

What is a relational database?



Relational databases are what most of us are all used to. They have been around since the 70s. Think of a traditional spreadsheet:

- Database
- Tables
- Row
- Fields (Columns)

Relational Database Types



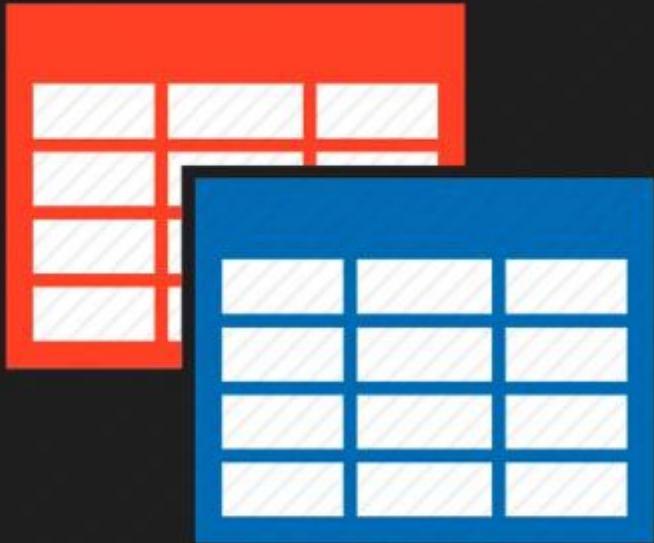
- SQL Server
- Oracle
- MySQL Server
- PostgreSQL
- Aurora
- MariaDB



Non Relational Databases



- Database
- Collection = Table
- Document = Row
- Key Value Pairs = Fields



JSON/NoSQL

```
{
  "_id" : "51262c865ca358946be09d77",
  "firstname" : "John",
  "surname" : "Smith",
  "Age" : "23",
  "address" : [
    { "street" : "21 Jump Street",
      "suburb" : "Richmond" }
  ]
}
```

What is Data Warehousing?

Used for business intelligence. Tools like Cognos, Jaspersoft, SQL Server Reporting Services, Oracle Hyperion, and SAP NetWeaver.

Used to pull in very large and complex data sets. Usually used by management to do queries on data (such as current performance vs targets, etc.)



OLTP vs OLAP

Online Transaction Processing (OLTP) differs from OLAP Online Analytics Processing (OLAP) in terms of the types of queries you will run.

OLTP Example:

Order number 2120121

Pulls up a row of data such as Name, Date, Address to Deliver to, Delivery Status etc.



OLAP

OLAP transaction Example:
Net Profit for EMEA and Pacific for the Digital Radio Product.
Pulls in large numbers of records

Sum of Radios Sold in EMEA
Sum of Radios Sold in Pacific
Unit Cost of Radio in each region
Sales price of each radio
Sales price - unit cost.



Data Warehousing databases use different type of architecture both from a database perspective and infrastructure layer.

What is ElastiCache?

ElastiCache is a web service that makes it easy to deploy, operate, and scale an in-memory cache in the cloud. The service improves the performance of web applications by allowing you to retrieve information from fast, managed, in-memory caches, instead of relying entirely on slower disk-based databases.

ElastiCache supports two open-source in-memory caching engines:

- Memcached
- Redis

AWS Database Types - Summary

- RDS - OLTP
 - SQL
 - MySQL
 - PostgreSQL
 - Oracle
 - Aurora
 - MariaDB
- DynamoDB - No SQL
- RedShift - OLAP
- Elasticache - In Memory Caching:
 - Memcached
 - Redis

