

Relational Databases

What is a "Relation"?

Common View

Relation = Foreign Key
→ Nope!

Actually

Relation = Table

= $\{(col_1, col_2), (col_1, col_2)\}$

What is an RDBMS?

RD = Storage of tables

MS = Management System

⇒ Program which
manages

Examples of RDMBS?

Example DBs

- ⊗ SQL server (MS)
- ⊗ MySQL (OpenSrc → Oracle)
- ⊗ Oracle

Example sets

- ⊗ AdventureWorks
- ⊗ Northwind

Q: How Else Can you store data?

⊗ Relational → E.g. SQLite
↳ "Tabular"

⊗ File Systems → E.g. Sparks

↳ stores data without common structure

⊗ NoSQL + Document "O-O"-like
| Graphs, Text, Audio, Image.

Aside: History of RDBMS

60/70s - Mathematics

⇒ Representif Tables &
Queries

Mid 70s - first RDB

⋮

80s - SQL "Standardized"

What is SQL?

⊗ SQL:

Structured Query language

typically just means "Tabular" & "Standard"

What are the Key SQL Commands?

SELECT
FROM
WHERE
GROUP BY
ORDER BY

} Querying

modification
CREATE TABLE
DROP

INSERT INTO

GRANT
REVOKE

} Access

How do I create a table?

```
CREATE TABLE data (  
    x INT UNIQUE,  
    y INT  
);
```

schema

“structure” that data follows

Example DB: SQLite (v3)

Relational

- Tabular
- SQL

no installer

BUT...

No Management System

(hence "lite")

↳ you write program!

Why SQLite?

⊗ Small, fast, simple

⊗ Used by ~~with~~ nearly
Every device

⊗ Why with python?

→ good Example.

