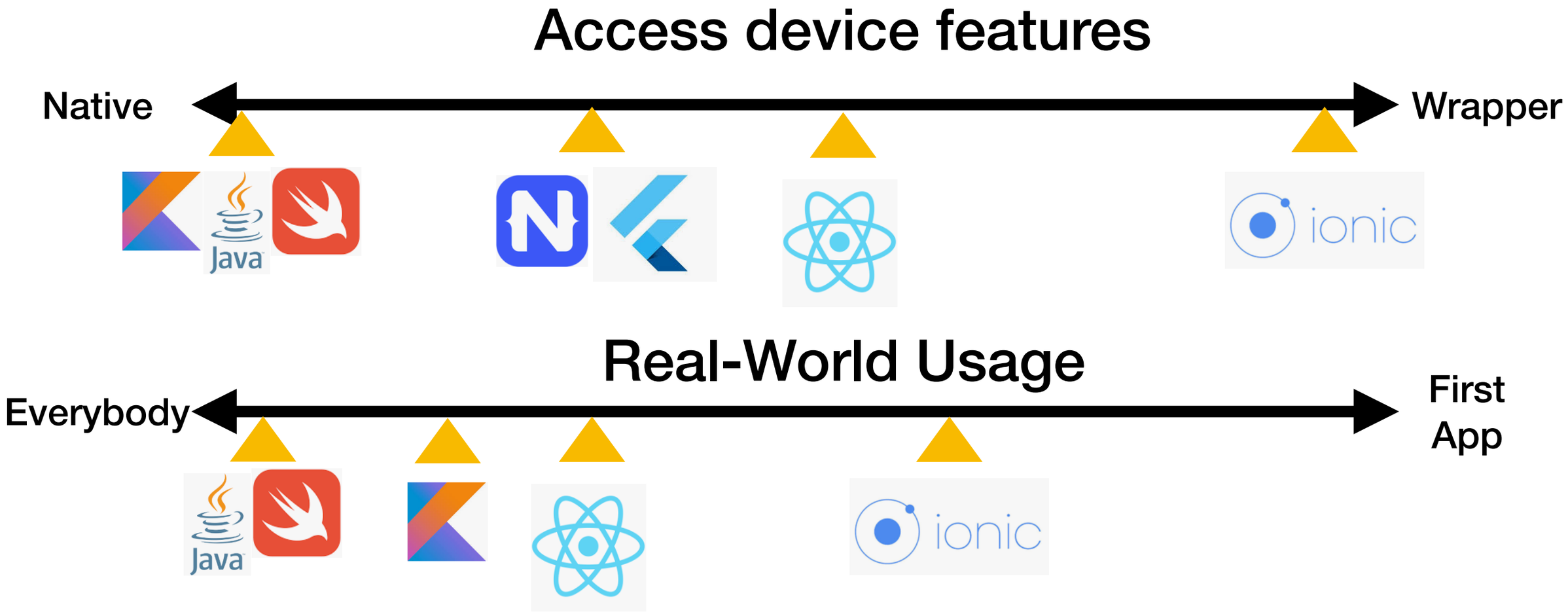
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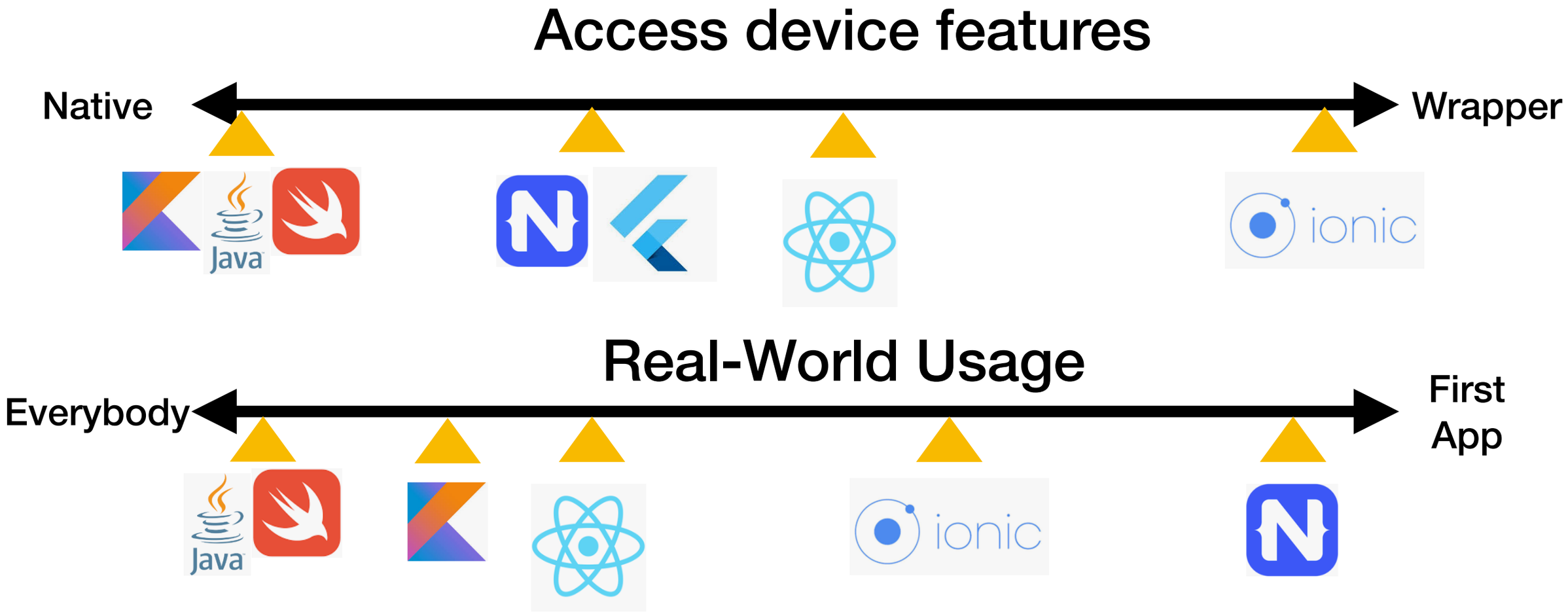
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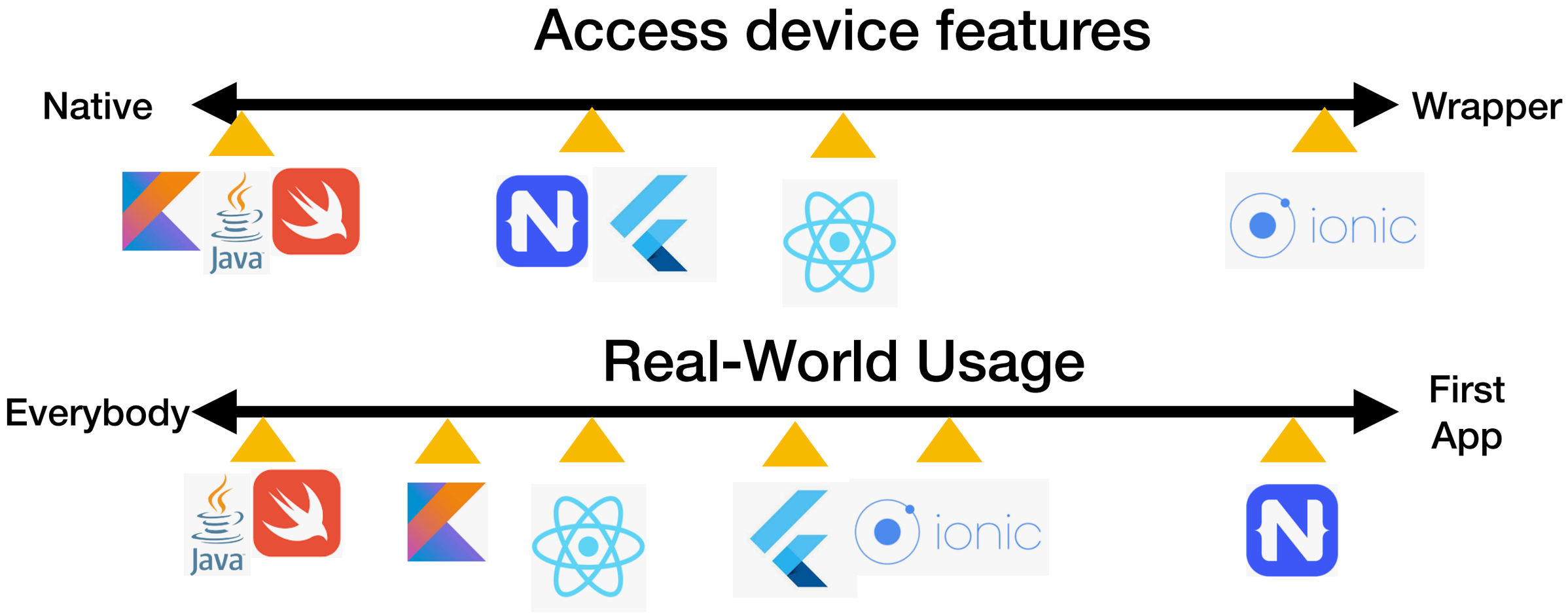
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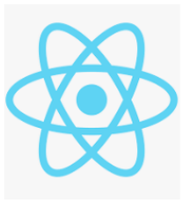
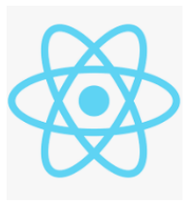
Previous years

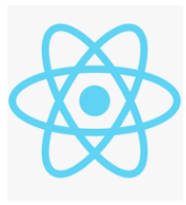


Previous years

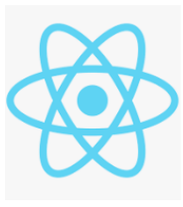


Verify the quiz

This year



This year



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

```java
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 +
                '}';
    }
}
```

Java

Why Kotlin

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

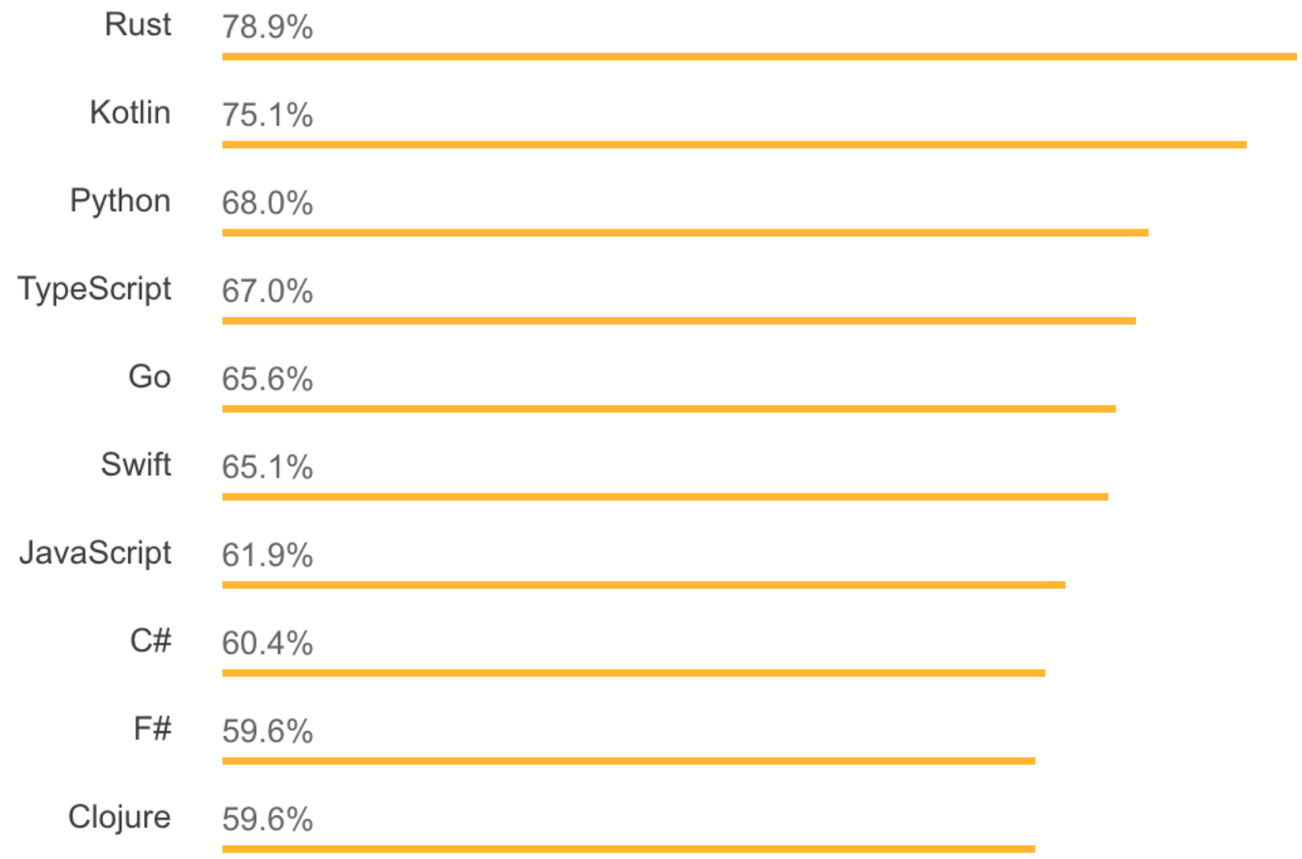
Kotlin equivalent

Why Kotlin

Most Loved, Dreaded, and Wanted

Most Loved, Dreaded, and Wanted Languages

Loved | Dreaded | Wanted



stackoverflow

Why Kotlin

Kotlin LEARN COMMUNITY TRY ONLINE

Reference | Tutorials | Books | More resources

- Getting Started
- Android
- Java Interop
- JavaScript
- Multiplatform Projects
  - iOS and Android
  - Multiplatform Library

Multiplatform Project: iOS and Android

Edit Page

Last Updated 4 October 2018

Sharing Kotlin code between iOS and Android

In this tutorial we will create an iOS and Android application, by making use of Kotlin's code sharing features. For Android we'll be using Kotlin/JVM, while for iOS it will be Kotlin/Native.

We'll learn how to:

Why Flutter

#1 Hot reload
#2 Full set of (Material Design) widgets
#3 Everything is a Widget
#4 Different themes for Android/iOS
#5 Many, many, many packages

Why Flutter

#1 Hot reload
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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.