

DAR Report

Hubba - Chart and Graph JS

Version 1.0

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Github Repository:

<https://github.com/DevelopmentHellaHell/SeniorProject>

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Revision History

Version	Overview	Date
1.0	Initial DAR report	12/10/2022

Decision

The following options will be considered as options for the charting system used within the application for visualizing data analytics.

1. **Chart.js version 4.0.1**
 - a. Charting system developed by group of community contributors
2. **d3.js version 7.7.0**
 - a. Charting system developed by Mike Bostock and Jeffrey Heer
3. **Google Charts version 51**
 - a. Charting system developed by Google

Analysis

	Chart.js	D3.js	Google Charts
Pricing	Free 1	Free 1	Free 1
File sizing (x 0.5)	117 kB 1	73.78 kB 1	43 kB 1.5
Charted Information Data Types	JSON, JS array 2	JSON, CSV, DSV, Binary, text 2	Google DataTable 1
Export Chart as PNG (x 1.5)	Native 3	Third-party service required 1.5	Native 3
Default Chart Types (x 0.5)	8 charts 0.5	43 charts 1.5	18 charts 1
TOTAL	7.5	7.0	7.5

Recommendation

Pricing: For our single page application, we wished to reduce as many costs as possible due to the lack of financial support. For each of the libraries above, all are open source and free to use within our application as long as we include their appropriate license in our product.

File Sizing: For integrating libraries, we set a limit of 200 kB of space for the technologies we considered. Google charts provides a considerable advantage from its competitors due to the files only requiring 43 kB of space, saving us the room for any potential libraries needed for other aspects of our single page application. We rated Chart.js and D3.js the same because although they have a difference in sizing, they both meet the criteria of being under 200 kB.

Charted information Data Types: Google charts suffers from being able to import data directly without going through another service. Both D3.js and Charts.js are able to import data using JSON objects which is important for quickly reading and interpreting data on the Usage Analytics dashboard. Our application will already be dealing with information as JSON objects for data transfer between the front-end and back-end so importing the data into the charting library will not cause any issues.

Export Chart as PNG: It is important for our application to be able to offload the data in the event that our information is lost at some point. As a result, it is important that the charts can be exported on a scheduled basis for archiving in the future of our applications development. This will allow for trends to be observed and analyzed over a greater period of time while backing up the data.

Default Chart Types: Since the usage analytics dashboard is mostly for client and system administration purposes, there is not a strong need for chart types to be attractive more than efficient. However D3.js is the most flexible of all the three technologies being compared. It is able to provide a chart for any situation or data trend that appears. Google charts and Charts.js do allow for custom charts, but these must be developed by the developer themselves or downloaded with a community-provided chart template.

Conclusion: Chart.js edges ahead of Google Charts due to its flexible implementation when dealing with charted information data types. Being able to directly import data using JSON object types allows for an easier creation of charts while also providing export functions to allow for archiving at a later date. Chart.js was primarily chosen due to its ease of use when considering importing and exporting data.

References

Cai, M. (2018, December 31). Charting the waters (pt. 2): A comparison of JavaScript charting libraries. freeCodeCamp. Retrieved December 10, 2022, from <https://www.freecodecamp.org/news/charting-the-waters-pt-2-a-comparison-of-javascript-charting-libraries-96e9fb79b856/>

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