

Databases & MongoDB



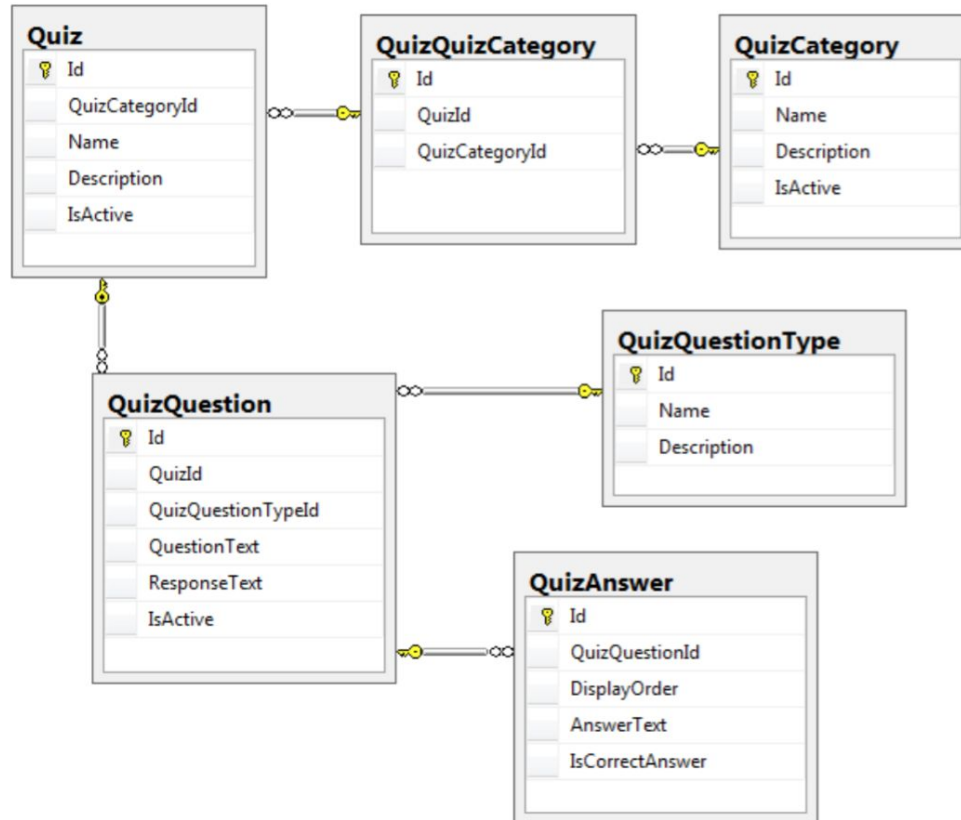
What are NoSQL Databases?

Why are they different to relational data stores?

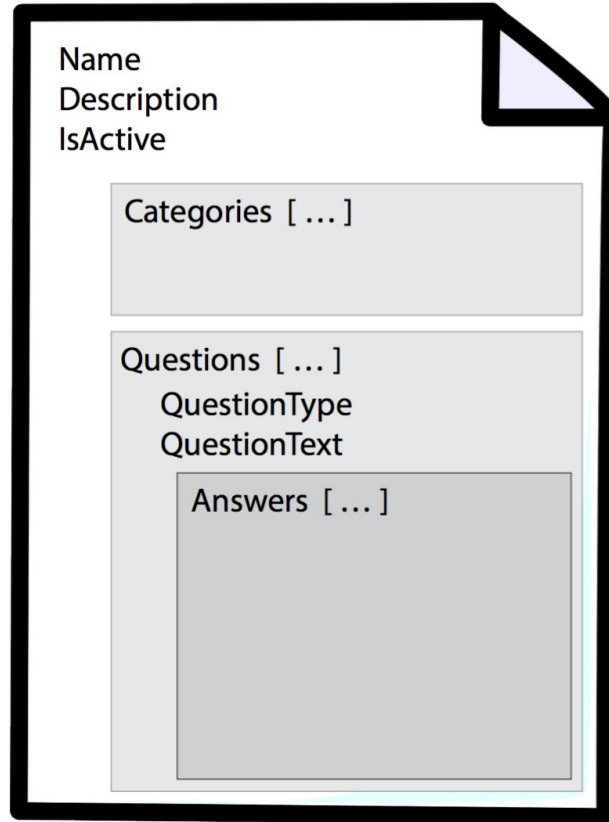
- Document or data structure storage
- Hierarchies not relational
- Built to be run in parallel (e.g. Sharding)
- Simple to deploy (usually no installer)
- Recent ones support transactions too



Relational Databases (RDBMS)



None Relational Database (NoSQL)



NoSQL Databases

RavenDB

MongoDB

Cassandra

Neo4j

Redis

CouchDB



File anything you want



Example data

```
{
  _id: 1,
  name: "sue",
  age: 19,
  type: 1,
  status: "P",
  favorites: { artist: "Picasso", food: "pizza" },
  finished: [ 17, 3 ],
  badges: [ "blue", "black" ],
  points: [
    { points: 85, bonus: 20 },
    { points: 85, bonus: 10 }
  ]
}
```

```
{
  _id: 2,
  name: "bob",
  age: 42,
  type: 1,
  status: "A",
  favorites: { artist: "Miro", food: "meringue" },
  finished: [ 11, 25 ],
  badges: [ "green" ],
  points: [
    { points: 85, bonus: 20 },
    { points: 64, bonus: 12 }
  ]
}
```


Example queries

Query	Result
{}	All documents
{status: "A"}	status="A"
{ status: { \$in: ["P", "D"] } }	status="A" OR status="D"
{ status: "A", age: { \$lt: 30 } }	status="A" AND age < 30
{ \$or: [{ status: "A" }, { age: { \$lt: 30 } }] }	status="A" OR age < 30
{ favorites: { artist: "Picasso", food: "pizza" } }	favorites={ artist: "Picasso", food: "pizza" }
{ "favorites.artist": "Picasso" }	favorites.artist = "Picasso"
{ badges: "black" }	Badges array contains "black"
{ "badges.0": "black" }	First element of badges is "black"

More modifiers

\$gt	greater than
\$gte	greater than or equal to
\$in	exists in
\$lt	less than
\$lte	less than or equal to
\$ne	not equal to
\$nin	does not exist

Let's get started

1. Install MongoDB
2. Install MongoChef
3. Connect to local database
4. Add example documents
5. Run the queries

One more thing..

```
var MongoClient = require('mongodb').MongoClient;

// Connect to the db
MongoClient.connect("mongodb://localhost:27017/exampleDb",
function(err, db) {
  if(!err) {
    console.log("We are connected");
  }
});
```

Native MongoDB drivers

C++	C#	Java	Perl
PHP	Python	Ruby	Node.js