

Intro to

Databases and SQL

* and BigQuery

In this session:

We will begin from scratch

"Vocabulary" → Database Mgmt

By the end of this session,
you will be familiar with

- ① Data
- ② Database
- ③ Database Management System
- ④ Structured vs Unstructured data
- ⑤ SQL
- ⑥ Data Types
- ⑦ Keys
- ⑧ Data Warehouse & BigQuery

CHAR vs VARCHAR

* Topics highlighted in Red
will be discussed in Session - 2

How to make best use of this module

Why?

→ Analyse Data

→ To design programs
that analyse data

How to extract data

What?

Knowledge

Skill → Application

→ Predictability / Repetition
in outcomes

How?

Backlogs !!!

Overview of DA track

DA

|

DS

Data Analyst

Data Scientist

What is a Database



Data → Raw pieces of Information

CCTV → lots & lots of visual data

Text, Audio, Signals

Structured data — Easy & Quick
to store & access data

Unstructured data —

Database: A collection of related data

stored on computing systems

↳ it should be easy & fast
to store & retrieve data

Spreadsheet vs DBMS

① Scalability

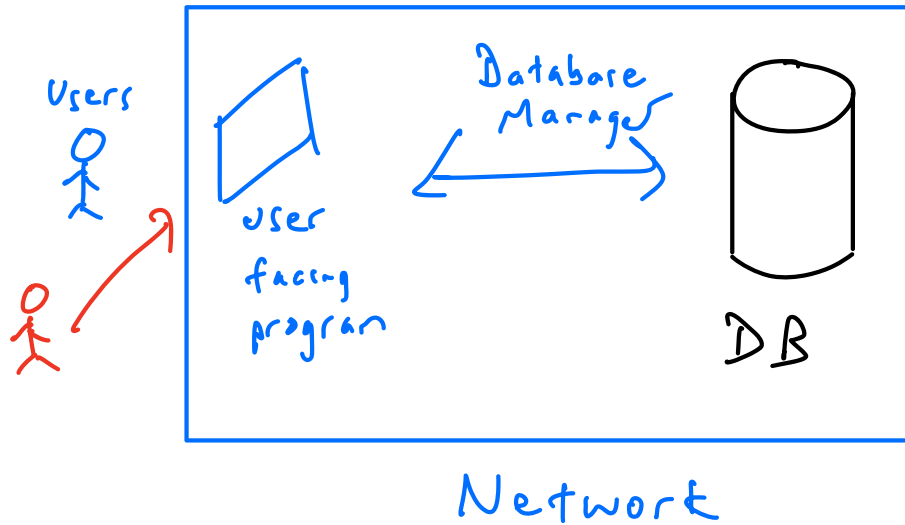
② Performance

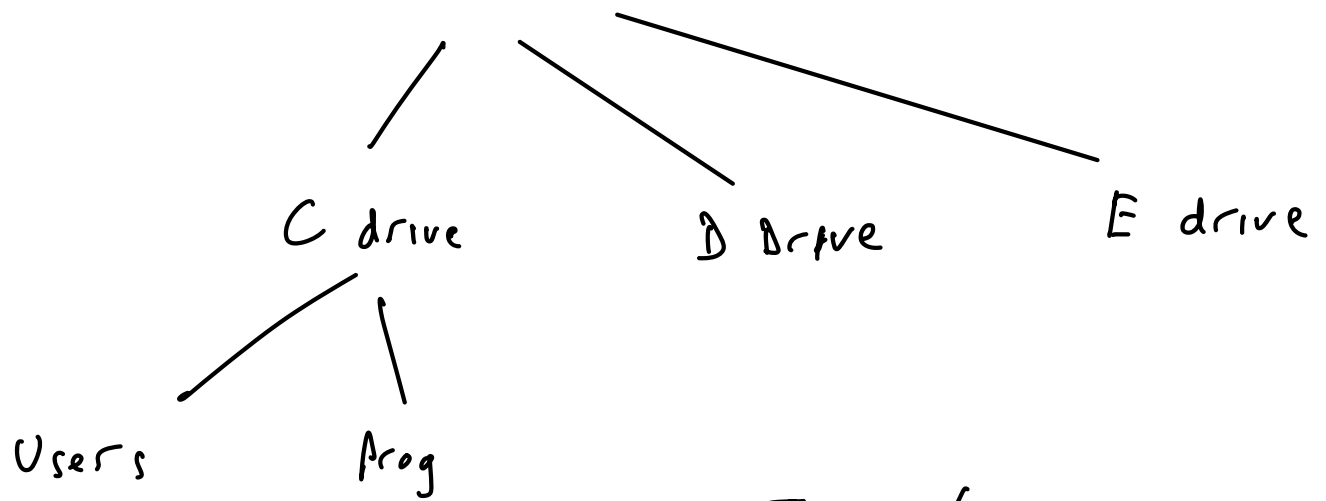
③ Data Integrity

④ Concurrent access

⑤ Security

Database Management System (DBMS)





Tree / Hierarchy

Tabular structure

Relational Database

RDBMS



E.F. Codd

Examples of DBMS.

(Structured Data)

SQL Based

Oracle Database

Microsoft SQL Server


MySQL  on Scales Dashboard

(Unstructured Data)

NoSQL Based

MongoDB

Cassandra

SQL  Structured
Query
Language

Big Query  Google

Relational DBMS

Relations \rightarrow E.F. Codd
IBM (1960s)

~~X~~ SQL

"2" + $\textcircled{2}$ \rightarrow Error
 \downarrow

"2" "2" \rightarrow "22"

Data types

① Text data

"Good Morning"

'Good Morning'

"5k"

'5k'

"5300"

'5300'

String data type

②

NUMERIC data type

Integers : 1, -5, 308

Decimal / Floating point number

$$5.5 * 10.0 = 55.0$$

$$"1" + "1" = "11"$$

$$"Good" + "Morning" = "GoodMorning"$$

$$1 + 1 = 2$$

$$1.0 + 1.0 = 2.0$$

③ Date Time



" 2023-12-15 08:11:15 "

" 2023-12-16 11:15:23 "

" 2022-05-09 "

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