

Databases Overview

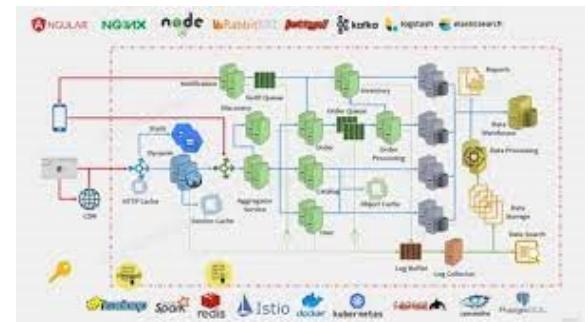
ERIN KEITH

Goals

1. Review Background

Examples

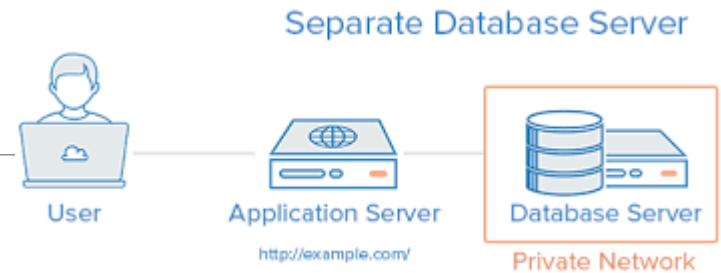
- web applications
- installed software
- larger scale applications



Server / Client

- databases generally run as a separate service
- it's generally referred to as the “server”
 - although it doesn't have to be on a separate machine
- can interact with it through an “interpreter”
 - the command line
 - a GUI
- write SQL queries or stored procedures to get data from the database
- **this implies you have to “connect” to it**

Connecting

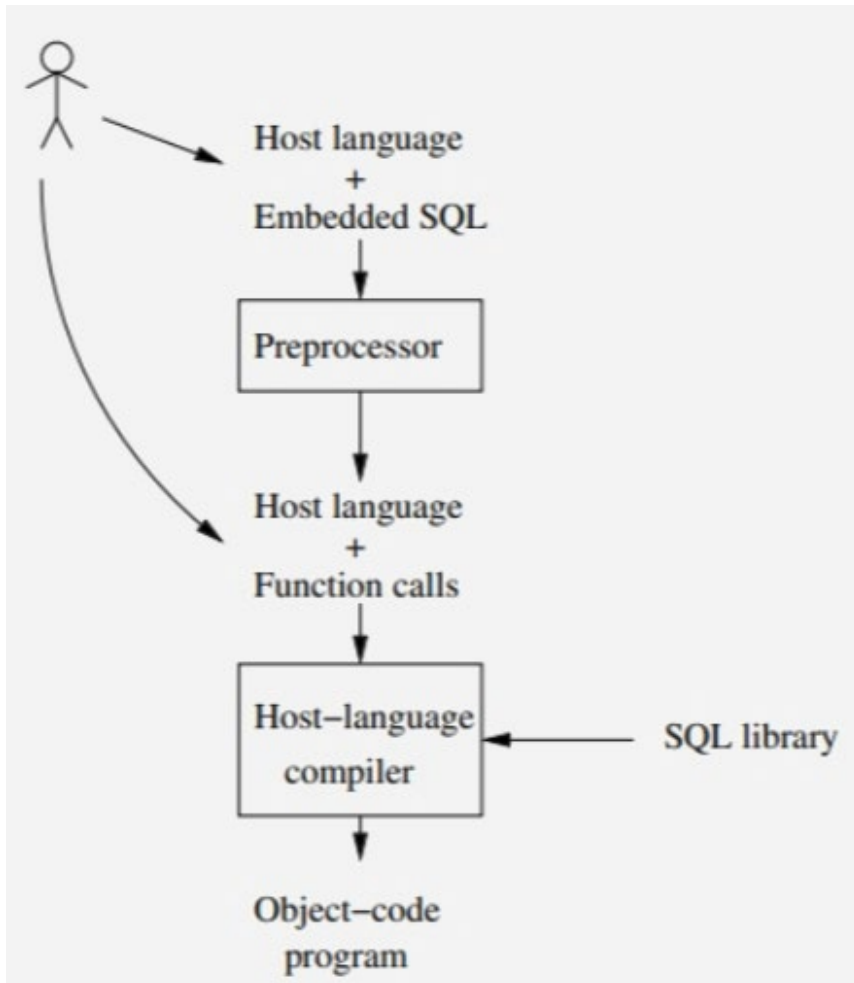


- ODBC
 - Open DataBase Connectivity
 - a standard interface between a SQL database and an application that accesses the data in the database

Connecting

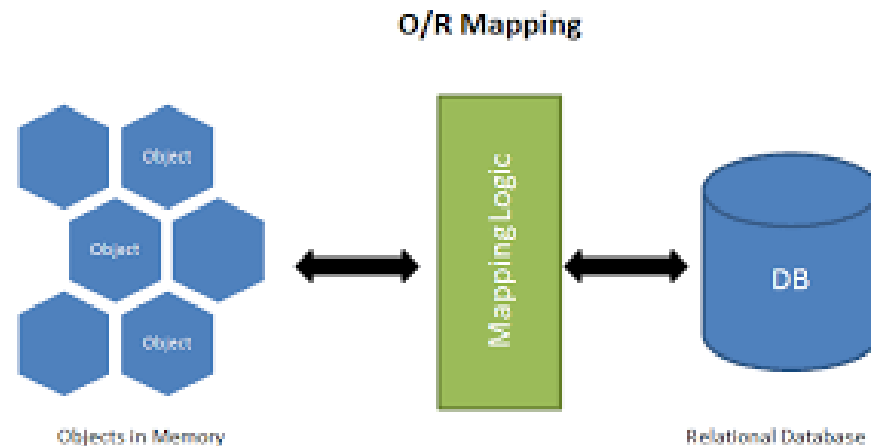
Libraries

- Languages often have libraries which
- manage the connection process
- wrap SQL queries in function calls or objects



Object-Relational Mapping

ORMs are software (often within “frameworks”) designed to translate between the data representations used by databases and those used in object-oriented programming.



Connecting from Systems

- Choose a “tech stack” (language, framework, IDE, etc.)
- Look for libraries that work with the DBMS
- Find documentation and examples to determine
 - How to establish a connection
 - How to submit queries
 - What's returned as the result of the queries
 - possible errors

You do it

- Choose a language
- Look for a library that works with the PostgreSQL
- Find documentation and examples to determine
 - How to establish a connection
 - How to submit queries
 - What's returned as the result of the queries
 - possible errors

Python Example

- Choose a language
 - Python
- Look for a library that works with the PostgreSQL
 - psycopg

Python Example

- Find documentation and examples to determine
 - How to establish a connection
 - <https://www.psycopg.org/psycopg3/docs/basic/usage.html>
 - How to submit queries
 - <https://www.psycopg.org/psycopg3/docs/basic/params.html>
 - What's returned as the result of the queries
 - <https://www.psycopg.org/psycopg3/docs/basic/adapt.html>
 - possible errors

<https://www.psycopg.org/psycopg3/docs/basic/index.html>



Next Class

Module:

Week 11: Connecting

Topic:

**Stored Procedures
Execution**

