DEV ACADEMY
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Intro to Databases

Agenda for Today

- What is a database?
  - Differences vs Filesystem
  - Types of DBs
- Anatomy of a Relational DB
- Break?
- Interacting with DBs
- Working with RDBs at Dev Academy

What is a database?

	DB	FS
Stores & retrieves values	✅	✅
Persists values	✅	✅
Shares values	✅	✅
Provides searching of values	✅	
Guarantees safety & consistency	✅	
Supports CRUD operations for single records	✅	

CRUD

Primer

- Create
- Read
- Update
- Delete

Types of databases

(from most structured to least)

Key-value stores

- very fast but low complexity
- like a phone book or dictionary
- Ex: RocksDB, LevelDB, Memcached

Relational databases (aka: SQL databases)

This is us

- highly structured
- like a set of connected spreadsheets
- can be changed, but may be difficult
- capable of high or low complexity
- use SQL to access data
- Ex: Postgres, MS SQL Server, SQLite

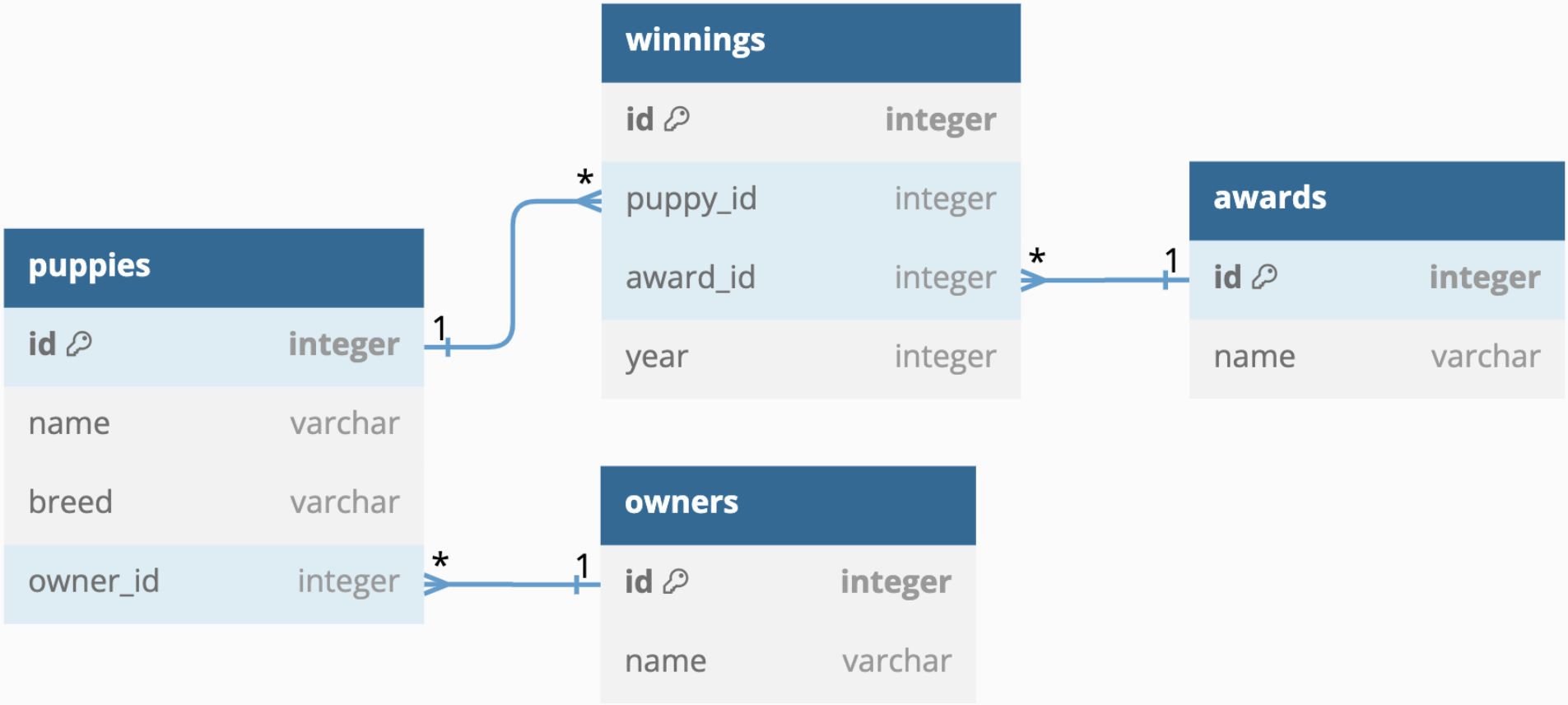
Document databases (aka: noSQL databases)

- no schema, or schema optional
- each record like its own JSON object
- less guaranteed consistency
- custom query languages to access
- Ex: MongoDB, CouchDB, RavenDB

Where do they live?

- Embedded (in with the app)
- Served (its own separate service)
- Distributed (lives everywhere)

Anatomy of a relational DB



Anatomy of a relational DB - Review!

- Database includes one or more...
- Tables (aka: entities) which have...
- Columns (aka: fields) which have...
  - a defined type
  - Field names + types = "metadata"
- Tables have zero or more Rows (aka: records or entries) which have...
  - data!

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Break???

Interacting with DBs

- Served vs local
  - `connection`
- Migrations and seeds
- CRUD
- Structured Query Language

Working with RDBs at Dev Academy

Demo

- SQLite viewer / DB Browser
- Knex
- Do the thing

Morning challenge

knex-todo-cli