

OLTP vs OLAP: the one-image difference.

D8A.ACADEMY/RESOURCES/OLTP-VS-OLAP

SIDE BY SIDE

	OLTP	OLAP
job	run the business	understand the business
query shape	fetch order #123	aggregate 100M rows
writes	constant, small	batch loads
storage layout	rows	columns
schema	normalized, 3NF	star, denormalized
examples	Postgres, MySQL	BigQuery, Snowflake

THE FLOW

1 · the app	writes orders to OLTP, all day
2 · the pipeline	ELT copies history to the warehouse
3 · the warehouse	analysts aggregate at will
4 · BI	dashboards read the marts, never prod

COLUMNS WIN ANALYTICS

read less	scan only the columns you query
compress more	similar values pack tight

ROWS WIN APPS

one record	whole row in a single read
transactions	ACID updates, tight indexes

→ OLTP runs the business, OLAP understands it

WORTH MEMORIZING

01 Two typical queries

Point lookup vs full-table aggregation. Different animals.

OLTP	OLAP
<pre>SELECT * FROM orders WHERE id = 123; -- 1 row, 2 ms</pre>	<pre>SELECT city, SUM(amount) FROM orders GROUP BY city; -- 100M rows scanned</pre>

02 Trap: BI on the prod DB

One heavy dashboard query can lock up your checkout.

monday 9:00	the CEO dashboard scans 50M rows on prod
monday 9:01	checkout queries queue up behind it
the fix	replicate to a warehouse. BI never touches prod.
→ If analysts have a read login on the production database, this trap is already armed.	

03 Who is what

The names you will actually meet.

Postgres, MySQL	OLTP. Your app writes here.
BigQuery, Snowflake	OLAP cloud warehouses
DuckDB	OLAP, embedded, brilliant on a laptop
HTAP	marketing for "both, kind of"