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Data Visualization Software

Sneha Dhavale [1], Sakshi Sontakke [2], Trupti Fawade [3], Aarti Gore [4], Nazia Mulla [5]

[1,2,3,4,5] *JSPM's Rajarshi Shahu College of Engineering, Tathawade*

A B S T R A C T

Any attempt to put data in a visual context and make it easier for others to understand its significance is referred to as data visualization. With data visualization tools, patterns, trends, and correlations that could go unnoticed in text-based data can be more easily exposed and recognized. The graphical display of quantitative data is known as data visualization. Stated differently, data visualizations transform both big and small data sets into pictures that are simpler for the human mind to comprehend and interpret. Surprisingly often in our daily lives, data visualizations take the shape of well-known charts and graphs. It can be applied to uncover undiscovered patterns and facts. When data science, design, and communication come together, good data visualizations are produced.

Keywords: Data Visualization, Business Analytics, Dashboards

Introduction

Information is presented graphically in visualization with the intention of giving the spectator a qualitative knowledge of the contents of the visualization. It also refers to the process of changing ideas, numbers, and things into forms that are visible to the human eye. We can refer to facts, procedures, relationships, or concepts when we use the word "information." We limit it to data here.

Understanding ratios and the relationships between numbers is the foundation of data visualization. Understanding patterns, trends, and relationships that exist in sets of numbers from the perspective of the user is more important than understanding individual numbers; this can involve detection, measurement, and comparison, and it is improved by interactive techniques and the provision of information from multiple viewpoints and with multiple techniques.

The few data visualization techniques that allow viewers an easy and accessible approach to interpret the provided information are visual elements like charts, graphs, and maps. Data visualization helps you and decision-makers in any business or sector to examine analytical reports and comprehend ideas that would otherwise be challenging to understand in our Big Data-driven environment.

Why is the visualization of data important?

You should be aware by now of how data visualization streamlines the presentation of information. But is that the only way that data visualization can be powerful? Not really. The need for information is evolving along with the globe. A few advantages of data visualization are as follows:

● Information that is easily understood — As data grows daily, it is not prudent for anyone to sift through such a large amount of data in order to make sense of it. That's when data visualization comes in helpful.

● Create relationships — In addition to displaying data, charts and graphs can create linkages between various information types and data types.

● Share — It is also simple to share data visualization with others. A chart could be used to convey any significant information on a market trend

● Interactive visualization: In this day and age, where technological innovations of all sizes are reshaping every industry, you can also use interactive visualization to go deeper and divide up the various parts of graphs and charts to get a more in-depth understanding of the data being displayed.

● Data visualization is interactive, personalized, and intuitive. You might click on it to get an enlarged version of that specific information piece. Additionally, they are customized for the intended audience and are quickly updated in the event that the information changes.

Data Visualization Techniques: What Are They?

A few data visualizations you should be aware of are as follows:

● Recognize your target audience; this should go without saying. The audience for a graph or chart should always be taken into consideration while designing it.

● Establish a purpose, or better yet, a coherent story. Make sure you have certain objectives that the infographic must communicate. Relevant content type is also essential.

Pick the type of chart. Pie charts don't visually enhance all information. on a similar vein, not all statistics are displayed clearly on a bar graph. To present the information, precisely select the chart section.

● Context: Depending on the situation, using color is encouraged. A decline in the increase of profits could be indicated in red, green, on the other hand, might indicate the rising parameter.

Use tools: Using tools is indeed one of the simplest ways to produce data graphics. Utilize them since they improve the charts' readability and intuitiveness.

What Uses Does Data Visualization Have in the Business World?

The potential of data visualization is far more than one may have imagined in this day and age, when big data is causing havoc everywhere. Organizations today generate enormous amounts of data, and handling, organizing, and interpreting that data is a laborious effort. But with the right data visualization technique, you can use that data for commercial purposes in addition to reading it.

● Reports and displays: One typical application of data visualization in business is this. Any written information can be added, updated, translated, or removed by organizations inside a visual environment.

● Operational alerting: This is a further application of data visualization. It helps teams in charge of internal operations, sales, and marketing to stay up to date on any new debut of a product, promotion, or more. Real-time visual alarms can be sent to the teams via data visualization.

● Mindmaps: Mind maps are a diagramming tool that may be used to create and visualize relationships and structure, classify ideas for organizing and observing information, make decisions, and solve other business challenges.

● Business expansion: This is likely one of the primary applications of data visualization. Graphics are used to monitor and illustrate business growth and provide a better understanding of an organization's sales performance.

* Other industries Additional applications of data visualization can be found in the domains of medicine, geography, biology, and meteorology, where various forms of data are utilized.

Last but not least, data visualization is crucial for presenting a vast variety of data kinds in an comprehensible arrangement and design. Numerous data scientists favor data visualization as the most effective technique for visualizing and analyzing complicated data sets because to its numerous benefits in nearly every industrial and commercial industry.

Methodology:

Visualization is the use of computer-supported, visual representation of data. Unlike static data visualization, interactive data visualization allows users to specify the format used in displaying data. Common visualization techniques are as shown in Figure 1 and include

• Line graph: This shows the relationship between items. It can be used to compare changes over a period of time. • Bar chart: This is used to compare quantities of different categories.

• Scatter plot: This is a two-dimensional plot showing variation of two items

• Pie chart: This is used to compare the parts of a whole.

Thus, the format of graphs and charts can take the form of bar chart, pie chart, line graph, etc. It is important to understand which chart or graph to use for your data. Data visualization uses computer graphics to show patterns, trends, and relationship among elements of the data.

It can generate pie charts, bar charts, scatter plots, and other types of data graphs with simple pull-down menus and mouse clicks. Colors are carefully selected for certain types of visualization. When color is used to represent data, we must choose effective colors to differentiate between data elements. In data visualization, data is abstracted and summarized. Spatial variables such as position, size, and shape represent key elements in the data. A visualization system should perform a data reduction, transform and project the original dataset on a screen.

WORKING

Software Requirement:

- system – windows 7/8/10
- Available coding language – R programming language
- Rstudio , rsftware

Conclusion

A well-designed data visualization should use graphics to convey a data collection in an understandable and efficient manner. The most effective visualizations facilitate quick comprehension of the facts. They take difficult information and simplify it so that the intended audience may use it as a foundation for understanding and making decisions.

The objective is not to call attention to the design per se, but rather to improve the data through design. Making infographics that are actually helpful to their audience is made easier when one keeps these best practices for data visualization in mind.

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ADVANTAGES

- Visualized data is processed faster.
- Data visualization software dashboards support visual learners.
- Data visualization software tools show insights, causes, and trends that may be missed in traditional reports.
- Data visualization software gives actionable items.
- Data visualization software increases productivity and sales.
- It promotes storytelling in the most compelling way. Visuals are used in the most meaningful way to convey the right message to theaudience.

DISADVANTAGES

- Inappropriate plan issue.
- Wrong engaged individuals can skip center messages.
- It gives assessment not exactness.
- Improper data visualization.

References

1. K.el Emam and A. G. Koru, “A replicated survey of IT software project failures,” IEEE Softw, vol. 25, no. 5, pp. 84–90, 2008
2. J. G. Zheng, “Data visualization in business intelligence,” in Global business intelligence, Routledge, 2017, pp. 67–81
3. T. R. Vetter, “Fundamentals of research data and variables: the devil is in the details,” Anesth Analg, vol. 125, no. 4, pp. 1375–1380, 2017.
4. M. Hardin, D. Hom, R. Perez, and L. Williams, “Which chart or graph is right for you?,” Tell Impactful Stories with Data. Tableau Software, 2012
5. Rstudio studio