

LEC # 08

Docker and Sql Model

Database

A database is a collection of information stored within a computer. Databases are used for everything from storing pictures on your computer to buying items online and analyzing the stock market. Databases allow computers to store essential information in an organized and easily searchable way.

- Centralized database
 - Cloud database
 - Commercial database
 - Distributed database
 - End-user database
 - Graph database
 - NoSQL database
 - Object-oriented database
 - Open-source database
 - Operational database
 - Personal database
 - Relational database
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- Sql database – for Structure database
 - Graph database
 - Vector database – for machine learning

Types of Sql database

- MySQL
- PostgreSQL
- SQLite
- Microsoft SQL Server
- Oracle

PostgreSQL

PostgreSQL, also known as Postgres, is a free and open-source relational database management system emphasizing extensibility and SQL compliance.

It is a distributed database and unlimited scalability

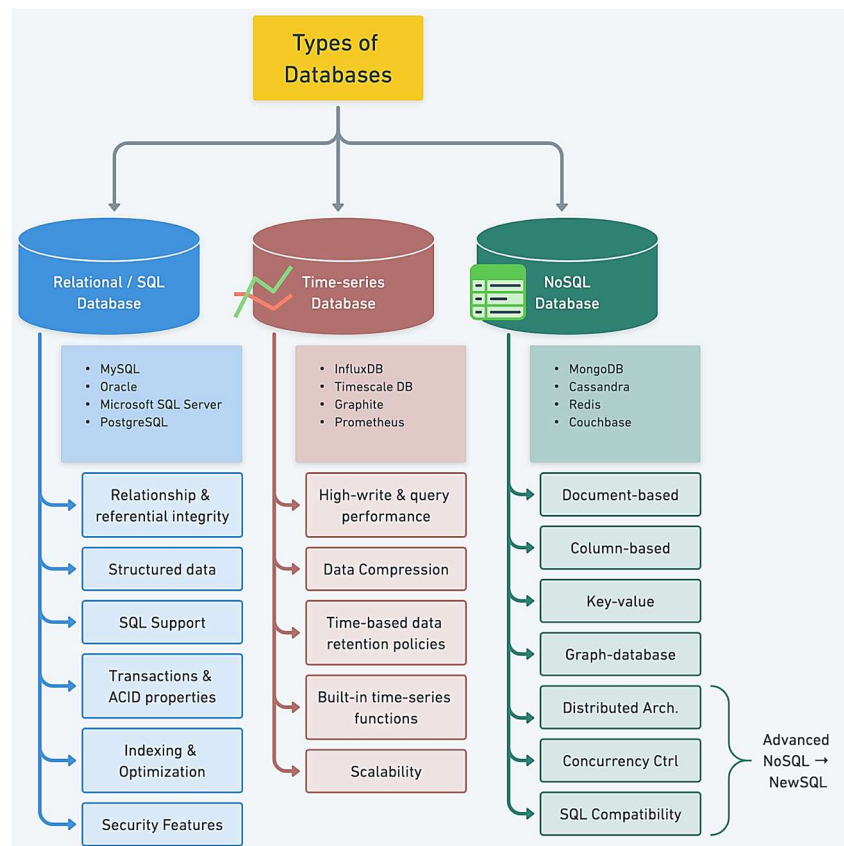
Step: Sanitize + Validate + Sql query

Data Sanitization – SQLAlchemy

- Sql alchemy – OOP class convert into tabular form
- SQLAlchemy is an open-source SQL toolkit and object-relational mapper for the Python programming.
- SQLAlchemy is the Python SQL toolkit that allows developers to access and manage SQL databases using Pythonic domain language. You can write a query in the form of a string or chain Python objects for similar queries.

Data Validation – Pydantic

- Pydantic is the most widely used data validation library for Python.
- Fast and extensible, Pydantic plays nicely with your linters/IDE/brain.
- Pydantic – Sanitize and validate data
- Pydantic allows you to specify field aliases, which are alternative names for fields in your data model. It is useful when your data source uses different field names than your model's. Pydantic can also map the input data to the correct fields in your model by defining aliases.



Different Syntax:

- Docker Compose – yaml syntax
- Toml syntax
- Json syntax