Google Cloud

Actionable insights through data exploration

So far, you've learned that data exploration is the process of understanding a dataset by inspecting its characteristics, identifying patterns, and asking questions. As part of this process, data analysts may review their data structure and identify column data. In this reading, you'll explore more about cloud data visualization tools, and learn how they support the process of data exploration. You'll also learn about actionable insights.

Data visualization as exploration

Data exploration supports the overall analysis process by allowing you to determine the accuracy of your dataset. Exploration also gives insight into the qualities of your data, including size and distribution. Data visualization supports data exploration by providing a complete picture of your data, which can allow you to pinpoint trends, and view a summary of your data. Data visualizations can be created in software like Google's Looker Studio, Tableau, and Microsoft Power BI. Using data visualization software, you can:

- Visualize metadata
- Clean data by identifying outliers or anomalies
- Determine relationships
- Identify trends and correlations

When visualizing data for exploration, you can use scatter plots, line charts, or line graphs to plot out your data. For example, you might use a scatter plot when comparing two sets of data, like plotting the relationship between the number of hours students study for an exam, and exam scores. This would help you determine if there's a correlation between study time and exam performance.

Develop a data visualization

Using visualizations for data exploration follows a cycle of iteration that allows you to refine your dataset, and identify any potential issues. To do this:

1. Determine a data question. This can be a business question answered with data, or a question about your data to ensure accuracy.
2. Determine the measures you'll need to answer your question.
3. Filter and sort the results. During this stage, look for accuracy and outliers to ensure the cleanliness of your data.
4. Clean your data, if needed.

5. Develop a new visualization of your data.
6. Save your data so that you can return to data exploration as needed.
7. Refine your insights as many times as needed to answer the specific question provided.

Actionable insights

An actionable insight is a finding from data analysis that can be acted upon. Insights generated from business questions or data visualizations can provide the basis for action. Actionable insights allow you to develop strategic answers to business questions.

Note: Not all insights are actionable. Sometimes your data will confirm something you already know, or be unrelated to your business. In these cases, there'll be no further action.

How to collect insights

When working with actionable insights, you'll need to collect data that provides information that's relevant to your business question. Often, this will be related to customer experience. Imagine you're a data analyst working for a food delivery app, and many users abandon carts during the payment process. By analyzing user data, you find that the payment process is too complex. You simplify it based on this insight, resulting in fewer abandoned carts, and an improved customer experience. In these instances, data can be collected from surveys, reviews, or by monitoring social media.

The process starts by collecting and compiling data. Then, the data can be explored using visualization tools to clean it, and an answer to the business question can be developed.

Key takeaways

The data exploration process allows you to explore your datasets with a close look at accuracy and usability. Data visualization tools can create a graphic representation of data exploration, allowing you to review your data, and identify patterns visually. Once you have your data cleaned, and actionable insights prepared, you can develop actions to solve problems identified in your data.

Resources for more information

To learn more about data exploration, visit these resources:

- Google Cloud's Community Blog provides information about using Looker for data exploration: https://www.googlecloudcommunity.com/gc/Community-Blogs/Unlock-the-power-of-data-analytics-with-Looker-Rethinking/ba-p/551825