# CSS Research Report

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# Chosen JavaScript library: Chart.js

I have chosen Chart.js as the JavaScript library in this report.

Chart.js is a free, popular JavaScript library designed for making interactive and visually appealing HTML-based data visualizations (w3schools, n.d.). It is lightweight, easy to use, and supports a wide variety of chart types. Chart.js is also highly customisable with custom plugins to create outstanding visual effects like zoom and interactions (Chart.js, n.d.).

# (1 mark) When was this library first released?

Chart.js was created by a London-based Developer Nick Downie and was first released in 2013 (Versio.io, n.d.).

# (1 mark) What license was this library released under?

Chart.js is an open-source JavaScript library, licensed under the MIT license (Chart.js, n.d.).

# (1 mark) How popular is this library?

Chart.js is one of the most popular JavaScript libraries for JavaScript application developers.

Among the JavaScript charting libraries, Chart.js is the most popular one according to GitHub stars and npm downloads (Metabase, 2024). It has garnered over 60,000 stars on GitHub and around 2.4 million weekly Node Packet Manager (npm) downloads (Chart.js, n.d.).

# (2 marks) Why does this library exist?

Chart.js exists to simplify the process of making data visualizations. It supports a wide range of chart types and is highly customizable and responsive, making it ideal for web developers who wish to create visually appealing and interactive charts efficiently (Schuppik, 2024).

In addition to its ease of use, Chart.js eliminates the need to build charts from scratch by offering pre-built options and extensive customization features. Designed to be a lightweight yet powerful library, it offers a good balance between performance and functionality. Its ability to be integrated with modern web frameworks like React and provide interactive features like animations also contributes to its versatility and popularity among developers (Chart.js, n.d.).

# (2 marks) Do any alternatives exist?

There are other data visualizations libraries in the JavaScript ecosystem of open-source libraries, such as D3.js and Highcharts (Arunodi, 2023).

D3.js is a low-level JavaScript data visualization library that excels in complex, highly customized visualizations where web developers can have complete control over data rendering. D3.js does not provide abstraction for “charts”, thus even the simplest charts may require extensive coding. This is one of the key reasons why D3.js has a very steep learning curve for developers who wish to use it (D3.js, n.d.).

Highcharts is a feature-rich Javascript charting library. It is best suited for enterprise-level applications and professional-grade charts with advanced features. However, Highcharts is not fully open-source and required a paid license for commercial applications (Vendr, n.d.).

Web developers often choose Chart.js over other libraries like Highcharts and D3.js due to its simplicity, and quick setup. Unlike D3.js, which requires developers to be skilled in JavaScript and SVG manipulation, or Highcharts, which comes with licensing costs for commercial applications, Chart.js offers a more user-friendly experience. Its built-in chart types responsive feature makes it an ideal choice for developers who need to create visually pleasing charts quickly, without too much customization. This means that they can create functional data visualizations with minimal effort and coding, unlike D3.js. Since Chart.js is free for both personal and commercial use, developers also do not need to worry about the cost.

# (3 marks) Implement an example from the library

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