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# USER INTERFACE TECHNOLOGIES AND CURRENT TRENDS

Presented by: Sagar Bhat

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# Agenda

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- UI and UX
- Mindset of a Corporate UI Developer
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  - Performance Standards/Benchmarks
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  - Work With your Team

# What is User Interface(UI)

- User Interface is everything designed and programmed into an information device with which a person may interact.
- This can include display screens on printers, fax machines, appearance of a desktop, or web applications/websites.
- The growing dependence of many companies on web applications and mobile applications has led many companies to place increased priority on UI to improve the user's overall experience.

# UI and UX

- The UI interface is often talked about in conjunction with user experience (UX), which may include the aesthetic appearance of the device, response time and the content that is presented to the user within the context of the user interface.
- An increasing focus on creating an optimized user experience has led some to carve out careers as UI and UX experts.
- Certain languages, such as HTML, CSS and JavaScript, have been geared toward making it easier to create a strong user interface and experience.

# Mindset of a Corporate UI Developer

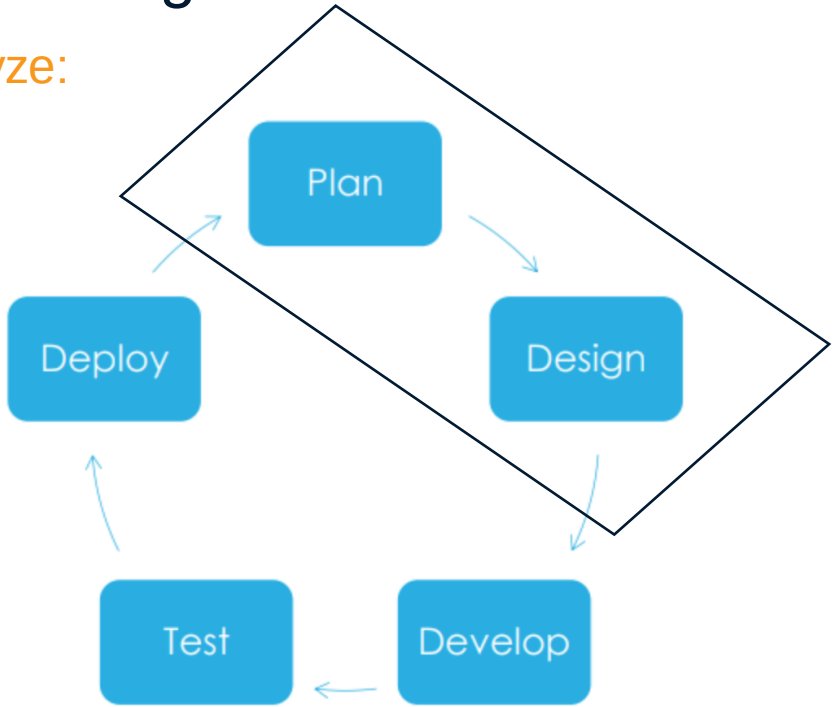
- Know the stakeholders/Client
- Understand the Product (Goal Analysis)
- Understand what problem this product is trying to solve (Purpose)
- Understand who is going to use the product (Audience)
- If ever in doubt, Ask Questions
- If you ever feel what you're doing will not add to the business, Ask Questions
- If you have a better Idea, Put it forward

# Things you need to know

- HTML
- CSS
- JavaScript
- Responsive Design
- Coding Standards
- Performance debugging
- Accessibility

# Before you Start Coding…

## Take your time to analyze:

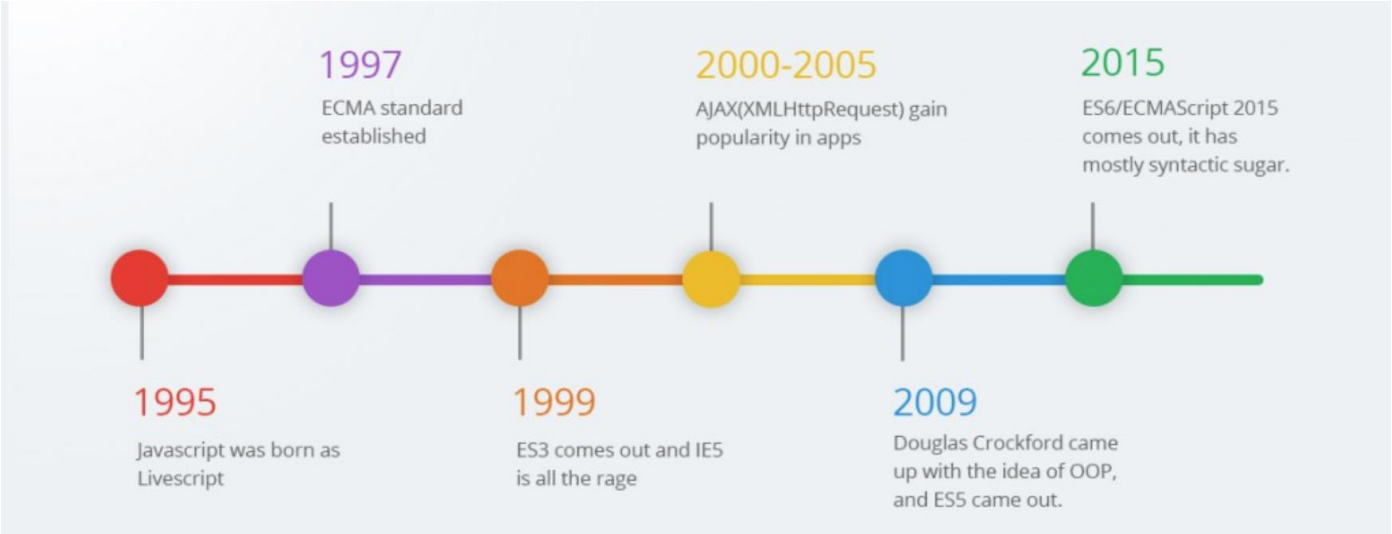


# Responsive Design

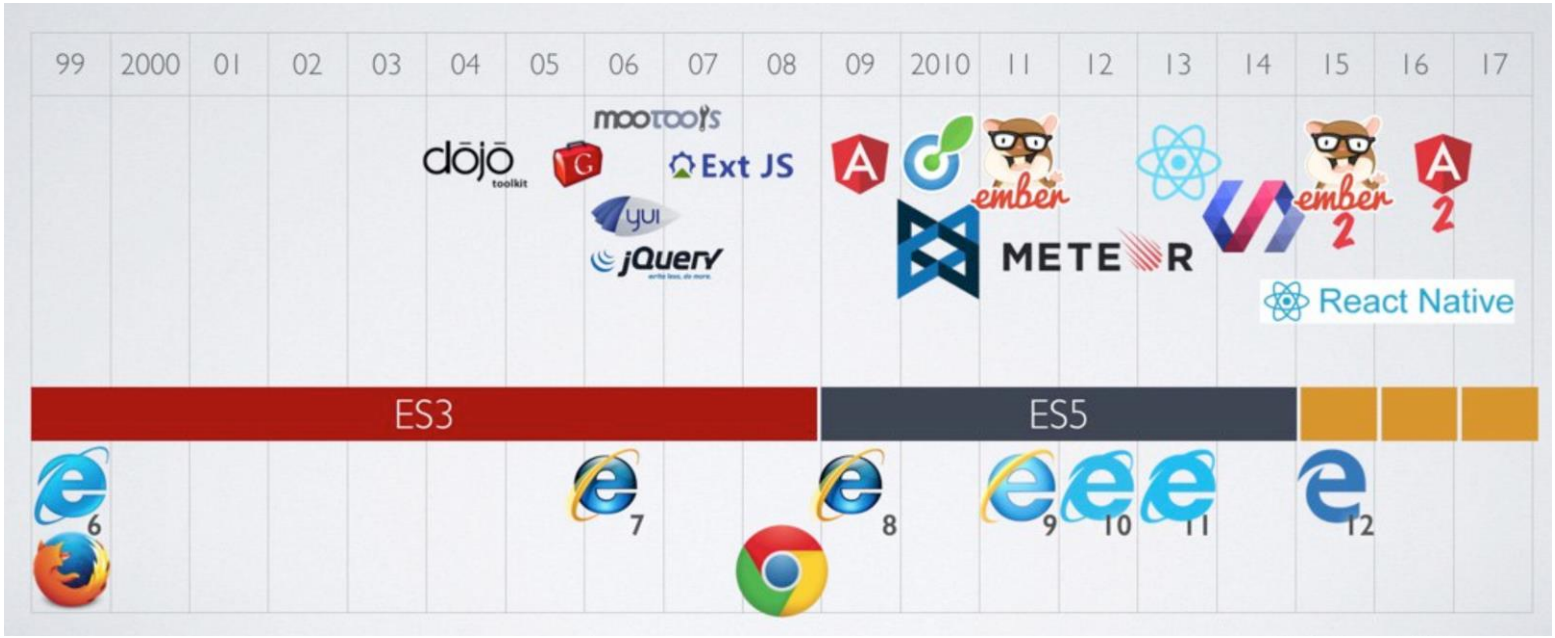
- In today's world, web applications need to be omnichannel. Earlier, we used to have multiple websites hosted for Desktop and Mobile Devices.
- So CSS community came out with Media Queries, so that the same HTML can look different based on what viewport the page is being accessed from.

# Javascript

- A scripting language developed in a collaboration between Netscape and Sun Microsystems to provide client-side programming in web pages Introduced by Netscape in 1995.

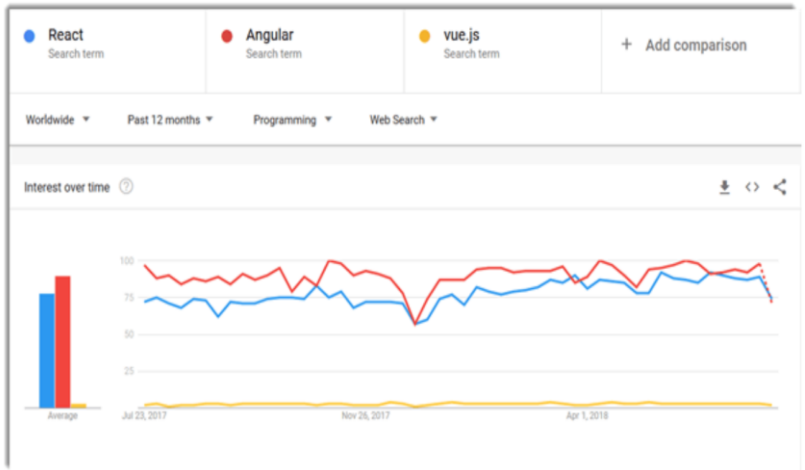


# Evolution into Libraries and Frameworks

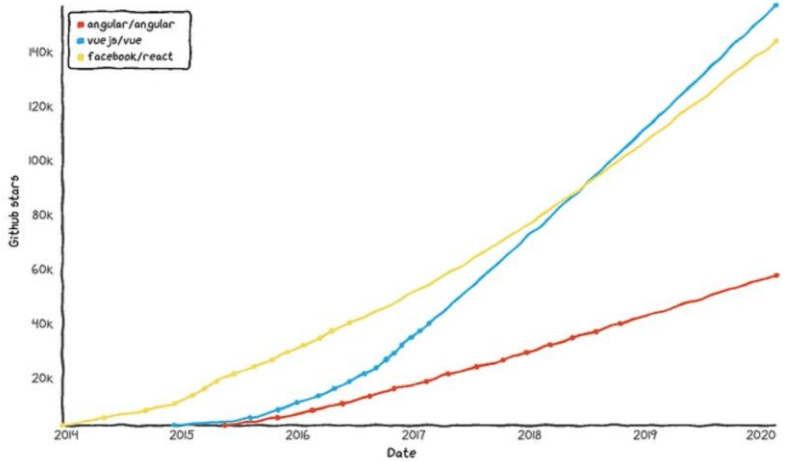


# Market Trends on Frameworks (ARV)

## 2018 Data on Popularity




## 2020 Data on Popularity



# Market Leaders comparison

| | Angular | React | Vue |
|---|---|---|---|
| **Type** | A Framework | Library to build UI | A library |
| **Why Choose** | If you want to use TypeScript | If you want to go for “everything-is-JavaScript” approach | Easy JavaScript and HTML |
| **Founders** | Powered by Google | Maintained by Facebook | Created by Former Google Employee |
| **Initial Release** | September 2016 | March 2013 | February 2014 |
| **Application Types** | If you want to develop Native apps, hybrid apps, and web apps | If you want to develop SPA and mobile apps | Advanced SPA and started supporting Native apps |
| **Ideal for** | If you want to focus on large-scale, feature-rich applications | Suitable for modern web development and native-rendered apps for iOS and Android | Ideal for web development and single-page applications |
| **Learning Curve** | A steep learning curve | A little bit easier than Angular | A small learning curve |

# Market Leaders comparison cont…

| | | | |
|---|---|---|---|
| **Developer-friendly** | If you want to use the structure-based framework | If you want to have flexibility in the development environment | If you want to have separation of concerns |
| **Model** | Based on MVC (Model-View-Controller) architecture | Based on Virtual DOM (Document Object Model) | Based on Virtual DOM (Document Object Model) |
| **Written in** | TypeScript | JavaScript | JavaScript |
| **Community Support** | A large community of developers and supporters | Facebook developers community | Open-source project sponsored through crowd-sourcing |
| **Language Preference** | Recommends the use of TypeScript | Recommends the use of JSX – JavaScript XML | HTML templates and JavaScript |
| **Popularity** | Widely popular among developers | More than 27,000 stars added over the year | More than 40,000 stars added on GitHub during the year |
| **Companies Using** | Used by Google, Forbes, Wix, and weather.com | Used by Facebook, Uber, Netflix, Twitter, Reddit, Paypal, Walmart, and others | Used by Alibaba, Baidu, GitLab, and others |

# Full stack !!!

- Examples: MEAN (Mongo Express Angular Node) or MERN (Mongo Express React Node)
- Any Front End and Backend can be used together that creates a Full Stack.

# How to decide what Framework is Best?

- There is nothing called as a Best Framework.
- Know your Product and your Audience to decide what Framework you need.

# Key things to know during Development

- Know your acceptance criteria
  - Coding Standards
  - Performance Standards
  - Accessibility Requirements
- Know your Tools
- Work with your team

# Coding Standards

- Patterns used in code
- HTML that is validated through W3C Validator
- Rules of writing code (ESLint, JSHint, Templating, etc.)
- Get your code reviewed by a peer or lead

# Performance Standards/Benchmarks

- Almost every project will have a performance benchmark set that needs to be met in order for the acceptance criteria to satisfy.
- Some tools to see if the application is performing efficiently:
  - Chrome dev toolbar
  - Yslow
  - Google Pagespeed insights
  - ESLint

# Accessibility

- Broadly speaking, when we say a site is accessible, we mean that the site's content is available, and its functionality can be operated, by literally anyone. As developers, it's easy to assume that all users can see and use a keyboard, mouse, or touch screen, and can interact with your page content the same way you do. This can lead to an experience that works well for some people but creates issues that range from simple annoyances to show-stoppers for others.

# Know your Tools

- IDE (Integrated Development Environment)
  - Examples: VS Code, Eclipse, Atom, etc.
- Browser Debug Bar

# Work With your Team

## Be a Team Player

- Have a common Purpose
- Trust your team
- Clarify roles from the start
- Communicate openly and efficiently
- Appreciate a diversity of ideas
- Help your teammates who need it

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# THANK YOU