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JSC ITSUPPORTME DATA VISUALIZATION LIBRARY ORIGINAL RESEARCH

The purpose of the project is to develop a package of data visualization web-components for ITSupportMe IT company and represent it as an open-source library for React web tool named as «DataEureka».

Despite the project idea, today's software market has alternate solutions, as NIVO – JavaScript 2D data visualization library that provides a rich set of components, built on top of the D3.js (a JavaScript library for manipulating documents based on data) and React (industrial web-development library). It has around 30 interactive components based on Material design concept.

In comparison, both of libraries has a lot of ways of component customizing by users, components initially adaptive, besides, developed tool for JSC ITSupportMe represents much lightweight solution, users are able to choose and install only necessary components, both 2D and 3D as well. DataEureka supports React and React Native, it allows developers use it for the web, mobile and even desktop development. In addition, it is codebase easier to maintain, that important for customer.

Full list of described pros and cons both of tools showed in table 1 bellow.

Table 1 – Pros and cons of «NIVO» versus «DataEureka»:

	NIVO	DataEureka
Documented codebase and usage	+	+
Rich amount of ready components	+	-
Open-source	+	+
Interactive visualization from scratch	+	+
Easy to learn and use	-	+
Less time more value	-	+
PWA-oriented	-	+
Lightweight	-	+
2D and 3D data visualization at one library	-	+
Full access for library (for codebase, CI/CD tools, whole documentation)	-	+

DataEureka uses such tech stack as: *React, D3.js, Three,js and NPM*.

ReactJS is a JavaScript library that combines the speed of JavaScript and uses a new way of rendering webpages, making them highly dynamic and

responsive to user input. In addition, React is oriented to high performance in cases with huge animations and amounts of interactive nodes, there are many possibilities to optimize performance in such areas as data visualizations.

D3.js (Data-Driven Documents) is a JavaScript library for producing dynamic, interactive data visualizations in web browsers. It makes use of Scalable Vector Graphics (SVG), HTML5, and Cascading Style Sheets (CSS) standards to create huge graphical data visualizations.

Three.js is a cross-browser open-source JavaScript library and application programming interface (API) used to create and display animated 3D computer graphics in a web browser using WebGL (engine for working with 3D in web).

Three.js allows the creation of graphical processing unit (GPU)-accelerated 3D animations using the JavaScript language as part of a website without relying on proprietary browser plugins. This is possible due to the advent of WebGL.

Npm is a package manager for the JavaScript programming language. npm, Inc. is a subsidiary of GitHub, an American multinational corporation that provides hosting for software development and version control with the usage of Git. It is the default package manager for the JavaScript runtime environment. It consists of a command line client, also called npm, and an online database of public and paid-for private packages, called the npm registry, allowed to store software solutions as public code libraries.

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JSC ITSUPPORTME DATA VISUALIZATION LIBRARY ARCHITECTURE AND DESIGN

Implemented library was designed according to layered architecture. The specification is that application splits to the layers, each of them play its own role in software product. Layers – are the logical groupings of the software components that make up the application or service. Layered architecture provides patterns where the components organized in horizontal or hierarchical layers. This is the traditional method for designing such software as different libraries, which reprepresent API (Application Programming