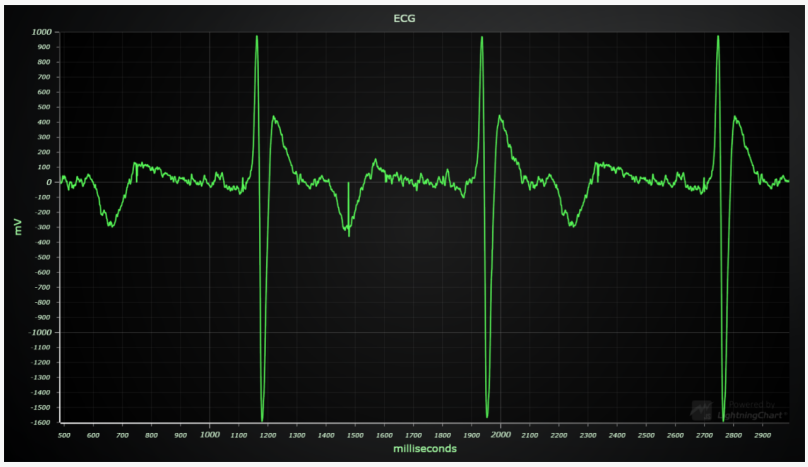
LightningChart Explains the Need for Visualizing Data Points

KUOPIO, FINLAND, May 19, 2022 /EINPresswire.com/ -- Some people may think that the amount of data that someone can compare is limited to a few hundreds/thousands of rows in a spreadsheet or a simple Excel or HTML5 chart...



An electrocardiogram (ECG) chart made in JavaScript with LightningChart JS

Today, the amount of data that can be visualized has a huge scope of, for instance, a static JavaScript heatmap can visualize 1.2 billion data points but in reality, when would you need to visualize such amount of data points?

The most common industries that require visualizing such amount of data are also generating it. An example of this is the vibration analysis industry where data is transmitted from the machine via data loggers to the final application that contains the charts processing and rendering the data points in plots or graphs.

Another example of an industry that demands processing a high number of data points is the medical industry. In essence, a medical application is built to process incoming data points from different type of patients' data, for example, electrocardiogram (ECG) heart rate data. In the medical industry, monitoring data is also important, something that non-conventional plots, graphs, and charts can do.

As seen, data visualization can be widely used in the medical industry, from research to analysis and diagnoses.

Another real-world example is motorsports, where billions of data points are transmitted in real-time from high-performance vehicles to data logging systems that process the data instantly to help racing engineers make decisions.

Many industries require analyzing billions of data points, such as satellite, aerospace, mechanical

engineering, and so on.

To create a high-quality graphic able to process a huge amount of data, you need to consider the properties of the charting library and its capabilities.

One of the most common workarounds that plotting libraries use to process large datasets is downsampling. Downsampling is a method that, by scaling down the dataset, charts are able to process the information and render it at the cost of losing valuable information which otherwise would have been there.

It is important to notice that high-performance charts do not use downsampling as in a real-world case-scenario, e.g., in the medical industry, processing every single data point (at the highest performance) is key in a medical diagnose.

To solve the need for more scalability, you can use powerful WebGL and GPU-rendered libraries such as LightningChart JS. A high-performance data chart is capable to use intelligent algorithms and effectivfely manage the end-device's resources to process all the data without having to downsample the dataset.

Let's define high-performance as something better, faster, or more efficient than what is already there. A high-performance plotting control would be better, faster, and more efficient than other solutions.

Streaming real-time data at high rates.
Visualization using WebGL technology supports smooth scrolling charts and thousands of data fed simultaneously. Solutions are used in instrumentation, automation, medical devices (ECG and EEG), and financial services.

Extremely high refresh rate.
Charts change 100 times per second, providing a smoother visualization. Explore how to develop applications that maintain high-performance in data visualization.

Reducing data visualization lag.
With real-time data visualization, decision-making is more immediate and quicker. Industries using data visualization: racing telemetry systems, aviation, trading, and medicine.

Full accuracy for the data.
Datasets can be visualized with complete precision without downsampling cause the lost of valuable information. In the medical industry, ECG typically stream 1000 data points/sec. Downsampling the data may cause the lose of vital information.

Decreasing the consumption of vital resources.
WebGL and GPU-accelerated solutions don't always guarantee the best management of

computing resources. Instead, charts combining these technologies with intelligent algorithms can guarantee the performance of the rendered charts consuming the lowest possible amount of resources. LightningChart JS charting library minizes the consumption of resources and can render charts in as little as milliseconds.

An optimized UX.
Performance is not all. Users prefer charts that have an appealing look and offer interactive features. Beneficial for all case-scenarios.

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