

#10 SQL

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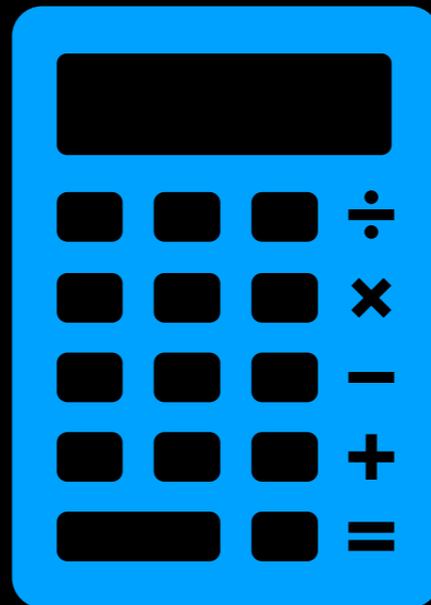
A SQL query walks into a bar. It approaches two tables and asks them: "mind if I join you?"

Today is a special day...

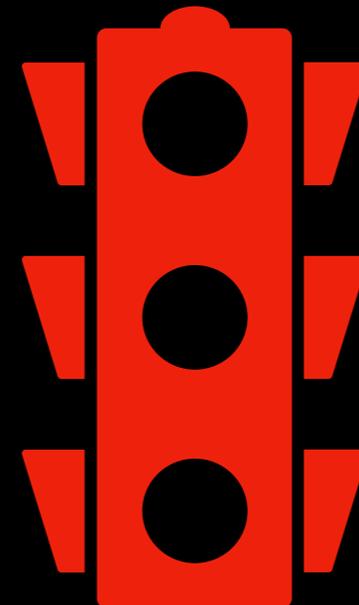
Scheme due date!



Storage



Arithmetic



Control



Storage

ORACLE®

DATABASE



Microsoft®

SQL Server® PostgreSQL

TERADATA



MariaDB



MySQL®

SYBASE® H2



Access



Apache Derby 

SQLite



HIVE



HyperSQL

SQL

Structured Query Language

A **declarative** language — describe what you want

- Obviously, someone (maybe you!) has to implement the "how to do it" part beforehand
- A common way (but not the only way!) of working with databases

SQL

MiSc

Sqlite is case-insensitive, so instead of:

```
SELECT * FROM records WHERE salary > 0;
```

You *could* do:

```
SeLeCT * FroM reCORDs WherE SALARY > 0;
```

SQL

MiSc

Sqlite is case-insensitive, so instead of:

```
SELECT * FROM records WHERE salary > 0;
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You *could* do:

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SeLeCT * FroM reCORDs WherE SALARY > 0;
```

...

Please don't 😞

SQL

How to create tables

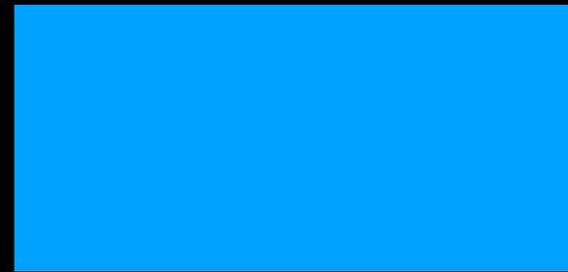
```
SELECT [cols] FROM [tables]  
    WHERE [condition] ORDER BY [criteria];
```

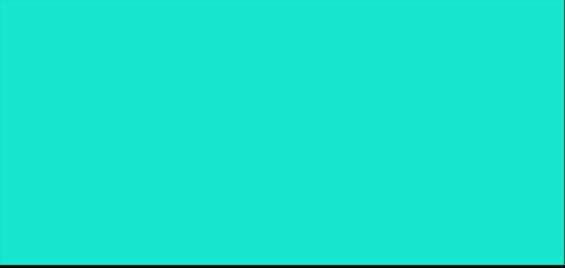
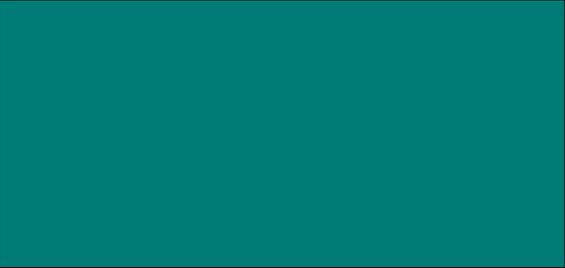
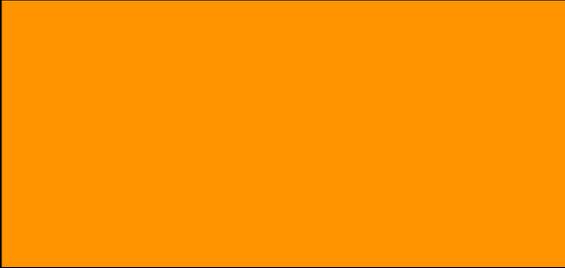
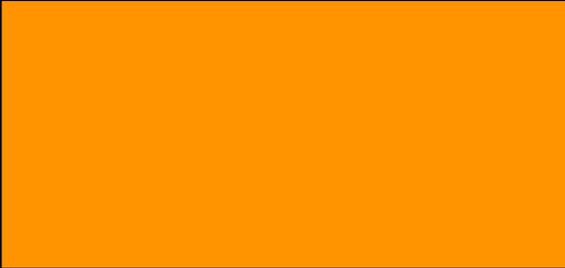
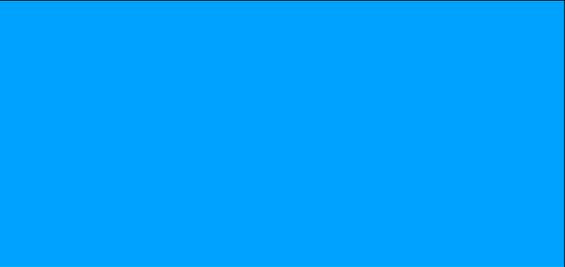
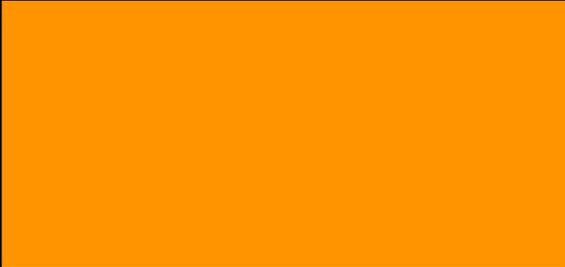
SQL

Joins

The information you need is split across multiple tables

Combine them using **joins**





Query Problem Solving

Now you're thinking with joins

(1) Where is my data coming from?



```
SELECT [cols] FROM [tables] WHERE [conditions];
```



(2) Which joins make sense?

(3) Anything else to filter on?

(4) What columns to keep?

```
1 CREATE TABLE colour AS
2   SELECT "apple" AS fruit, "red" AS colour UNION
3   SELECT "banana"      , "yellow";
4
5 CREATE TABLE radiation AS
6   SELECT "apple" AS fruit, 0 AS rads UNION
7   SELECT "banana"      , 3250;
8
```

```
SELECT * FROM colour AS c, radiation AS r
WHERE c.fruit = r.fruit;
```

Fruit	Colour	Fruit	Rads
apple	red	apple	0
apple	red	banana	3250
banana	yellow	apple	0
banana	yellow	banana	3250

```
SELECT * FROM colour AS c, radiation AS r  
WHERE c.fruit = r.fruit;
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