

Introduction to MySQL

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Coalition for Queens

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Goals

- Understand what MySQL is and where it's used
- Write and execute queries
- Understand a database schema
- Design a MySQL database
- Analyze queries for performance

What is MySQL



The world's most popular open source database

- Open source
 - Anyone can contribute to it
 - Free (thus world's most popular!)
- Database
 - Store data in an organized way

Relational databases

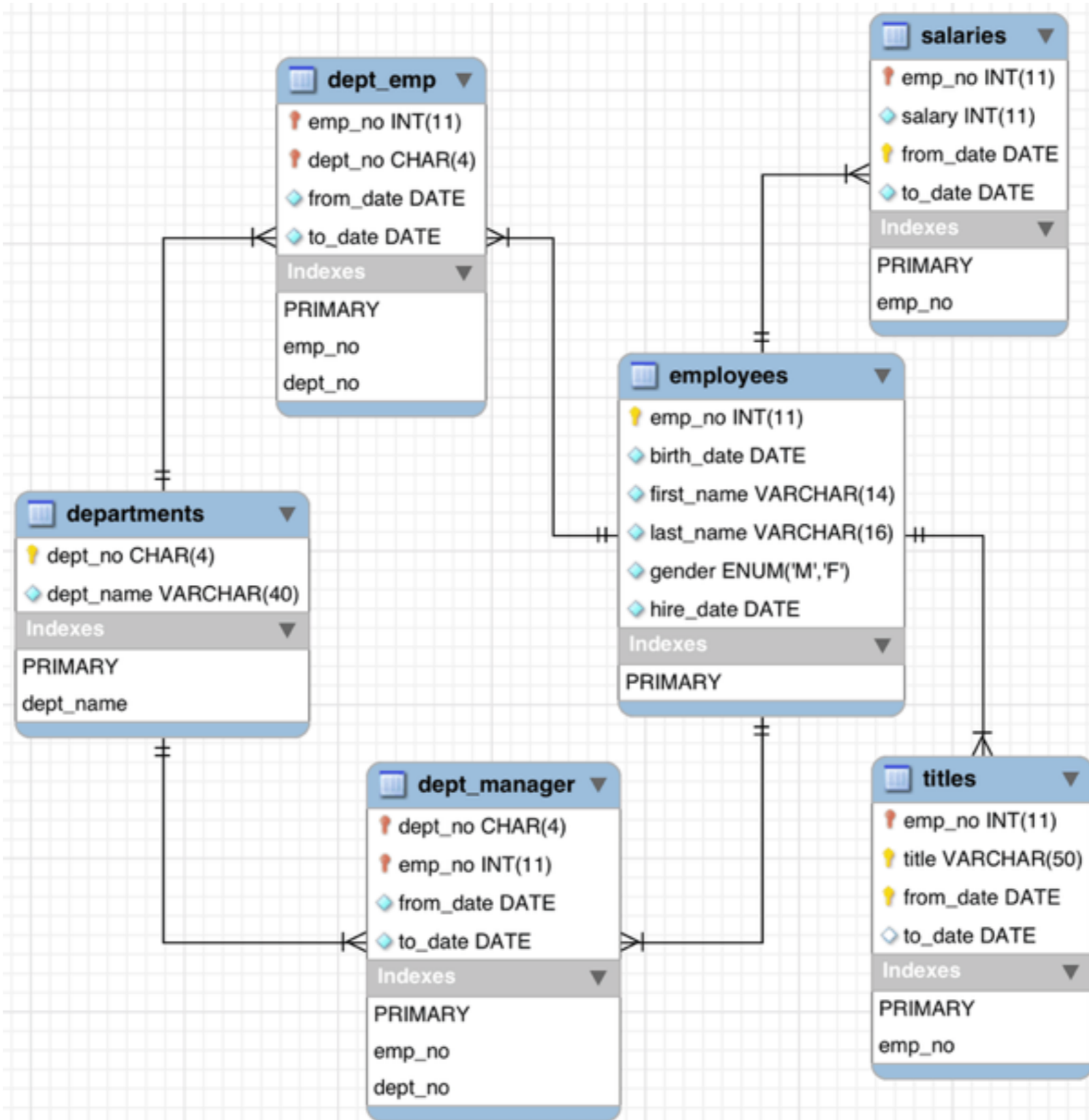
- Set of tables
- A table consists of columns and rows
- Each column has a name and a type
- Each row is called a record
- Records in one table can refer to records in other tables (the relational)
- Interact with a database using queries

products

id	category_id	name	color	price
1	1	Shirt A	ORANGE	100.00
2	1	Shirt B	RED	200.00
3	2	Jeans	BLUE	150.00
4	3	Baseball Cap	GREEN	125.00

categories

id	name
1	Shirt
2	Pants
3	Hat



Why is it useful?

- Represent structured data and the relationships
- Used by software applications
- Enforce database constraints
- Handle huge amounts of data
- Handle complicated queries
- Robust, industry-tested and proven
 - Used by Facebook, LinkedIn, Google, Twitter

Column types

Type	Description
tinyint	-128 -> 127
int	-2^{31} -> $2^{31} - 1$
bigint	-2^{63} -> $2^{63} - 1$
float	4 "bytes"
double	8 "bytes"
date	"2014-10-02"
time	"07:42:00 PM"
datetime	"2014-10-02 07:42:00 PM"
varchar	"Learning MySQL"
text	"More MySQL learning"

Our dataset

- Fantasy football data for the 2014-2015 season
 - Retrieved from Yahoo
 - Offensive projections by player and week (first 10 pages)
- Tables
 - teams
 - positions
 - players
 - schedule
 - stats

Tools

- MySQL
 - <https://dev.mysql.com/downloads/mysql/>
- MySQL client
 - Windows + OS X: MySQL Workbench:
 - <https://dev.mysql.com/downloads/workbench/>
 - OS X: Sequel Pro:
 - <http://www.sequelpro.com/>

Installation

- Install MySQL
- Optionally install a MySQL client
- Connect to the database
- Load our dataset
- https://github.com/dangoldin/mysql-class/blob/master/GETTING_STARTED.md

Enter connection details below, or choose a favorite

Standard Socket SSH

Name: local
Host: 127.0.0.1
Username: root
Password:
Database: optional
Port: 3306
 Connect using SSL



Connect

What's a query?

- Way to ask the database to do something
 - SELECT
 - INSERT

The SELECT statement

- `SELECT * FROM [table];`
- `SELECT [fields] FROM [table];`
- `SELECT [fields] FROM [table] WHERE [condition];`
- `SELECT [fields] FROM [table] ORDER BY [fields];`
- `SELECT [fields] FROM [table] ORDER BY [fields]
LIMIT [num];`

The SELECT statement

- `SELECT * FROM teams;`
- `SELECT id, name FROM teams WHERE id = 1;`
- `SELECT name FROM players LIMIT 10;`
- `SELECT * FROM players ORDER BY name;`
- `SELECT * FROM players ORDER BY name desc
LIMIT 10;`

Aggregate functions

- `SELECT [function] FROM [table] WHERE [];`
 - `count`
 - `sum`
 - `avg`
 - `max`
 - `min`

Let's do some exercises

- <https://github.com/dangoldin/mysql-class/blob/master/session1/exercises1.md>