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CHAPTER 1

What is Data Analytics

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AGENDA

- The Data Ecosystem
- The Data Analyst Role
- Introduction to Data Analytics
- Conclusion & Assignment

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The Data Ecosystem

- What is a data ecosystem?
- What are the key roles within the data ecosystem?
- How do these roles differ?

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What is a data ecosystem?

Infrastructure that a company utilizes to make use of data.

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Data Ecosystem Structure

- Internal Data Sources
- External Data Sources

- Automatic Data Collection
- Manual Data Collection

- Joining datasets
- Cleaning data
- Handling missing values
- Renaming columns
- Deleting data

- Statistical methods
- Data Visualisation

- Accessible
- Secure

Important to note:

- Components interact
- Emerging technologies (Cloud Computing, Machine Learning and Big Data) are reshaping the data ecosystem

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What are the key roles within the data ecosystem?

Data Engineer

- Organise Data
- Maintain Data Architectures

Data Analyst

- Generate Insights
- Organise data to draw conclusions

Data Scientist

- Combine Data Engineering and Data Analytics as well as Machine Learning

Business Analyst

- Leverage predictions and insights from data scientists and data analysts

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What are the key roles within the data ecosystem?

Data Engineer

Data Analyst

Data Scientist

Business Analyst

Sourcing → Collection → Wrangling → Analysis → Storage

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Note

- Roles may be interchangeable
- Important to be familiar with the whole data ecosystem
- Not uncommon to transition between roles

The Data Analyst Role

- The workflow of a data analyst
- Typical Career Progression
- Valuable skills

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Data Analytics Workflow

Data Analysts use data to generate insights.

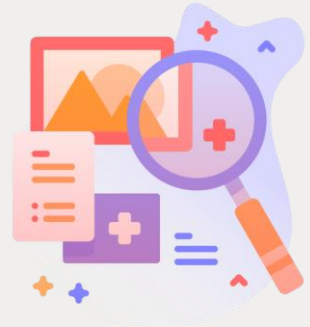
01

Understand the problem and the desired outcome

02

Data collection

03



Data wrangling

04

Data analysis and visualisation

05

Documenting the process

06

Effectively communicating the final report and insights to stakeholders

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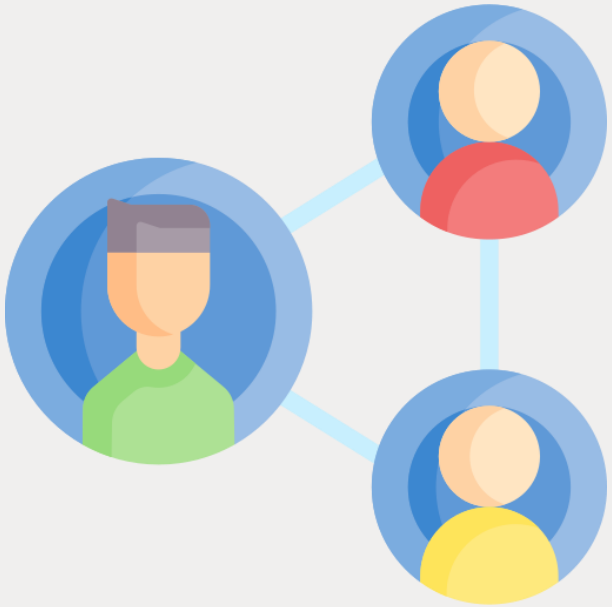
Stakeholders

- Hold a stake in the project.
- Invested time and resources
- Interested in the outcome



Typical Career Progression

Associate Data Analyst

Data Analyst

Senior Data Analyst

Lead Analyst

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Valuable Skills

Technical Skills

Spreadsheets (Google Sheets, MS Excel)

Data Visualisation (Tableau, MS Power BI)

Programming (Python, R, SQL)

Big Data Processing Tools (Hadoop and Spark)

Analytical

Problem-solving

Attention to detail

Soft Skills

Communication

Storytelling

Listening

Curiosity

Love for learning

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Introduction to Data Analytics

- Types of data
- Four primary types of data analysis

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Data

- Variety of formats (CSV, XML, PDF, JPEG, etc)

Structured

- Rigid format
- Tabular Data (CSV, Excel)
- Locations on a map

Unstructured

- Non-rigid
- Audio
- Video
- Photos

Semi-Structured

- Mix
- Emails
- Tweets

Four Primary Types of Data Analytics

- Predictive analytics – What will happen in the future?
- Descriptive Analytics – What happened?
- Prescriptive Analytics – What should be done next?
- Diagnostic Analytics – Why it happened?

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Conclusion

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The data ecosystem

Infrastructure that a company utilizes to make use of data.

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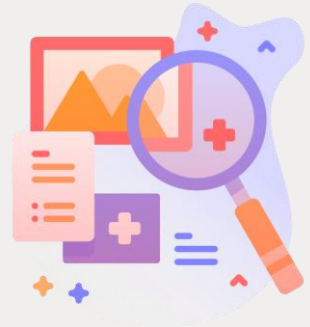

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Data

- Structured
- Unstructured
- Semi-structured

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