INTRODUCTION TO DATA ANALYSIS

BY :CHAIMAE ILLI

This course is done by:

ILLI Chaimae

a Data Science and Business Intelligence student at the Cadi Ayyad university and the Event Manager of the SDAD club

chaimae.rema@gmail.com

https://www.linkedin.com/in/chaimae-illi-265215209

Overview:

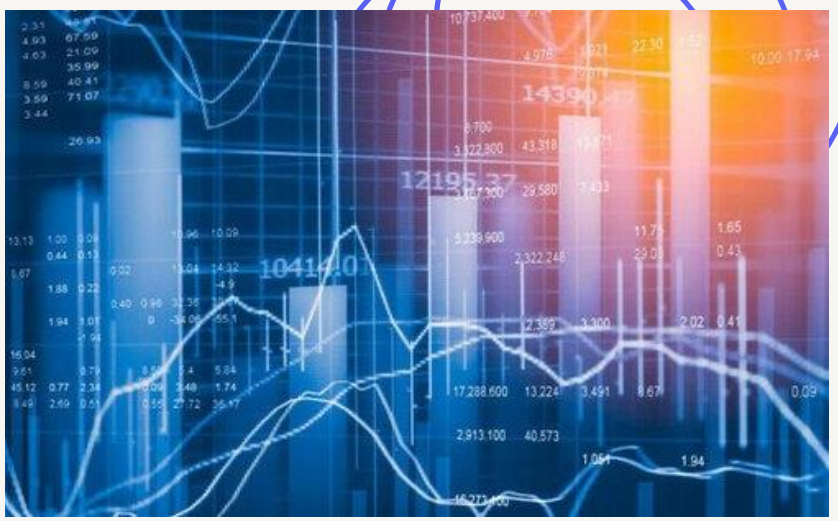
- Introduction
- What is data analysis?
- Why is data analysis important?
- Uses of Data analysis
- Data analysis tools
- Data analysis process
- Data analysis types

Today we collect data at various points of processes and transactions, which has huge potential to change the way we work for the better. However, this data analysis can add value to the business only when it’s analyzed to gain insights into how to improve your products and services.
Data analysis allows you to know and interpret information to identify points of value. But what is data analysis in simple words?

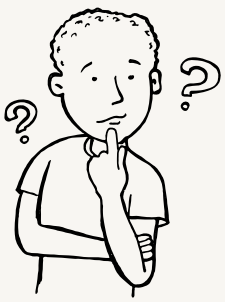
What is data analysis?

Data analysis is the science of examining a set of data to draw conclusions about the information to be able to make decisions or simply to expand the knowledge on various subjects.

Why is data analysis important ?



Data Analysis is one of the most important processes that businesses can leverage to make the right decisions.
Effective data analysis is a skill that can be applied to finance, retail business, medicine, and healthcare, and even in the world of sports



Uses of data analysis:

It is used in many industries regardless of the branch. It gives us the basis to make decisions or confirm if a hypothesis is true:

Marketing :

Mainly, researchers perform data analysis to predict consumer behavior and help companies place their products and services in the market accordingly.

Human Ressources:

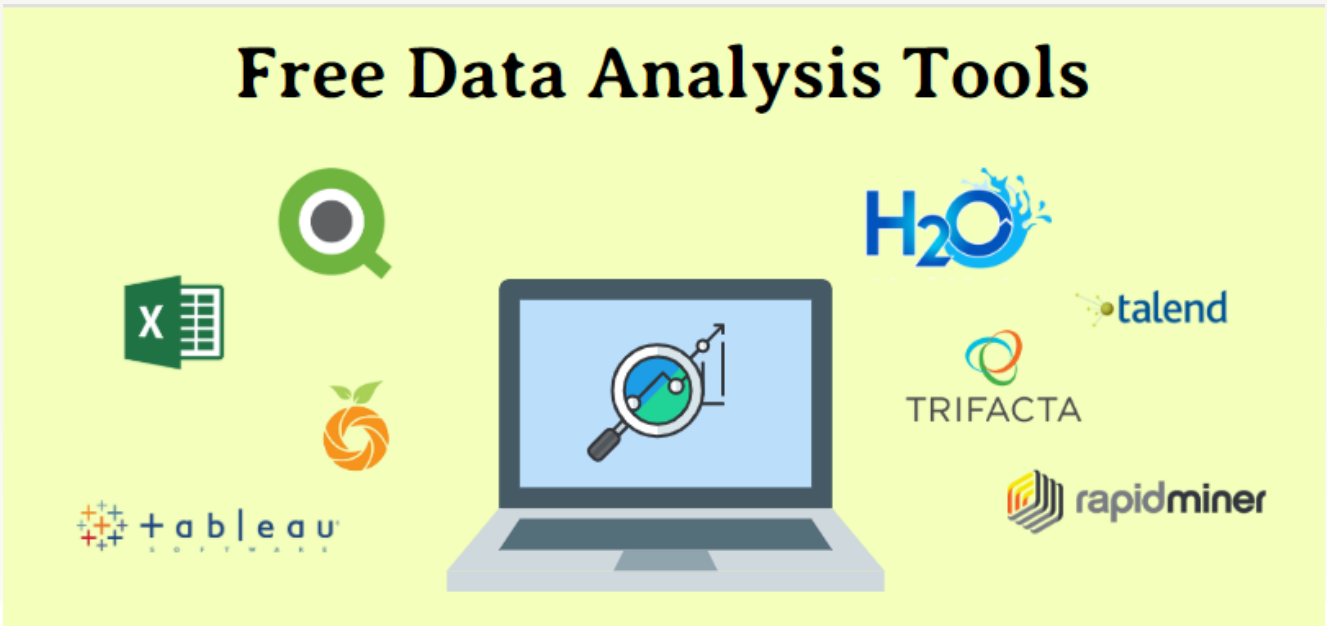
Organizations can use data analysis to offer a great experience to their employees and ensure an excellent work environment. They can also utilize the data at hand to find out the best resources – the ones whose skill set matches with the organizational goals.

Academics:

Universities and academic institutions can perform data analysis to measure student performance and gain insights into ways education can be further improved.

Data analysis tools:

In order to perform high-quality data analysis,
it is fundamental to use tools and softwares that will ensure the best results. As the analysis industry grows, so does the offer for services and features that you can exploit



Data analysis process:

As the data companies have available to them continues to grow in both amount and complexity, so does the need for an effective and efficient process by which to harness the value of that data. The analysis method typically moves through several iterative phases. Let’s take a closer look at each.

THE DATA ANALYSIS PROCESS

Step 1:
Define the question

Step 2:
Collect the data

Step 3:
Clean the data

Step 4:
Analyze the data

Step 5:
Visualize and share your findings

Data Requirement Gathering

Ask yourself why you're doing this analysis, what type of data analysis you want to use, and what data you are planning on analyzing.

Data Collection :

Guided by the requirements you've identified, it's time to collect the data from your sources. Sources include case studies, surveys, interviews, questionnaires, direct observation, and focus groups. Make sure to organize the collected data for analysis.

Data Cleaning :

Not all of the data you collect will be useful, so it’s time to clean it up. This process is where you remove white spaces, duplicate records, and basic errors. Data cleaning is mandatory before sending the information on for analysis.

Data Analysis:

Here is where you use data analysis software and other tools to help you interpret and understand the data and arrive at conclusions. Data analysis tools include Excel, Python, R, Looker, Rapid Miner, Chartio, Metabase, Redash, and Microsoft Power BI.

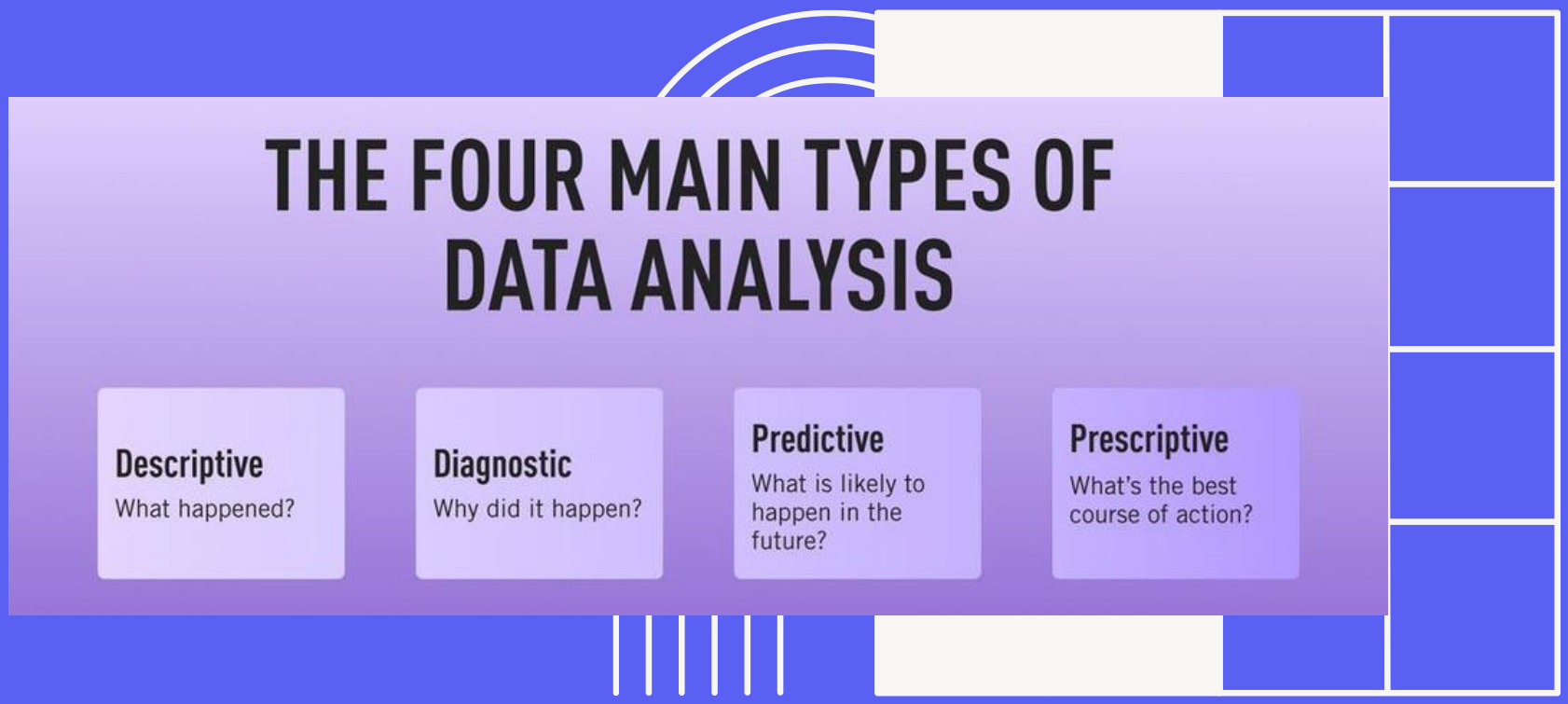
Data Interpretation :

Now that you have your results, you need to interpret them and come up with the best courses of action, based on your findings.

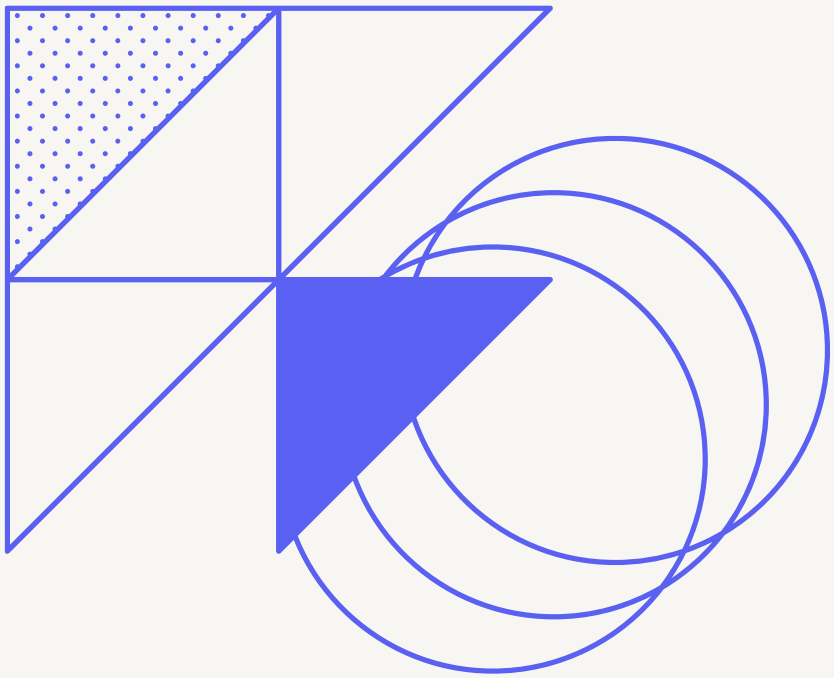
Data Visualization :

Data visualization is a fancy way of saying, “graphically show your information in a way that people can read and understand it.” You can use charts, graphs, maps, bullet points, or a host of other methods. Visualization helps you derive valuable insights by helping you compare datasets and observe relationships.

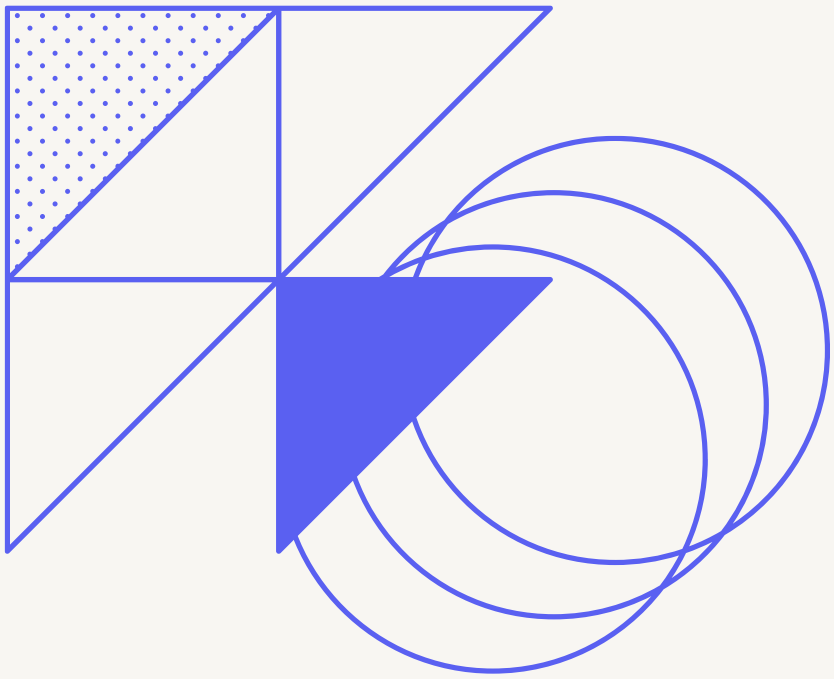
Types of Data Analysis:



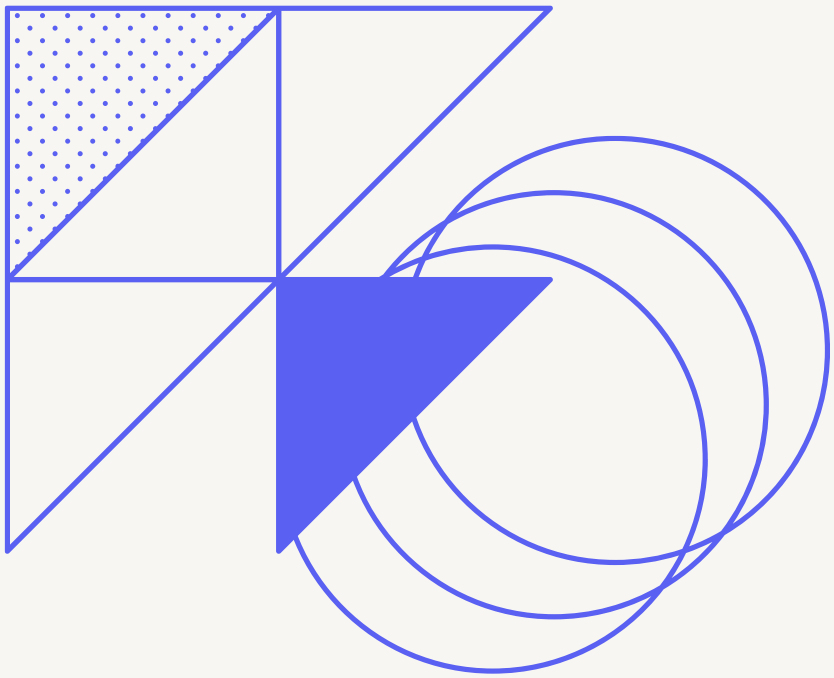
Descriptive Analysis : works with either complete or selections of summarized numerical data. It illustrates means and deviations in continuous data and percentages and frequencies in categorical data.



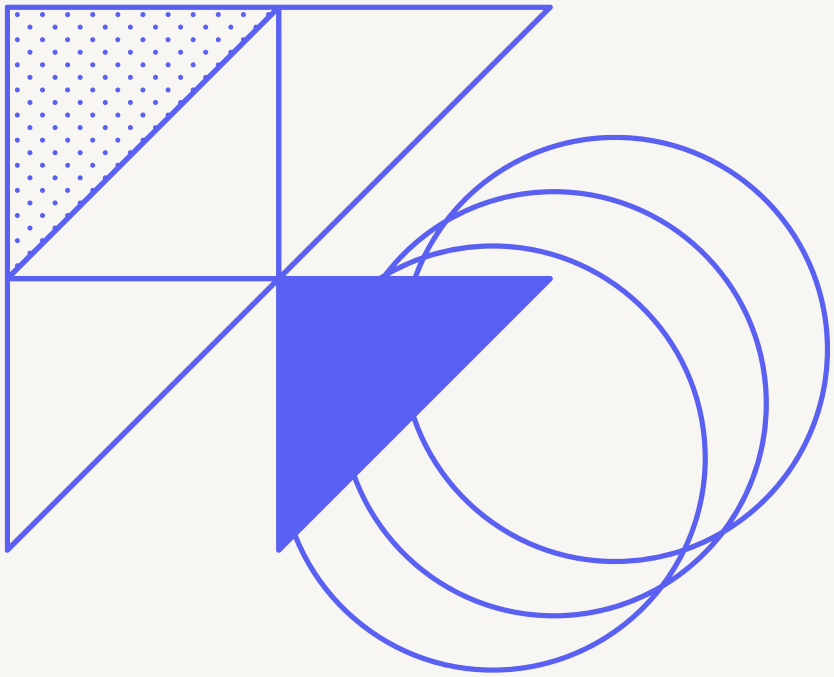
- **Diagnostic Analysis**: Diagnostic analysis answers the question, “Why did this happen?” Using insights gained from descriptive analysis . analysts use diagnostic analysis to identify patterns in data. Ideally, the analysts find similar patterns that existed in the past, and consequently, use those solutions to resolve the present challenges hopefully.



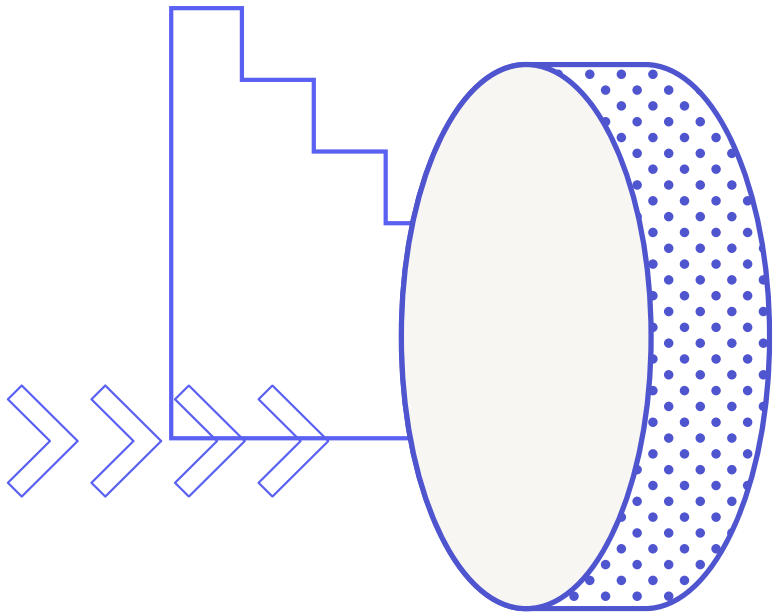
- **Predictive Analysis**: Predictive analysis answers the question, “What is most likely to happen?” By using patterns found in older data as well as current events, analysts predict future events. While there’s no such thing as 100 percent accurate forecasting, the odds improve if the analysts have plenty of detailed information and the discipline to research it thoroughly.



- **Prescriptive Analysis**: Mix all the insights gained from the other data analysis types, and you have prescriptive analysis. Sometimes, an issue can’t be solved solely with one analysis type, and instead requires multiple insights.



Conclusion:

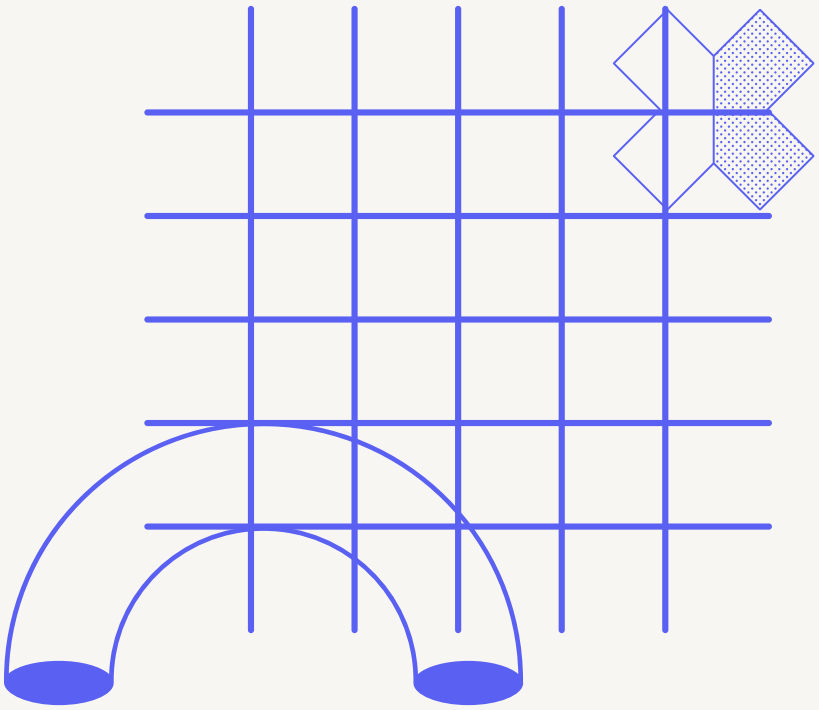


Data analysis has multiple facets and approaches, encompassing diverse techniques under a variety of names, and is used in different business, science, and social science domains. In today's business world, data analysis plays a role in making decisions more scientific and helping businesses operate more effectively

Thank you!

BY: ILLI CHAIMAE

Contact Us



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sdad.club22@gmail.com

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