CECS 491A Sec 04

WeCasa

Frontend Framework DAR Report

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Github Repository:

https://github.com/githelsui/WeCasa

Frontend Framework DAR Version Table

Version	Description	Date
1.0	Initial DAR - Use Cases - Technologies, Metrics, Evaluation	12/05/2022
1.1	Content Improvements - Reduced weights - Added more quantifiable metrics based on business needs	12/07/2022

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Business Needs & Metrics

Cost: WeCasa wants to reduce our technology costs to $0. So any frontend framework that requires an upfront cost is not ideal, and will be scored as a 0.
OS cross-compatibility: Since our development team uses a combination of MacOS and Windows operating systems, we need a frontend framework that supports both of these.
Browser Compatibility: It is important that the technology is compatible with Chrome, which is the primary browser that WeCasa will be run on.
Storing State Across Views: The ability to efficiently store states across views is important to our single-page application as WeCasa will implement multiple views and sections. This efficiency is measured based on the number of available built-in resources the framework provides.
Security: Security is a primary concern for the frontend layer of our application. Security concerns in this layer include SQL injection, DoS attacks, cross-site scripting (XSS) attacks, and session hijacking. The score in this category will be based on whether the frontend framework provides protection against all of these concerns.
Scalability: Since we anticipate WeCasa to expand to other markets and audiences, we want every low-level component of our application to be scalable. The score for this category will be based on whether the frontend framework is reusable, simple, and follows the MVC architecture.
FCP, FID, LCP: A faster FCP metric is important for WeCasa to ensure the user does not stay waiting too long for their content. A faster FID metric means users can interact with in-app functionality without any lag or delay. A faster LCP metric means PDFs, PNGs, and other media renders without a delay. These metrics are essential to ensuring WeCasa is a dependable resource without any delay in functionality or rendering speeds.
DOM: The score for this category will be based on whether the frontend framework uses a virtual DOM, which allows for improved performance at a large scale, as opposed to a real DOM, which increases performance time as the application scales.

Technology Comparison

Scale: 1-1.75, based on how influential that metric is in our decision making. Higher numbers indicate more importance.
Scores: 0-1, based on how well they match our desired use case.

Metrics	ReactJS	VueJS	AngularJS
Cost (Free) - **1**	Free - **1**	Free - **1**	Free - **1**

OS Cross-compatibility - **1.75**	Can be used to create desktop applications on Windows and macOS using Microsoft framework (*Gorrion Software House*, 2022)- **1.75**	Applications using Vue can run on Windows, OS X, and Linux (*Vue Community*, 2022) **- 1.75**	Angular projects can be created using Mac, Windows, or Linux OS using the same Angular methods (*KnowledgeHut*, 2022) - **1.75**
Browser Compatibility - **1**	React Cross Browser compatibility ensures components can be used across different platforms (*Browser compatibility*, 2022). - **1**	Offers cross-browser compatibility, supports all versions of FireFox, Chrome, Safari, etc. (*Browser compatibility*, 2022). - **1**	Browser compatibility issues when using certain Angular components (*Angularjs overcoming*, 2022). - **0.5**
Storing State Across Views - **1.5**	Provides a library, Redux Persist, to automate the persisting and hydrating of a state (Prasanjith, 2021). - **1.5**	Provides a library, Vuex, for state management - **1.5**	Difficulty maintaining states without some form of hacks with the ui-router (Scholz, 2014). - **0.5**
Security - **1.5**	Auto-detection of injection attacks, auto-escaping features, for high client-side security - **1**	Vulnerability reports in XSS in Vue templates (*Security*, n.d.) - **0.5**	Uses web services or RESTful APIs to interact with servers, optimizing security by guarding against unauthorized access (Das, 2021) - **1**
Scalability - **1**	Reusable, splittable components allowing for modularity and scalability - **1**	Allows faster improvement due to framework's lightweight and simple structure - **1**	Uses MVC structure, allowing for efficient maintenance - **1**
FCP - **1**	60% of applications built with Angular score at an acceptable FCP range (*Perf Track*, n.d.) - **0.6**	58% of applications built with Angular score at an acceptable FCP range (*Perf Track*, n.d.) - **0.5**	Only 45% of applications built with Angular score at an acceptable FCP range (*Perf Track*, n.d.) - **0.4**

FID - **1**	85% of applications built with Angular score at an acceptable FID range (*Perf Track*, n.d.) - **0.8**	87% of applications built with Angular score at an acceptable FID range (*Perf Track*, n.d.) - **0.8**	87% of applications built with Angular score at an acceptable FID range (*Perf Track*, n.d.) - **0.8**
LCP - **1**	60% of applications built with Angular score at an acceptable LCP range (*Perf Track*, n.d.) - **0.6**	58% of applications built with Angular score at an acceptable LCP range (*Perf Track*, n.d.) - **0.5**	Only 38% of applications built with Angular score at an acceptable LCP range (*Perf Track*, n.d.) - **0.3**
DOM - **1.2**	Uses virtual DOM - **1**	Uses virtual DOM - **1**	Uses real DOM - **0.2**
Total	**6.70**	**5.75**	**5.24**

Recommendation

ReactJS

Glossary

Term	**Definition**
DoS	Denial of Service
FCP	First Contentful Paint
FID	First Input Delay
DOM	Document Object Model
LCP	Largest Contentful Paint
MVC	Model View Controller
OS	Operating System

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