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ADVANTAGES, DISADVANTAGES AND SOLUTIONS OF VISUALIZATION

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Annotatsiya: Vizuallashtirish nima va uning avfzallaklari keltirib o'tildi, vizuallashtirishda yuzaga keladigan kamchiliklar ko'rib chiqildi hamda bu kamchiliklarga mos ravishda yechimlari ham keltirildi.

Abstract: What is visualization and its advantages are explained, the shortcomings that arise in visualization are considered, and solutions are provided accordingly

Kalit so'zlar: Vizuallashtirish, rivojlanishi, vizuallashtirishni avfzalliklari, vizuallashtirishda yuzaga keladigan kamchiliklar.

Keywords: Visualization, development, advantages of visualization, disadvantages of visualization.

Introduction: In recent years, the issue of visualizing the results of scientific research has become a concern for researchers of all specialties. Visualization of scientific research results is important in presenting scientific information. Using visual tools, research results are presented in a more accurate, understandable and effective way. However, incorrect or ineffective visualization can lead to misinterpretation of data, confusion and incorrect conclusions. This article discusses the advantages of visualization, the main disadvantages that arise and ways to overcome them. Visualization is the process of representing data in a graphical form, which is a method of making information more understandable and visible through diagrams, graphs, drawings and other visual tools. Visualization is the process of expressing information or ideas in an understandable form by seeing them. Let's talk about the advantages of visualization. Visualized information simplifies complex information and helps to understand it at a glance [1].

This is especially important when working with large amounts of data. It helps us to understand the data quickly and easily, which helps us make decisions easily and attracts attention. Graphics and images arouse the audience's interest and ensure that the information is remembered. For example, if you present financial documents in text form, it can be quite difficult and boring. However, when presented through graphs and diagrams, they are much more understandable, memorable and quickly grasp the main conclusion. Through visualization, it is possible to immediately see the differences and similarities between different data. This enhances the impression and ensures easy comprehension [2].

Information that is difficult to understand through numbers or text is more effective in visual form and we can easily find a solution. Visualization has many advantages, but it is not without its disadvantages. Misinterpretation of data, such as using the wrong graphic format or manipulating data, can lead the audience to the wrong conclusion. As a solution, it is necessary

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to choose the type of graph according to the type of information and use clear symbols. It is also necessary to cite the source of the data [3].

Overcomplication, where the visualization has too many elements, colors, and information, can distract the audience and make it difficult to understand the most important information they need. The solution is to follow minimalist design principles and eliminate unnecessary elements and focus on the main message.

Errors in color selection, such as incorrect color combinations, or failure to select colors correctly, can cause a number of difficulties in obtaining colors that are close to each other and cause people who cannot distinguish colors well to receive incorrect information. It is recommended to pay attention to contrast when matching colors and choose appropriate color combinations for people with color blindness.

Incorrect presentation of data can be distorted by choosing the wrong graph, or by incorrectly defining the scale or measurement. In this case, it is very important to clearly define the zero point on the graph, and correctly reflect the ratio and proportions [4].

Another disadvantage is the lack of context, which means that if the source of the information, the content of the graphic, or the main purpose of the graphic is not explained, the audience may misinterpret the information. In this case, it is very important to include explanatory text below the visualization and correctly explain the main idea.

Not taking into account the audience If you do not take into account who the visualization is for, this will complicate the perception of the information presented. In this case, it is necessary to take into account the needs of the audience and present the visualization in a way that is clear and understandable to everyone.

Conclusion: Visualization is a powerful tool for increasing efficiency and accuracy in the process of working with data. Scientific visualization can be a powerful tool for presenting results in a clear and impressive way, but if it is not used effectively, there is a risk of misinterpretation of data. Therefore, researchers should approach the creation of visualizations with care and responsibility. Using visualization correctly and strategically is the key to success.

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