Lesson Plan

Introductions: Who am I? Who are you? (10 min)

Discussion: What is SQL? What are relational databases? What is SQLite? (15 min)

Discussion: Examples of Relational DBs & SQL Language (10 min)

Discussion: What are ERDs? (5 min)

Demo: Using SQL & SQLite in Jupyter (15 min)

1 HOUR MARK BREAK & SETUP (15 min)

Discussion: Learning Objective Review & Menti Skills Check (5 min)

Individual Activity: Notebook I (25 min)

Review: Solutions I (10 min)

Discussion: ERD & JOINs (15 min)

Group Activity: Notebook II (20 min)

2 HOUR MARK GROUPs & BREAK (10min)

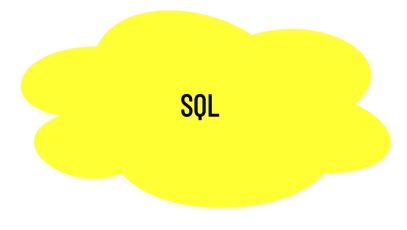
Review: Solutions II (10 min)

Discussion: Sub-Queries (15 min)

Individual Activity: Notebook III (20 min + TAKE-AWAY)

3 HOUR MARK OPTIONAL BREAK (5 min)

Next Steps, Review & Finish (10 min)



Introductions

Values & Principles

Safeguarding

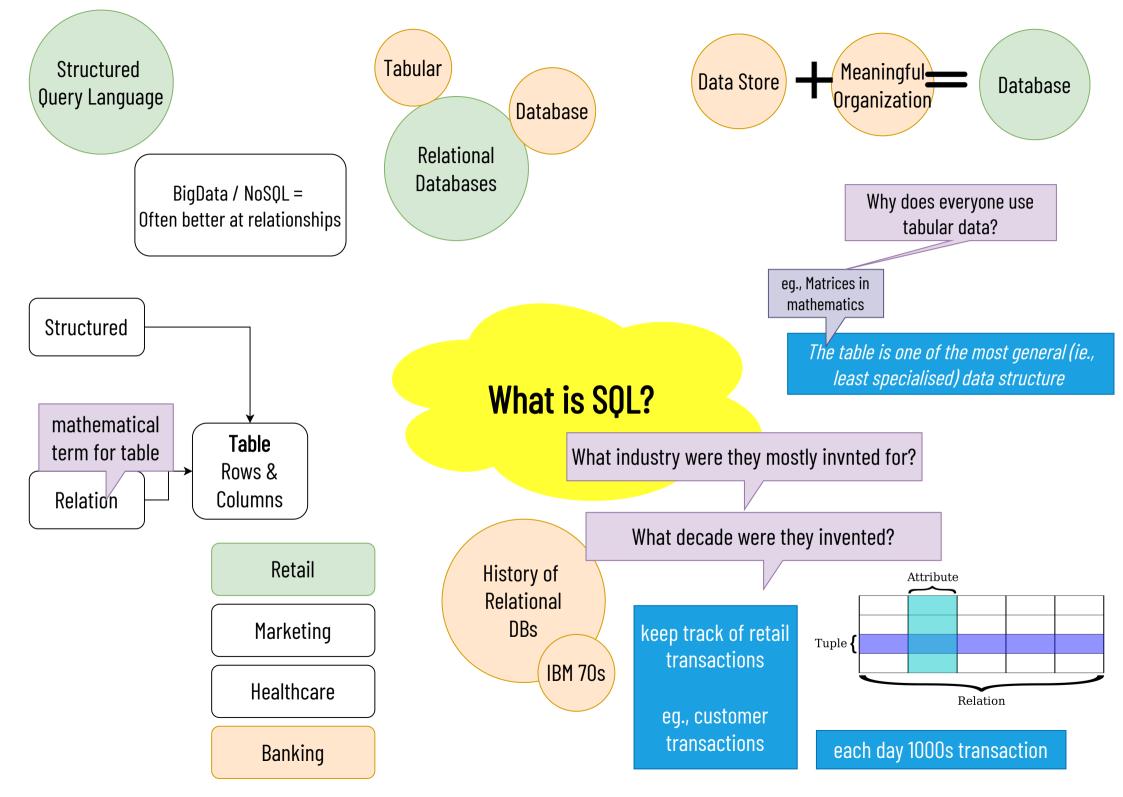
Wellbeing

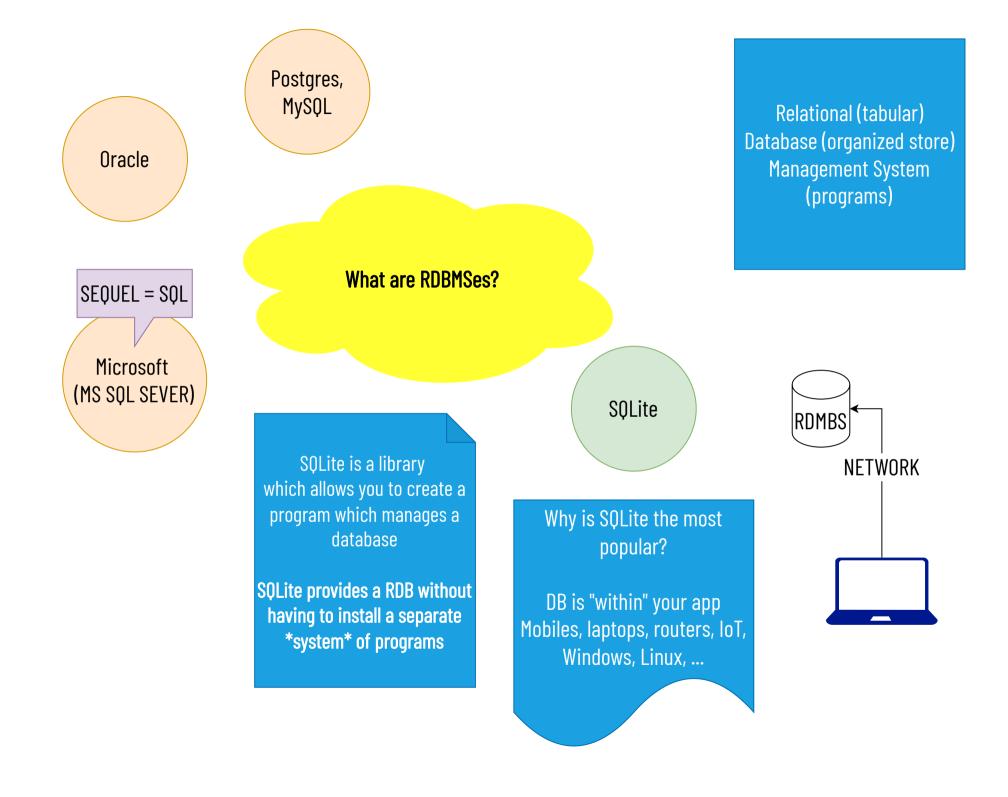
Courseware

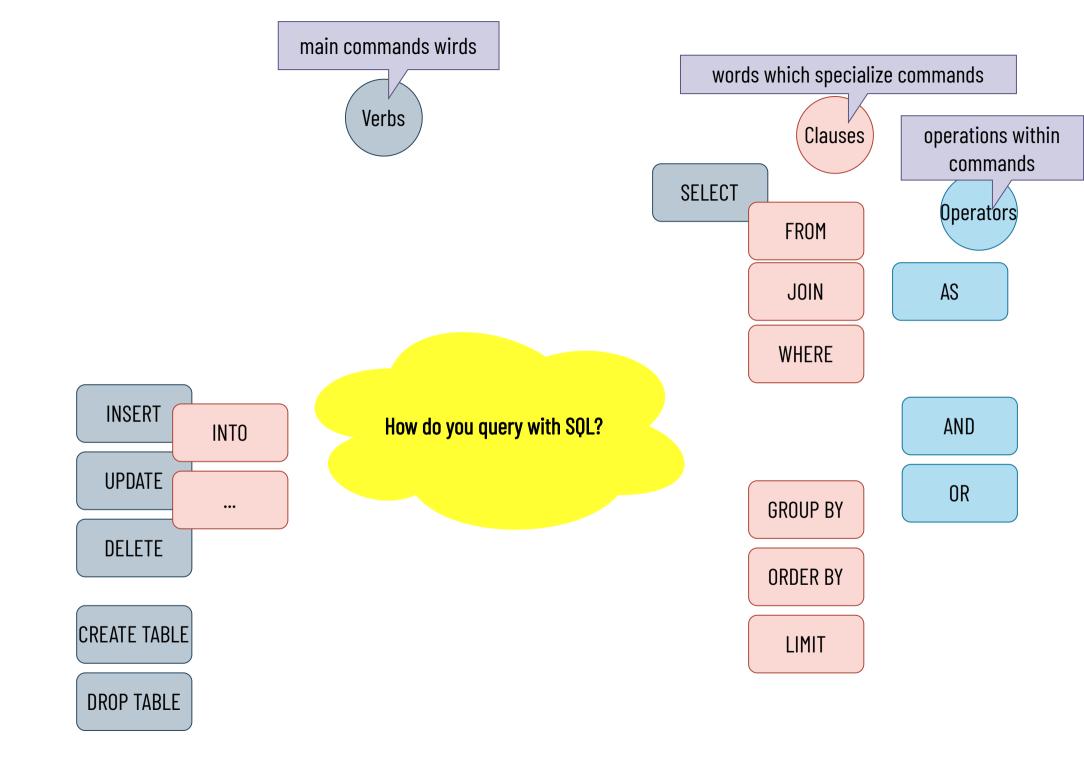
safeguarding@decoded.com

stressed, overwhelmed, struggling

https://github.com/michaelburgess-d/decoded-public-code



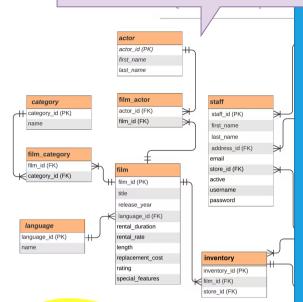




What is an ERD?

Entity (table/row)
Relationship (table-table)
Diagram (technical docs)

a table defintion = schema

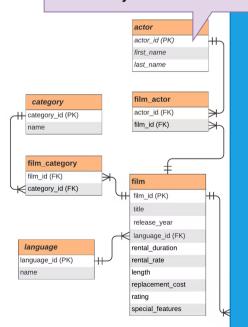


Consider `film_id` in the `film` table and `film_id` in `inventory`

The line here says
ONE AND ONLY ONE film row
ONE OR MORE inventory rows

Film-Actor DB

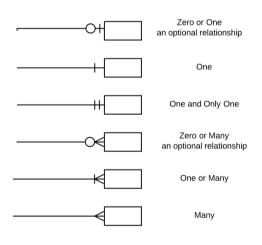
How many *actors* are there per *film*?



`actor` `film_actor` `film`

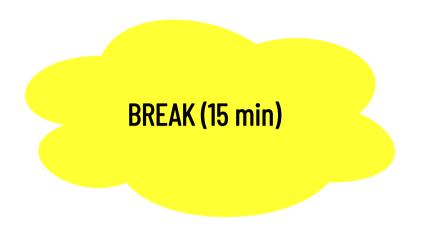
ONE actor to MANY film_actor MANY film_actor to ONE film

MANY to MANY



Also:

Entity (business object, eg., customer)
Relationship (process)
Diagram (technical docs)



COURSEWARE

LINKS

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RAISE HAND

why do we care?

What is a JOIN?

Δ

В

A&B

Normalization = Live, Write/Update Table Table

Row: Person Row: Address

every table's row

should be one kind of thing write

write one piece read from one piece update piece

why split data?

Denormalization = Analytical Read-Only

Table

Row: Person, Address

a table's row can b combinations of stu

reading from database

Table Row: Order Table Row: Store Linking Tables

ANALYSIS: JOINs

Link: Person_ID, Address_ID

Table Row: Person, Addres A1 A2 A3 A5 B1 B2 B4 B5

(alice, 19) A2 A3 A5 (pen, 10) B2 B4 B5

CARTESIAN JOIN

A1	B1
A1	B2
A1	B4
A1	B5
A2	B1
A2	B2
A2	B4

with no field, how do we know which rows to pair up? A1 B1 B2 B2 A3 B4 A5 B5

What happens when we JOIN, 'ON' id?

INNER JOIN

A1 (id=1)

A2

B1 (id=1)

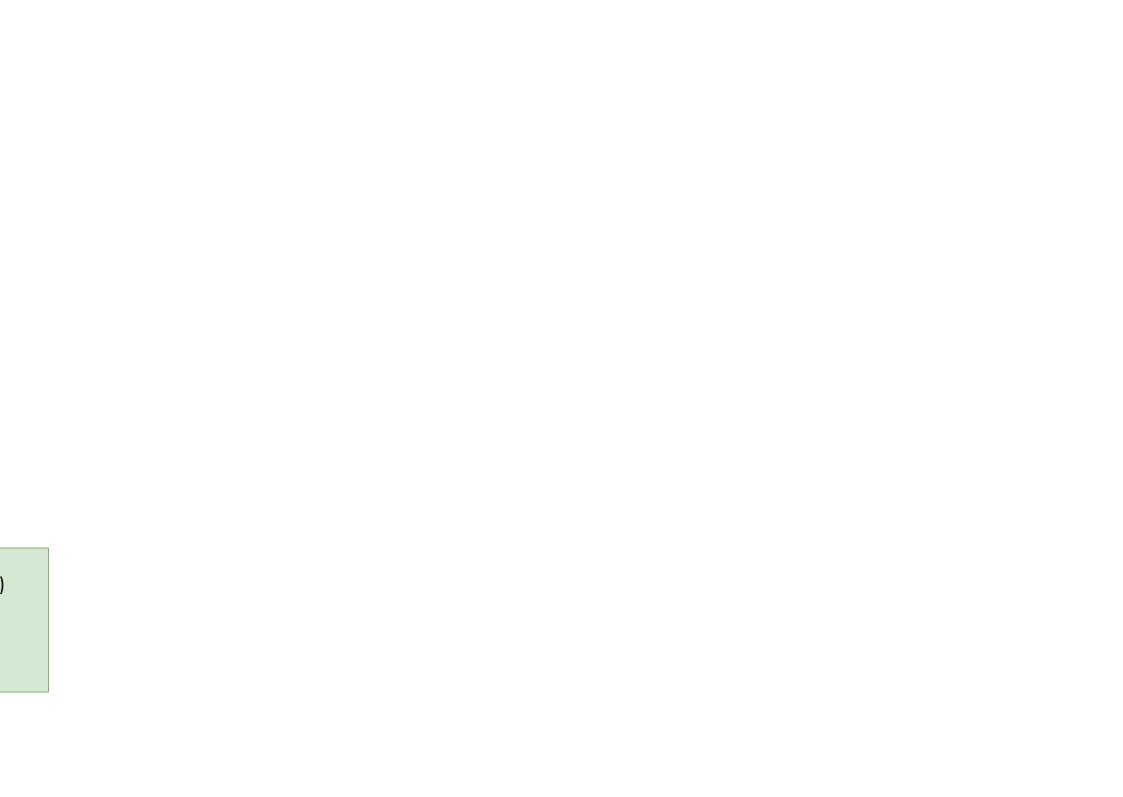
B2

LEFT JOIN

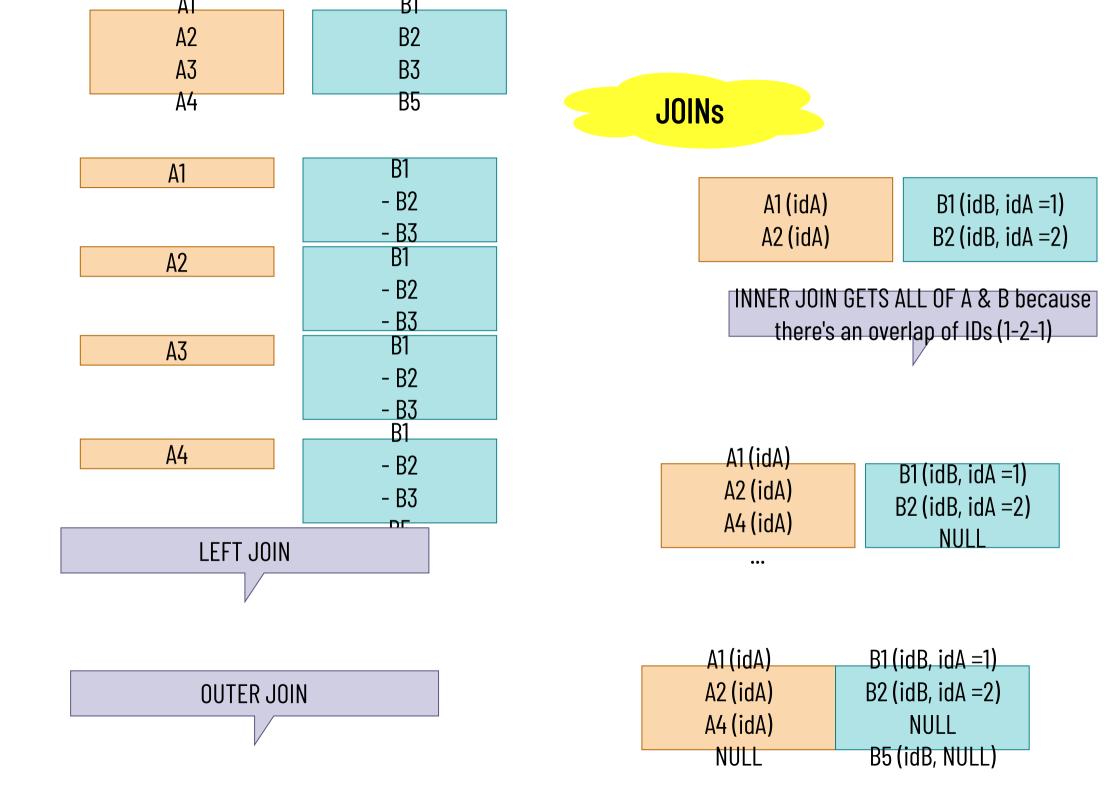
A1 (id=1) A2 A3 A5

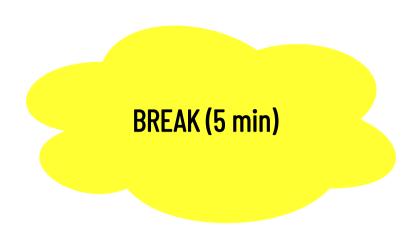
B1 (id=1) B2 **NULL** RIGHT JOIN

A1 (id=1) B1 (id=1 A2 B2 A3 B3 NULL ...

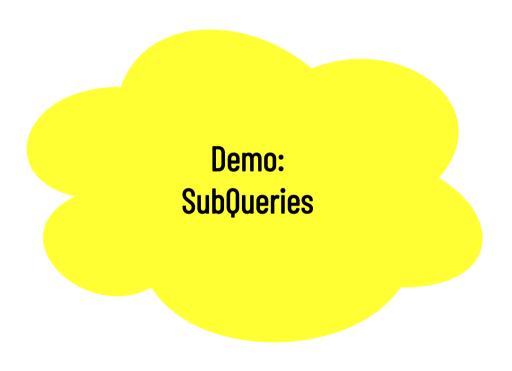


M1 D1





RAISE HAND





- 1. Complete the workshop feedback in Canvas (the link is in the Canvas course)
- 2. Complete the online practice in Canvas
- 3. Schedule a mentor call using Canvas
- 4. Complete any outstanding projects/assessments