# Key data analyst tools

As you are learning, the most common programs and solutions used by data analysts include spreadsheets, query languages, and visualization tools. In this reading, you will learn more about each one. You will cover when to use them, and why they are so important in data analytics.

## Spreadsheets

Data analysts rely on spreadsheets to collect and organize data. Two popular spreadsheet applications you will probably use a lot in your future role as a data analyst are Microsoft Excel and Google Sheets.

Spreadsheets structure data in a meaningful way by letting you

- Collect, store, organize, and sort information
- Identify patterns and piece the data together in a way that works for each specific data project
- Create excellent data visualizations, like graphs and charts.

## Databases and query languages

A database is a collection of structured data stored in a computer system. Some popular Structured Query Language (SQL) programs include MySQL, Microsoft SQL Server, and BigQuery.

Query languages

- Allow analysts to isolate specific information from a database(s)
- Make it easier for you to learn and understand the requests made to databases
- Allow analysts to select, create, add, or download data from a database for analysis

## Visualization tools

Data analysts use a number of visualization tools, like graphs, maps, tables, charts, and more. Two popular visualization tools are Tableau and Looker.

These tools

- Turn complex numbers into a story that people can understand
- Help stakeholders come up with conclusions that lead to informed decisions and effective business strategies
- Have multiple features

- **Tableau**'s simple drag-and-drop feature lets users create interactive graphs in dashboards and worksheets
- **Looker** communicates directly with a database, allowing you to connect your data right to the visual

tool you choose

A career as a data analyst also involves using programming languages, like R and Python, which are used a lot for statistical analysis, visualization, and other data analysis.

## Key takeaway

You have a lot of tools as a data analyst. This is a first glance at the possibilities, and you will explore many of these tools in-depth throughout this program.

# Choose the right tool for the job

As a data analyst, you will usually have to decide which program or solution is right for the particular project you are working on. In this reading, you will learn more about how to choose which tool you need and when.

Depending on which phase of the data analysis process you're in, you will need to use different tools. For example, if you are focusing on creating complex and eye-catching visualizations, then the visualization tools we discussed earlier are the best choice. But if you are focusing on organizing, cleaning, and analyzing data, then you will probably be choosing between spreadsheets and databases using queries. Spreadsheets and databases both offer ways to store, manage, and use data. The basic content for both tools are sets of values. Yet, there are some key differences, too:

| Spreadsheets | Databases |
|---|---|
| Accessed through a software application | Database accessed using a query language |
| Structured data in a row and column format | Structured data using rules and relationships |
| Organizes information in cells | Organizes information in complex collections |
| Provides access to a limited amount of data | Provides access to huge amounts of data |
| Manual data entry | Strict and consistent data entry |
| Generally one user at a time | Multiple users |
| Controlled by the user | Controlled by a database management system |

You don't have to choose one or the other because each serves its own purpose. Generally, data analysts work with a combination of the two, as both tools are very useful in data analytics. For example, you can store data in a database, then export it to a spreadsheet for analysis. Or, if you are collecting information in a spreadsheet, and it becomes too much for that particular platform, you can import it into a database. And, later in this course, you will learn about programming languages like R that give you even greater control of your data, its analysis, and the visualizations you create.

## Key takeaways

The choice of data analysis tools depends on the specific task at hand. Spreadsheets are suitable for organizing, cleaning, and analyzing small to medium datasets. Databases are ideal for storing, managing, and analyzing large and complex datasets. Data analysts often use a combination of spreadsheets, databases, and programming languages to effectively handle a wide range of data analysis tasks.