

# Selecting Technology Stack

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# Technology Stack

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- Super Important!
- Because:
  - Irreversible
  - Emotional

# Technology Stack

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- Decision must be:
  - Made with clear mind
  - Heavily documented
  - Group effort

# Technology Stack

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- For:
  - Front End
  - Back End
  - Data Store

# Technology Stack Considerations





Can perform the task



Community



434 ● 7 ● 18

+120



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0

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4

[How do I replace an instruction with a value?](#)

votes

answers

views

c++ llvm llvm-clang

modified 6 secs ago Conanap 71

0

0

2

[Why does R truncate decimal places from long numbers and how do I prevent it?](#)

votes

answers

views

r

asked 13 secs ago user10915156 5

0

0

2

[electron registerFileProtocol don't handle browserWindow.loadFile\(\)](#)

votes

answers

views

electron

asked 13 secs ago Senasiko 15

0

0

2

[push update to next js in production](#)

votes

answers

views

next.js

asked 18 secs ago ishadif 301

0

0

4

[Flutter/Dart overwriting File in getApplicationDocumentsDirectory not working immediately](#)

votes

answers

views

dart flutter

modified 20 secs ago aMJay 1,498

### FEATURED ON META

- [Take the 2019 Developer Survey](#)
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- 8 [Feedback: Expired postings](#)
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### Watched Tags



Watch tags to curate your list of questions.

[Watch a tag](#)



434 • 7 • 18



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Tags

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# Tags

A tag is a keyword or label that categorizes your question with other, similar questions. Using the right tags makes it easier for others to find and answer your question.

[Popular](#) [Name](#) [New](#)**javascript** × 1752636

JavaScript (not to be confused with Java) is a high-level, dynamic, multi-paradigm, object-oriented, prototype-based, weakly-

894 asked today, 4845 this week

**java** × 1507778

Java (not to be confused with JavaScript or JS) is a general-purpose, statically typed, object-oriented programming

719 asked today, 3742 this week

**c#** × 1280365

a high level, statically typed, object oriented programming language developed by Microsoft. C# code usually targets

495 asked today, 2668 this week

**php** × 1258136

a widely used, high-level, dynamic, object-oriented and interpreted scripting language primarily designed for server-side web

470 asked today, 2551 this week

**android** × 1168502

Google's mobile operating system, used for programming or developing digital devices (Smartphones, Tablets, Automobiles, TVs,

471 asked today, 2664 this week

**python** × 1101131

a multi-paradigm, dynamically typed, multipurpose programming language, designed to be quick (to learn, to use, and to

963 asked today, 5447 this week

**jquery** × 942235

a Javascript library, consider also adding the Javascript tag. jQuery is a popular cross-browser JavaScript library that facilitates

230 asked today, 1182 this week

**html** × 800625

the standard markup language used for structuring web pages and formatting content. HTML describes the structure of a

333 asked today, 1911 this week

**c++** × 602756

a general-purpose programming language. It was originally designed as an extension to C, and keeps a similar syntax, but is now a

218 asked today, 1251 this week

**ios** × 589326

the mobile operating system running on the Apple iPhone, iPod touch, and iPad. Use this tag [ios] for questions related to

189 asked today, 935 this week

**css** × 571123

a representation style sheet language used for describing the look and formatting of HTML (Hyper Text Markup Language), XML

257 asked today, 1351 this week

**mysql** × 548126

a free, open source Relational Database Management System (RDBMS) that uses Structured Query Language (SQL). DO NOT

198 asked today, 1122 this week



434 ● 7 ● 18

+120



[java]

# Questions tagged [java]

[Ask Question](#)

Java (not to be confused with JavaScript or JScript or JS) is a general-purpose, statically typed, object-oriented programming language designed to be used in conjunction with the Java Virtual Machine (JVM). "Java platform" is the name for a computing system that has installed tools for developing and running Java programs. Use this tag for questions referring to the Java programming language or Java platform tools.

[Watch Tag](#)[Ignore Tag](#)[Learn more...](#) [Improve tag info](#) [Top users](#) [Synonyms \(10\)](#) [java jobs](#)

1,508,778 questions

[info](#) [Newest](#) [20 Featured](#) [Frequent](#) [Votes](#) [Active](#) [unanswered](#)

0

[How to fix error in Dialog after dismiss and click again?](#)

votes

I'm developing webview app, the problem in OnJsAlert that when i click on the Dialog it opens after dismiss it and click again it stop my app, for sorry i can't get the problem from debugging. This ...

0 answers

[java](#) [android](#) [xml](#) [android-webview](#)

15 views

modified 16 secs ago



Vadim Kotov

4,479 ● 6 ● 32 ● 47

-1

[How to save Image to external Storage in android?](#)

votes

I want to store Bitmap image in external storage but I am getting an error creating the file directory. This is my code. private void saveImage(Bitmap bitmap){ String root = Environment....

0 answers

[java](#) [android](#) [android-permissions](#)

modified 35 secs ago

## FEATURED ON META

- [Take the 2019 Developer Survey](#)
- [Data science time! January 2019 and views to answers](#)

## HOT META POSTS

- 8 [Feedback: Expired postings](#)
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## Watched Tags



Watch tags to curate your list of questions.

[Watch a tag](#)

# Popularity





Paused



# Explore what the world is searching

 Enter a search term or a topic

Or start with an example

HIDE

● Taylor Swift   ● Kim Kardashian

Interest by subregion, Past 7 days, United States

● World Cup

Interest by region, Past 7 days, Worldwide

● Football   ● American football

Interest by subregion, 2004 - present, United States



Google Trends

United States ▾



# Explore what the world is searching

Angular



Or start with an example ▾

## Latest Stories and Insights

Explore how Google data can be used to tell stories.



FEATURED

### Year in Search 2018



## Google Trends

## Explore



Angular  
Search term



+ Compare

United States ▾

Past 12 months ▾

All categories ▾

Web Search ▾



Interest over time



Interest by subregion

Subregion ▾

## Google Trends

## Explore

 Angular  
Search term

+ Compare

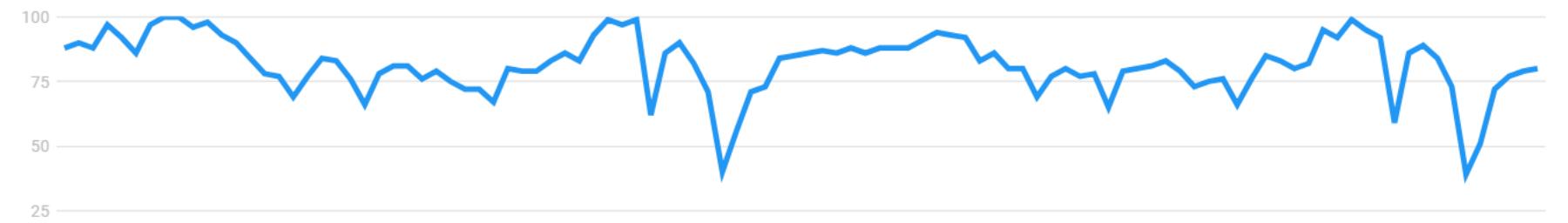
United States ▾

1/31/17 - 1/31/19 ▾

All categories ▾

Web Search ▾

Interest over time



Feb 5, 2017

Sep 17, 2017

Apr 29, 2018

Dec 9, 2018

Interest by subregion

Subregion ▾





## Google Trends

## Compare

Angular  
Search term

React  
JavaScript library

+ Add comparison

United States ▾

1/31/17 - 1/31/19 ▾

All categories ▾

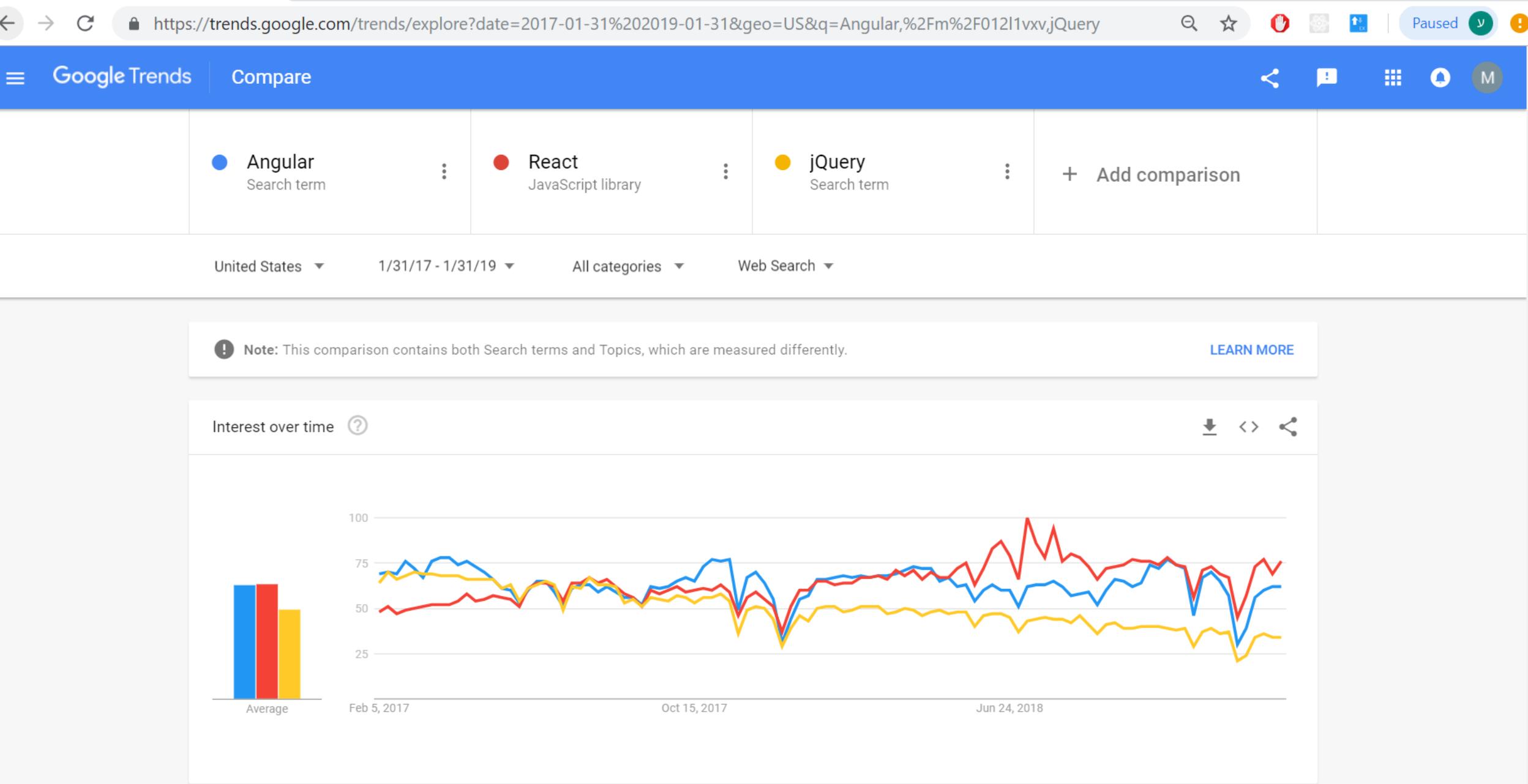
Web Search ▾

! Note: This comparison contains both Search terms and Topics, which are measured differently.

LEARN MORE

Interest over time



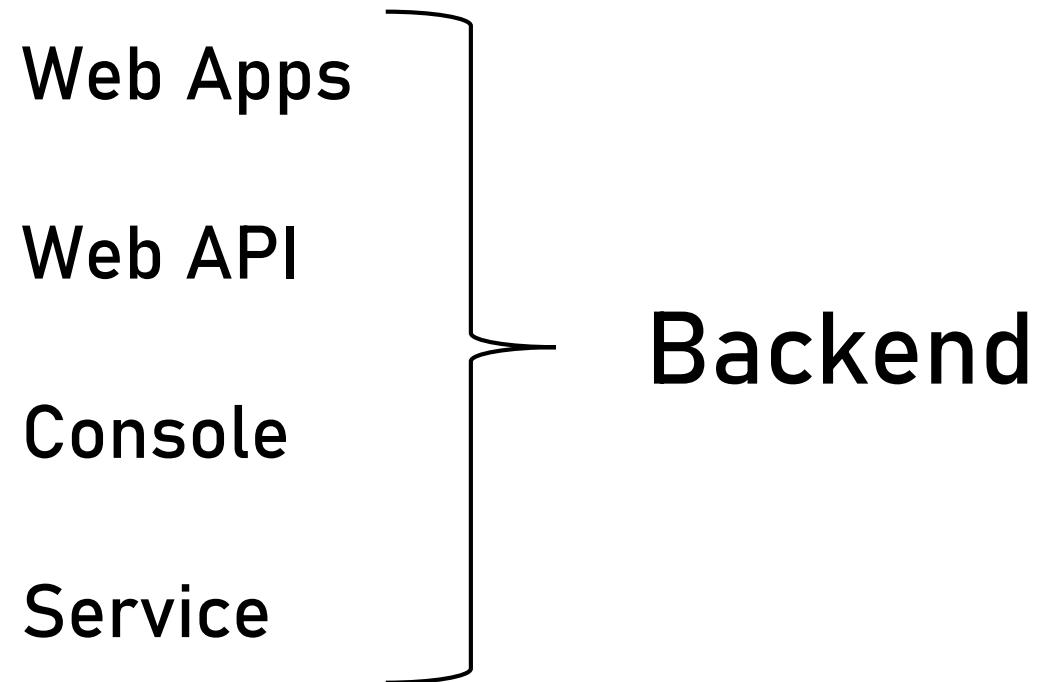


# Technology Stack Considerations

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- Can perform the task
- Community
- Popularity

# Backend and Service Technology



# Backend and Service Technology

Recommendation



Pros



# Candidates

- .NET Classic 

- .NET Core



- Java



- node.js



- PHP



- Python



# .NET Classic



- Founded in 2001 by Microsoft
- Windows only
- General purpose
  - Performance - OK
- Object Oriented
  - Very mature
- Statically typed
  - Blurred roadmap
- IDE – Visual Studio

# .NET Core



- .NET vNext
- Cross Platform
- Great performance
- Not fully baked yet
- IDE – Visual Studio, VS Code
- Vocal, growing community



- Founded in 1995 by Sun Microsystems
- Huge Community

## Microsystems

- Very popular
- General purpose
- Object Oriented
- Statically typed



- Founded in 2009 by Ryan Dahl
- Optimized for highly-concurrent
- Large community
- Great performance

## Web Apps

- JavaScript-based
- Dynamically typed

- Founded in 1994 by Rasmus Lerdorf
- A little messy
- Very easy to learn
- Not polished
- Large community
- Focused on Web Apps & Web API

# Python

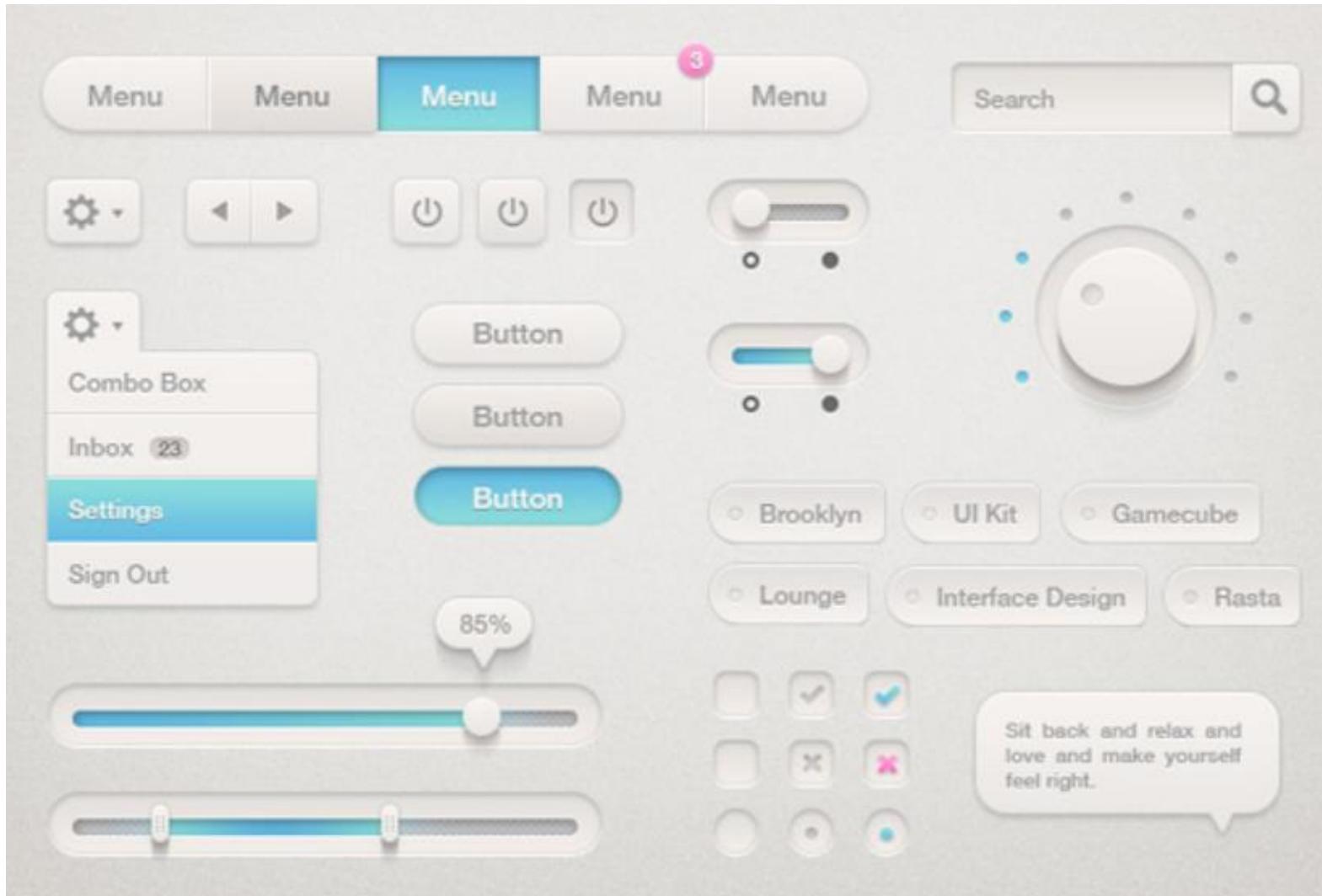


- Founded in 1989 by Guido van Rossum
- Scripting language
- Very popular
- Very easy to learn
- Huge, supportive community
- Supports any type of application

# Reference Table

	App Types	Type System	Cross Platform	Community	Performance	Learning Curve
.NET	All	Static	No	Large	OK	Long
.NET Core	Web Apps, Web API, Console, Service	Static	Yes	Medium and growing rapidly	Great	Long
Java	All	Static	Yes	Huge	OK	Long
node.js	Web Apps, Web API	Dynamic	Yes	Large	Great	Medium
PHP	Web Apps, Web API	Dynamic	Yes	Large	OK -	Medium
Python	All	Dynamic	Yes	Huge	OK -	Short

# Front End Technologies



Source: <http://www.designsmix.com/resources/70-free-gui-ui-ux-psd-kits-and-web-elements-for-download/>

# Front End Technologies App Types

- Web Apps 
- Web API 
- Mobile 
- Console 
- Service 
- Desktop 

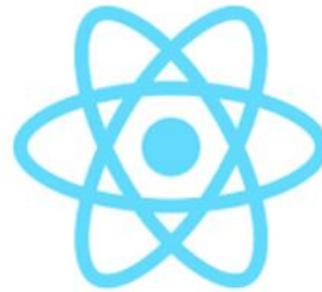
# Front End – Web Apps

- HTML, CSS & JavaScript
- Which JavaScript Framework?



Angular

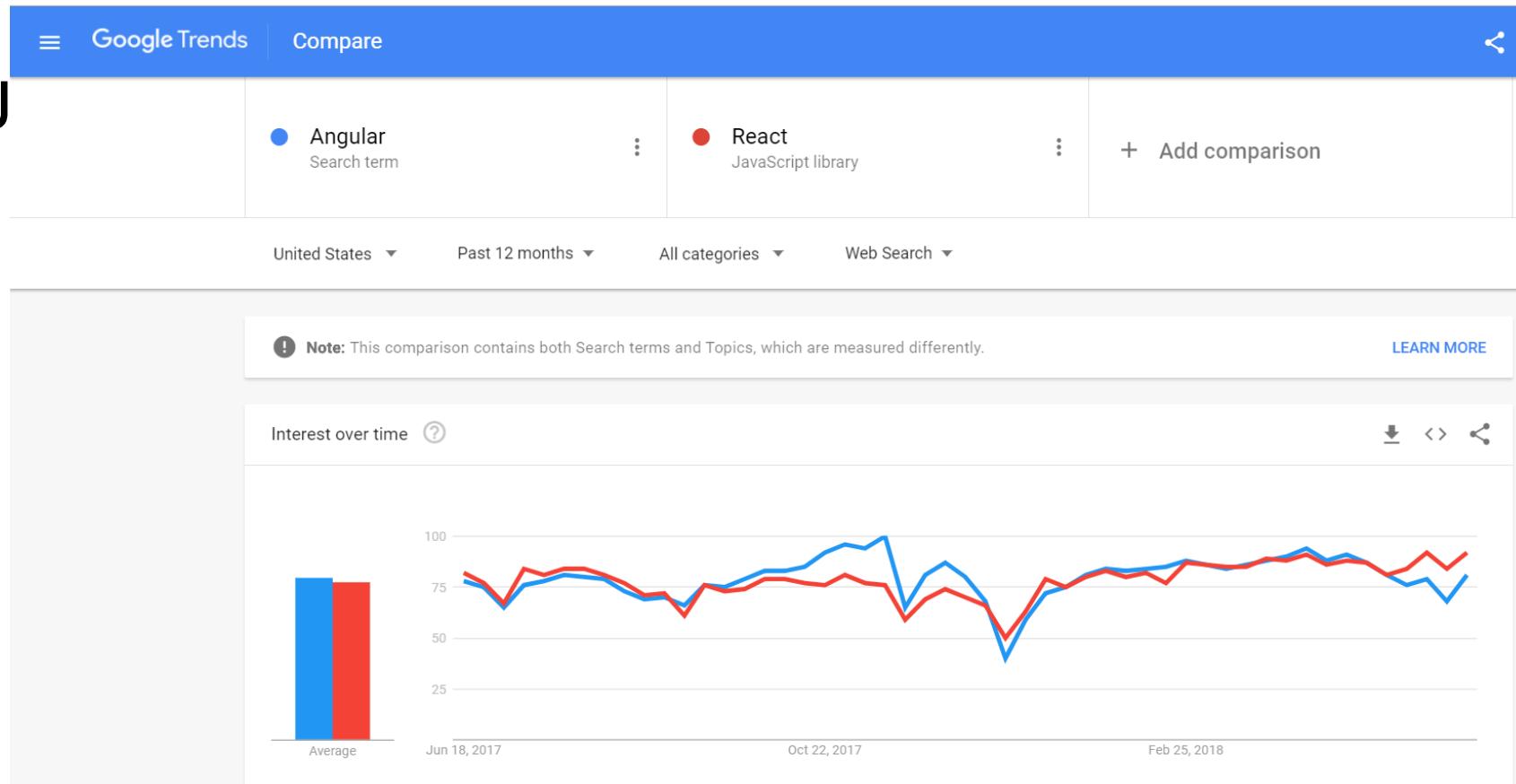
VS



React

# Front End – Web Apps

- HTML, CSS & JavaScript





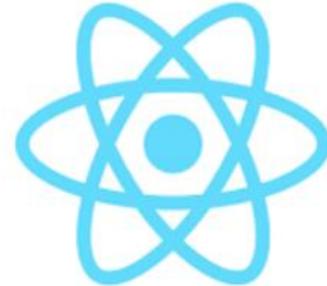
# Angular

angular × 116040

Questions about Angular, the web framework from Google. Use this tag for Angular questions which are not specific to an

245 asked today, 1459 this week

VS



# React

reactjs × 87130

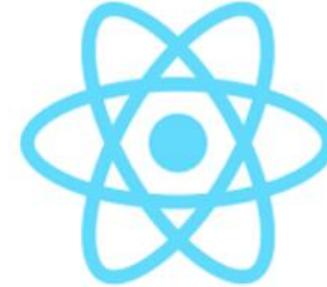
a JavaScript library for building user interfaces. It uses a declarative paradigm and aims to be both efficient and flexible.

181 asked today, 1159 this week



Angular

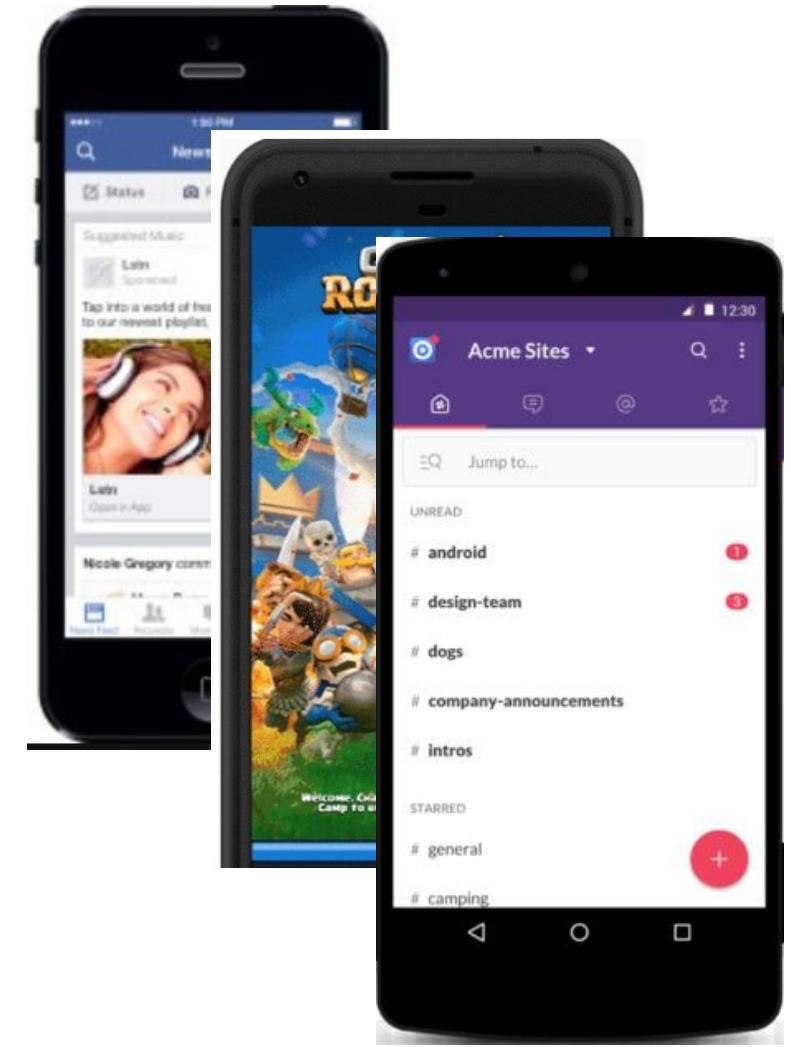
VS



React

- Full-blown Framework
- Long learning curve
- UI-Centric Library
- Short learning curve

# Mobile Apps



- Native
- Hybrid
- Cross-Platform

Dev Time vs Capabilities

# Mobile Apps Development Approaches

	Native	Hybrid	Cross Platform
Development Language & IDE	<b>iOS</b> – Objective-C or Swift, with X-Code & iOS SDK <b>Android</b> – Java with Android Studio & Android SDK		
Access to Phone's Features			
User Experience			

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Access to Phone's Features	Full control, no limits		
User Experience			

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User Experience	Exceptional		

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Access to Phone's Features	Full control, no limits	Very limited	
User Experience	Exceptional	Inferior	

Keep an eye on PWA!

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Access to Phone's Features	Full control, no limits	Very limited	Catch-up with latest versions
User Experience	Exceptional	Inferior	

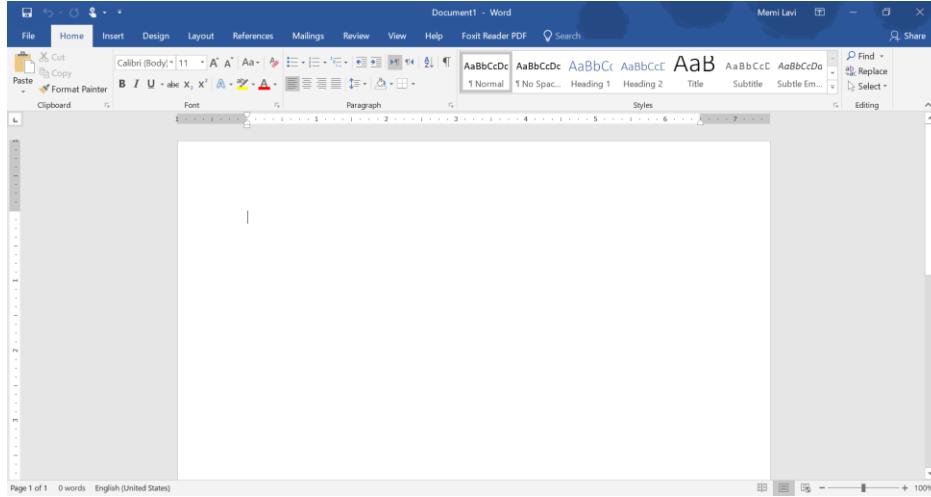
Keep an eye on PWA!

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Access to Phone's Features	Full control, no limits	Very limited	Catch-up with latest versions
User Experience	Exceptional	Inferior	Good, with limitations

Keep an eye on PWA!

# Desktop Applications



- WinForms
- WPF
- UWP

# Desktop Applications

	WinForms	WPF	UWP
Founded	2001		
UI Flexibility	Limited		
Learning Curve	Short		
Runs on...	PCs		

# Desktop Applications

	WinForms	WPF	UWP
Founded	2001	2006	
UI Flexibility	Limited	Unlimited	
Learning Curve	Short	Long	
Runs on...	PCs	PCs	

# Desktop Applications

	WinForms	WPF	UWP
Founded	2001	2006	2015
UI Flexibility	Limited	Unlimited	Unlimited, but runs in a sandbox
Learning Curve	Short	Long	Long
Runs on...	PCs	PCs	PCs, XBOX, IOT

# Data Store



# Data Store

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**SQL**

**NoSQL**

# SQL Database

- Stores data in tables
- Tables have concrete set of columns

Column Name	Type	Nullable?
OrderId	Numeric	No
OrderDate	DateTime	No
CustomerId	Numeric	No
DeliveryAddress	String	No

# SQL Database - Relationships

Column Name	Type	Nullable?
OrderId	Numeric	No
OrderDate	DateTime	No
CustomerId	Numeric	No
DeliveryAddress	String	No

Column Name	Type	Nullable?
OrderItemId	Numeric	No
OrderId	Numeric	No
ItemName	String	No
Quantity	Numeric	No

# SQL Database - Transactions

- Atomic set of actions
- ACID:
  - Atomicity
  - Consistency
  - Isolation
  - Durability

# SQL Database - Querying

- Using SQL
- Structured Query Language
- Very mature

```
Select OrderID, OrderDate, CustomerId, DeliveryAddress  
From Orders  
Where OrderDate >'01/01/2018'
```

# NoSQL

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- Emphasis on scale and performance
- Schema-less
- Data usually stored in JSON format

# NoSQL - Transactions

- Eventual Consistency
- Data can be temporarily inconsistent

# NoSQL - Querying

- No standard
- Can be frustrating...

# Data Store - Summary

SQL Databases	NoSQL Databases
Not Huge	Huge
Structured Data	Un- or Semi- Structured

# Technology Stack - Summary



# Stay Rational



# Stay Away from This!

