

What is Data Analysis?

- The process of
 - o collecting,
 - organizing,
 - interpreting, and
 - visualizing data
 - to extract useful insights.

Why is Data Analysis Important?

- Helps businesses optimize operations
- Enhances decision-making with data-backed insights
- Detects trends and patterns
- Reduces risks and improves efficiency

Data Analysis vs. Data Science

- Data Analysis: Focuses on past trends, uses statistical methods
- Data Science: Uses AI & machine learning for future predictions

Is Data Analysis a Job or a Skill?

Is Data Analysis a Job or a Skill?

- V It is Both!
- As a skill: Needed in marketing, finance, operations, etc.
- As a job: Dedicated roles like Data Analyst, BI Analyst, etc.

Career Paths in Data Analysis

- **l** Job Roles:
- 1. Data Analyst
- 2. Business Intelligence Analyst
- 3. Data Engineer
- 4. Marketing Analyst
- 5. Financial Analyst
- 6. Machine Learning Engineer

Industries That Need Data Analysts?

Industries That Need Data Analysts



Every industry needs data analysis!

Minimum Requirements to Start

- Technical Skills: Excel, SQL, Python, Power BI
- Soft Skills: Critical thinking, problem-solving, communication, building metrics and KPIs.

The Data Analysis Process

- Define the problem
- 2 Collect data
- 3 Clean data
- 4 Analyze data
- 5 Interpret results
- 6 Present findings

Tools Used in Data Analysis

- Popular Tools:
- Excel, Google Sheets
- SQL, Python, R
- Power BI, Tableau
- Apache Spark, Hadoop

Challenges in Data Analysis

- **1** Common Problems:
- Messy/incomplete data
- Misinterpretation of insights
- Choosing wrong visualizations
- Security & privacy issues

How to Start Your Career in Data Analysis?

- **V** Steps:
 - 1. Learn Excel & SQL
 - 2. Practice Python or R
 - 3. Get comfortable with Power BI/Tableau
 - 4. Take courses & get certified
 - 5. Work on real projects
 - 6. Apply for jobs or freelance

Data Analytics Mindset:

- Analytics Skills
- MATH!
- Conversions Mindset

Daily Work as Data Analyst:

• Wadood:

- Saif:

Summary & Key Takeaways

- Key Points:
- Data analysis is crucial in every industry
- It is both a skill and a career path
- Many job opportunities in the market
- The field is evolving rapidly

Q&A

Any questions? Let's discuss!

Technical Presentation

Agenda

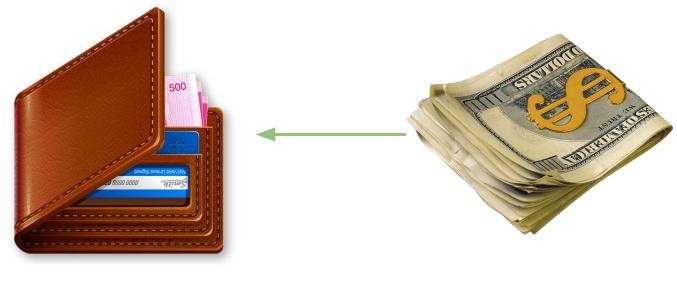
- Variables & Data.
- Types of Data.
- History of Data.

Variables

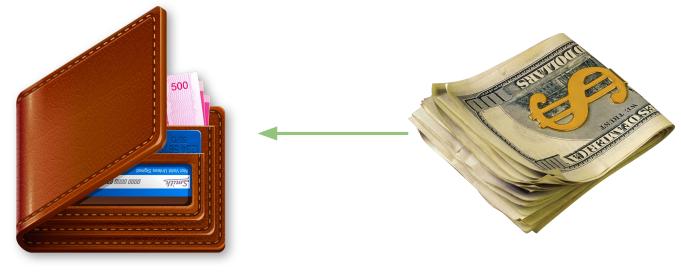
Is a characteristic or attribute that can assume different values



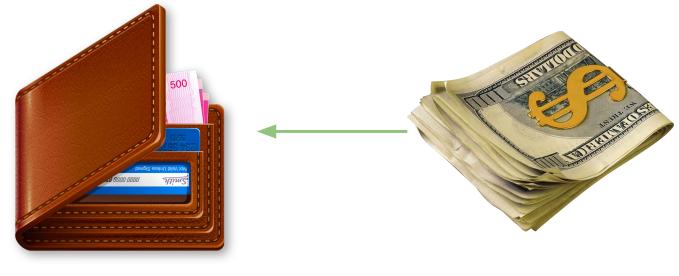
Wallet



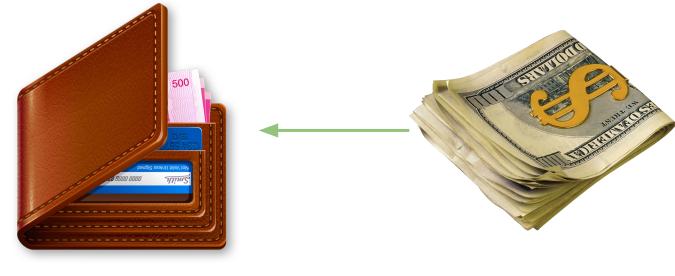
Wallet Money



Wallet 200,000 IQD



Wallet 500,000 IQD



Wallet 10,000 IQD







Data

Are the <mark>value</mark> that the <mark>variable</mark> can assign

Data refers to raw facts, statistics, or pieces of

information that are <u>collected</u>, <u>stored</u>, and

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analyzed for various purposes.

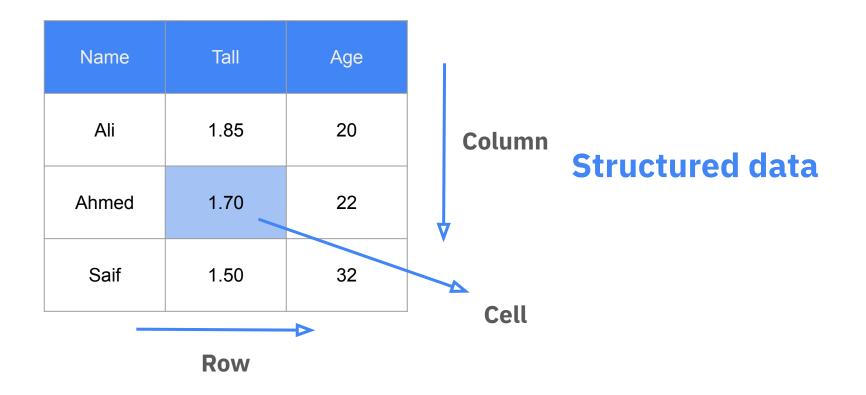
Types of Data

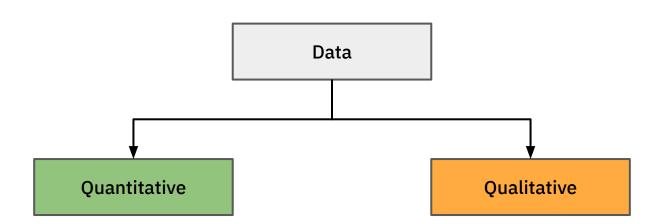
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Ali	1.85	20
Ahmed	1.70	22
Saif	1.50	32

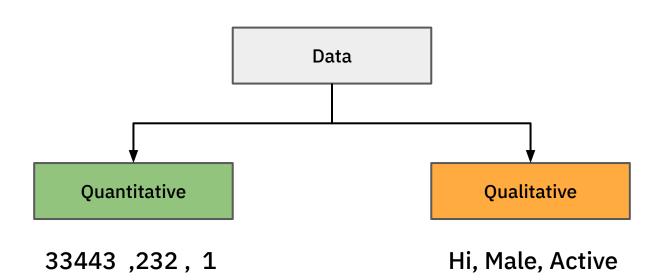
Column

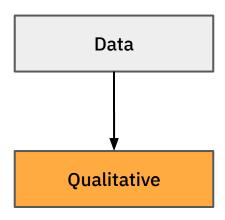
Structured data

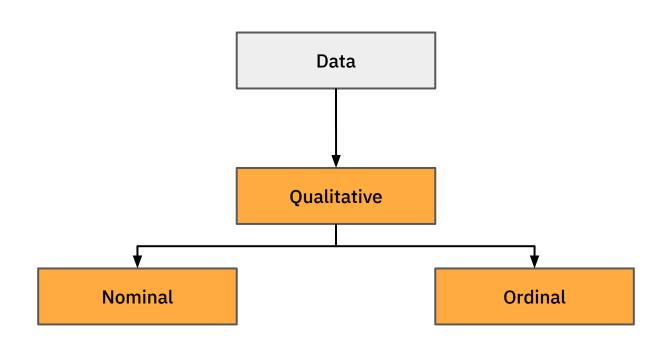


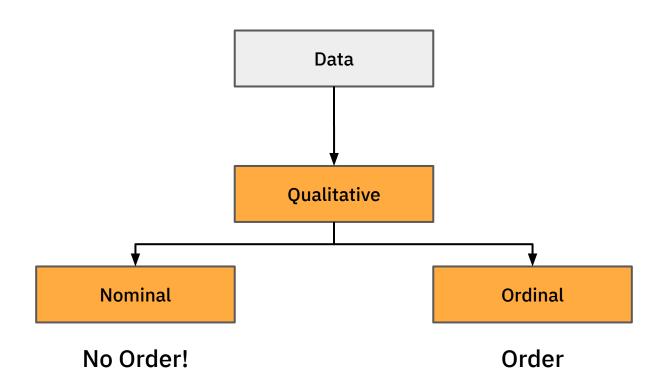












Name	Education	Grade
Ali	Middle School	A+
Ahmed	High School	В
Saif	Collage	С

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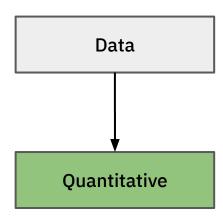
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Nominal	Ali	Middle School	A+
Trommat	Ahmed	High School	В
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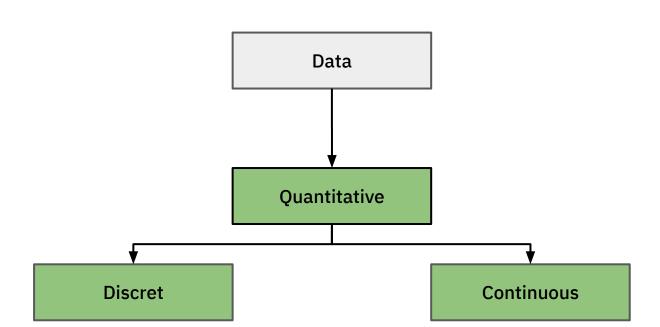
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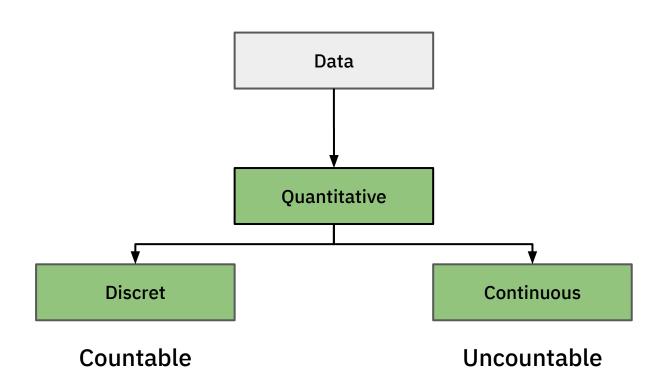
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Tall	Age
1.85	20
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1.50	32

Height	Age
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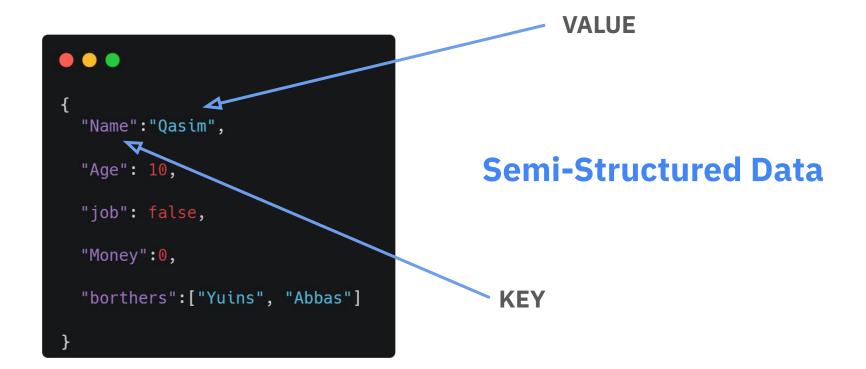
Height	Age
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1.50	32

Continuous

Height	Age
1.85	20
1.70	22
1.50	32

Height Age 1.85 20 1.70 22 1.50 32

Continuous



```
"Name":"Qasim",
"Age": 10,
"job": false,
"Money":0,
"borthers":["Yuins", "Abbas"]
```



```
"Name":"Qasim",
"Age": 10,
"job": false,
"Money":0,
"borthers":["Yuins", "Abbas"]
}
```





Semi-Structured Data

Audio





Unstructured Data

Text and Language



Images

Real Data Scenario

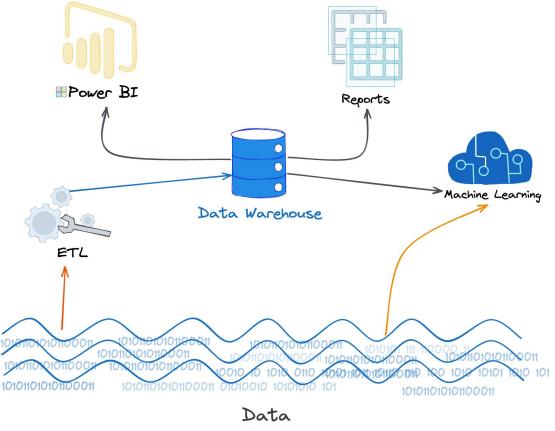




Data Collection



Data Entry



Lake



SQL RDBMS

ELT Process



NOSQL DBMS



SAAS PLATFORMS



XML FILES



The ETL Process Explained



Extract

Retrieves and verifies data from various sources

Transform

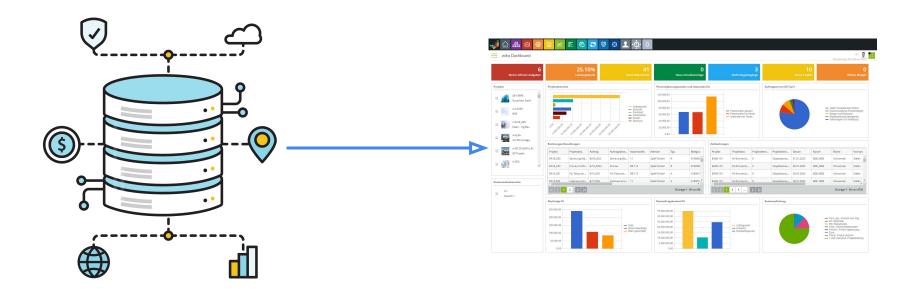
Processes and organizes extracted data so it is usable

Load

Moves transformed data to a data repository

Feature	Extract, Transform, Load	Extract, Load, Transform
Transformation Location	Separate server	Within the data warehouse
Raw Data in Warehouse	No	Yes
Data Flexibility	Less flexible, requires upfront schema definition	More flexible, can handle new data types





Data Warehouse

Data Analysis

THANK YOU