Big and small data

As a data analyst, you will work with data both big and small. Both kinds of data are valuable, but they play very different roles.

Whether you work with big or small data, you can use it to help stakeholders improve business processes, answer questions, create new products, and much more. But there are certain challenges and benefits that come with big data and the following table explores the differences between big and small data.

Small data	Big data
Describes a dataset made up of specific metrics over a short, well-defined time period	Describes large, less-specific datasets that cover a long time period
Usually organized and analyzed in spreadsheets	Usually kept in a database and queried
Likely to be used by small and midsize businesses	Likely to be used by large organizations
Simple to collect, store, manage, sort, and visually represent	Takes a lot of effort to collect, store, manage, sort, and visually represent
Usually already a manageable size for analysis	Usually needs to be broken into smaller pieces in order to be organized and analyzed effectively for decision-making

Challenges and benefits

Here are some **challenges** you might face when working with big data:

- A lot of organizations deal with data overload and way too much unimportant or irrelevant information.
- Important data can be hidden deep down with all of the non-important data, which makes it harder to find and use. This can lead to slower and more inefficient decision-making time frames.
- The data you need isn't always easily accessible.

- Current technology tools and solutions still struggle to provide measurable and reportable data. This can lead to unfair algorithmic bias.
- There are gaps in many big data business solutions.

Now for the good news! Here are some **benefits** that come with big data:

- When large amounts of data can be stored and analyzed, it can help companies identify more efficient ways of doing business and save a lot of time and money.
- Big data helps organizations spot the trends of customer buying patterns and satisfaction levels, which can help them create new products and solutions that will make customers happy.
- By analyzing big data, businesses get a much better understanding of current market conditions, which can help them stay ahead of the competition.
- As in our earlier social media example, big data helps companies keep track of their online presence—especially feedback, both good and bad, from customers. This gives them the information they need to improve and protect their brand.

The three (or four) V words for big data

When thinking about the benefits and challenges of big data, it helps to think about the three Vs: **volume, variety,** and **velocity.** Volume describes the amount of data. Variety describes the different kinds of data. Velocity describes how fast the data can be processed. Some data analysts also consider a fourth V: **veracity.** Veracity refers to the quality and reliability of the data. These are all important considerations related to processing huge, complex datasets.

Volume	**Variety**	**Velocity**	**Veracity**
The amount of data	The different kinds of data	How fast the data can be processed	The quality and reliability of the data