From cards to answers

Filters, aggregates and groups on `pokemon` Names _____

Superset → **SQL → SQL Lab**, database `Dades classe`, schema `public`, table `pokemon`: a shoebox of 949 cards, one row per card. Pairs, one keyboard; swap who types when Part A is done. Write results here.

Reference

Written	With the shoebox
`SELECT`	Read the lines you asked for.
`FROM`	Open the box.
`WHERE`	Take cards out, one by one.
`GROUP BY`	Make piles with the cards left.
`HAVING`	Throw away whole piles.
`ORDER BY`	Sort the result (`DESC`: big first).
`LIMIT`	Keep the first ones.

Filter	Keeps the cards...
`LIKE 'pika%'`	whose text looks like a pattern. `%` = any text, also none.
`IN ('a', 'b')`	whose value is on the list.
`BETWEEN 1 AND 9`	inside the range, both ends included.
`IS NULL`	where that line is blank.
`NOT ...`	the opposite: `NOT IN`, `NOT LIKE`, `IS NOT NULL`.

Aggregates read many cards and say one number: `COUNT(*)` how many cards · `COUNT(x)` how many where `x` is not blank · `MIN(x)` `MAX(x)` · `SUM(x)` · `AVG(x)` · `ROUND(n, 1)` one decimal. Text goes in single quotes and capital letters matter: `'fire'`.

Part A · The Pokédex hunt (14 min)

One query per question. To count: `SELECT COUNT(*) FROM pokemon WHERE ...`

A1 Name and weight of the three heaviest.

_____

A2 How many Mega evolutions are there? Their name contains `-mega`.

With the hyphen _____ Without it _____ Who sneaked in? _____

A3 How many have a first type that is **not** fire, water or grass?

_____

A4 How many have no second type? Count twice.

With `type_2 IS NULL` _____ With `type_2 = NULL` _____ Was there an error? _____

A5 Electric, single-type, speed from 100 to 120: names, fastest first.

Rows _____ First _____ Last _____

A6 Count with `WHERE type_1 = 'fire' OR type_1 = 'water' AND attack > 100`. Then put brackets around the `OR` part and count again.

Without brackets _____ With brackets _____ Why? _____

_____

Stuck?

- **0 rows**: check capital letters and quotes before anything else.
- **`can't seem to resolve the column "fire"`**: text needs single quotes, `'fire'`.
- **`must appear in the GROUP BY clause`**: a column in `SELECT` is neither what you made the piles by nor inside an aggregate.
- **`aggregate functions are not allowed in WHERE`**: that condition is about piles, not cards.
- Run one query at a time. Still stuck after two tries? Ask your neighbours, then the teacher.

Part B · Which type wins? (21 min)

Run B1–B3 exactly as written. Two of them fail **on purpose**: the error is the lesson.

B1. Three counts of the same table.

```
SELECT COUNT(*) AS total, COUNT(type_2) AS with_second_type,
       COUNT(DISTINCT type_1) AS types FROM pokemon;
```

`total` _____ `with_second_type` _____ `types` _____ Why are the first two different? _____

B2. This one fails.

```
SELECT type_1, pokemon, COUNT(*) FROM pokemon GROUP BY type_1;
```

The error says: _____

The `water` pile has 126 cards. Why can the database not answer? _____

B3. This one fails too.

```
SELECT type_1, COUNT(*) FROM pokemon WHERE COUNT(*) >= 50 GROUP BY type_1;
```

The error says: _____

The query that works: _____

B4 How many Pokémon per first type?

Rows _____ Most: _____ with _____ Fewest: _____ with _____

B5 Average speed per first type, fastest first. Then only types with at least 30 Pokémon **and** an average speed above 80.

Top three: _____

With the two conditions: _____ Who disappeared? _____

B6 Average attack per type, only types with at least 50 Pokémon, **ignoring Mega evolutions**.

Top three: _____

Which condition went in `WHERE`, which in `HAVING`, and why? _____

_____

B7 How many Pokémon per `generation_id`?

Rows _____ What is odd about one of them? _____

Done when Every blank is filled · A6 and B6 have their sentence. **Fast pair?** 1) Per first type: how many Pokémon and how many with a second type, in one query. 2) Group by `type_1` **and** `type_2`: how many piles? 3) The same idea on your own open dataset.

At home Three more for the hunt. 1) Name and speed of the five slowest: two pairs may get different names, why? 2) How many different values does `egg_group_1` have? 3) How many have a speed from 100 to 120? Write it with `BETWEEN` and again with `>=` and `<=`.