BASES DE DATOS

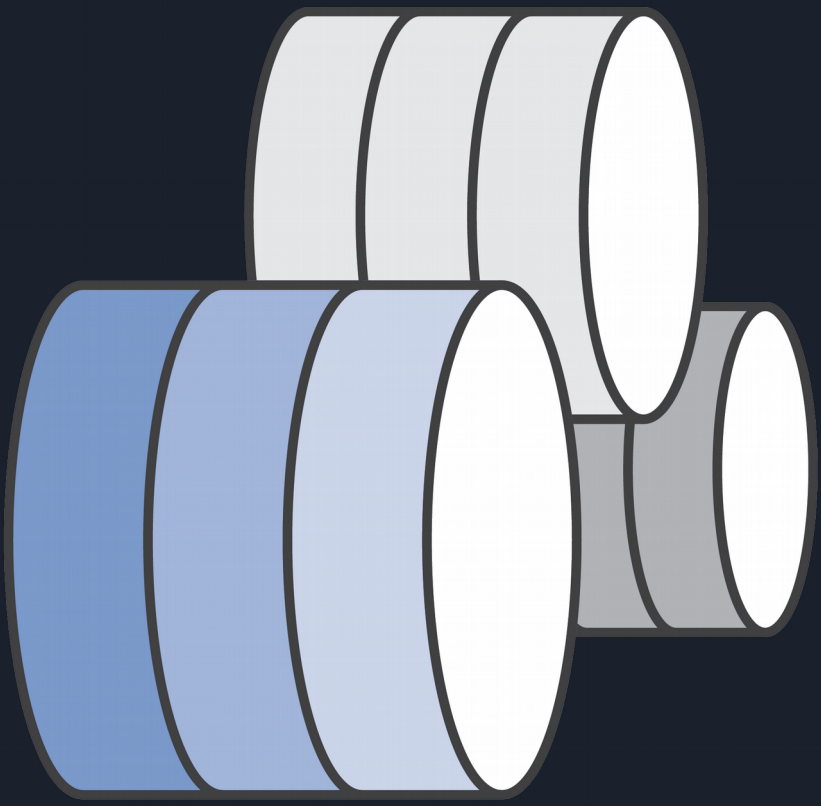
#{LL.u}
Libre Lab UCM

LibreLabUCM
Pablo García de los Salmones Valencia

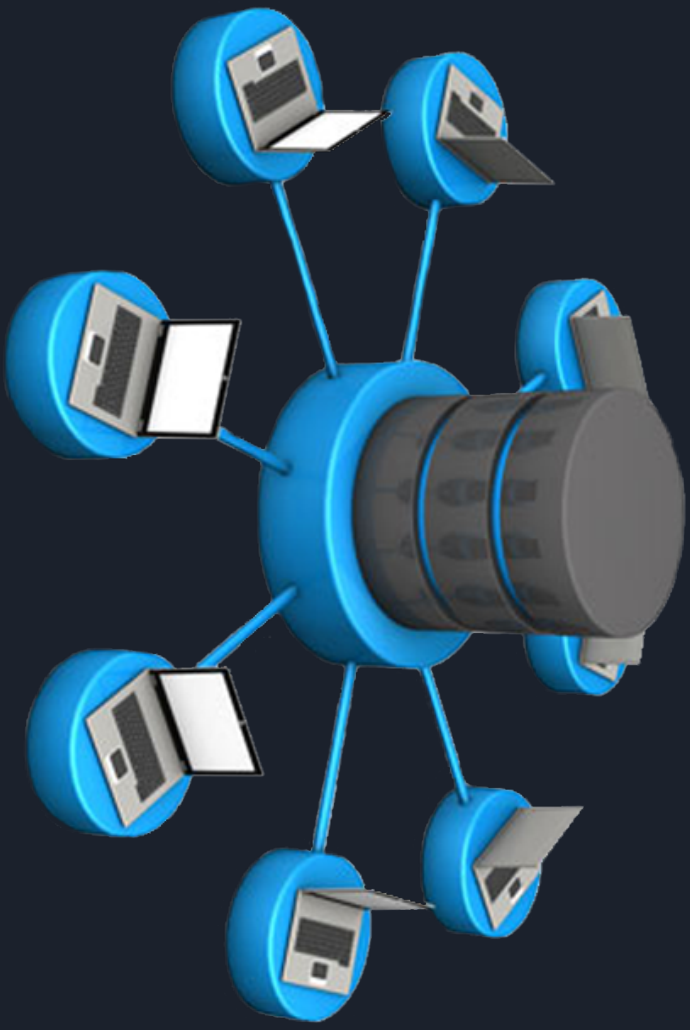
#{LL.u}
Libre Lab UCM

LibreLabUCM - 4º Semana de la Informática
Bases de Datos

LibreLabUCM - 4º Semana de la Informática
Bases de Datos



LibreLabUCM - 4º Semana de la Informática
Bases de Datos



#{LL.u}
Libre Lab UCM

LibreLabUCM - 4º Semana de la Informática
Bases de Datos

#{LL.u}
Libre Lab UCM

LibreLabUCM - 4º Semana de la Informática
Bases de Datos

SQL

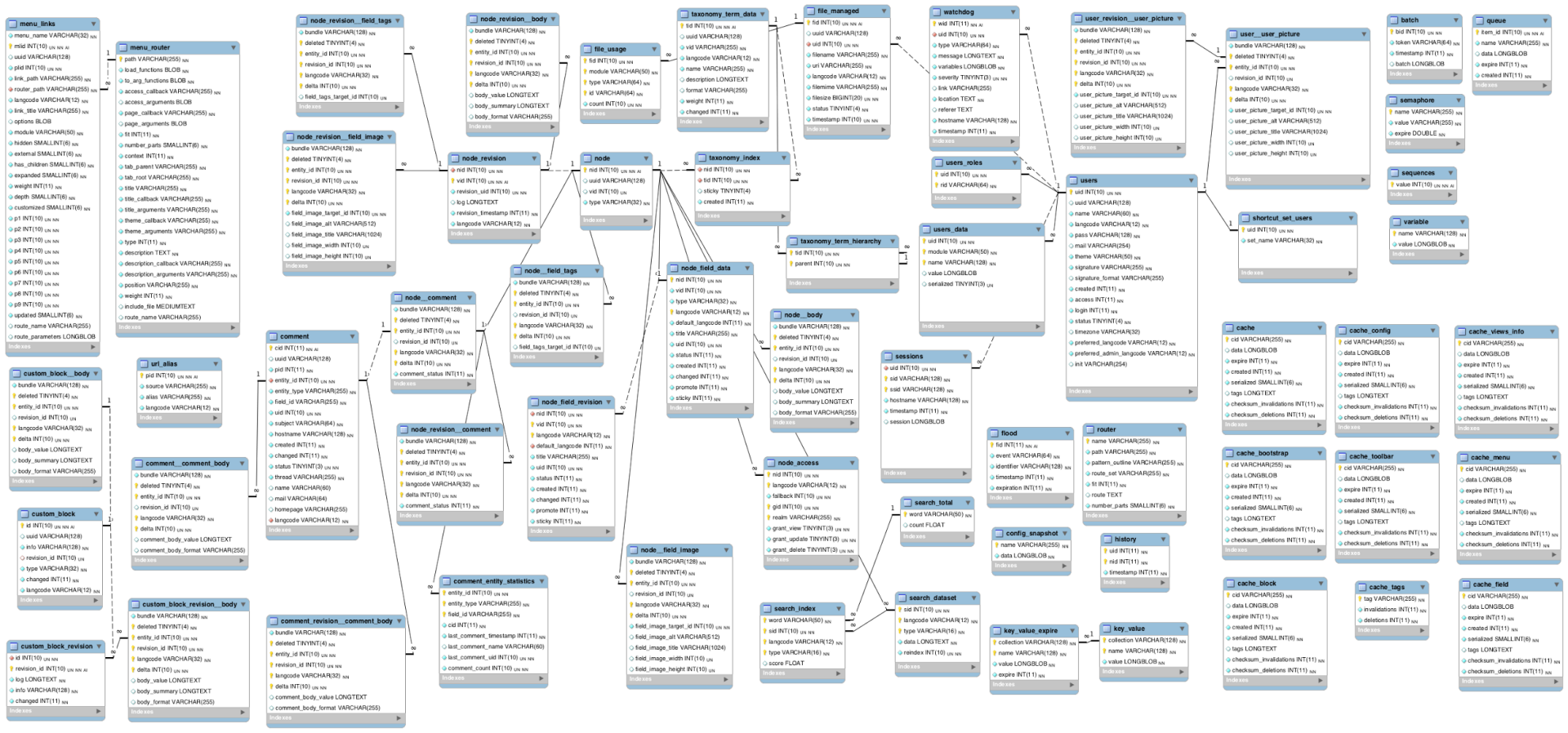
NoSQL

- SQL: Structured Query Language
  - MySQL / MariaDB
  - Oracle
  - PostgreSQL
  - MSSQL

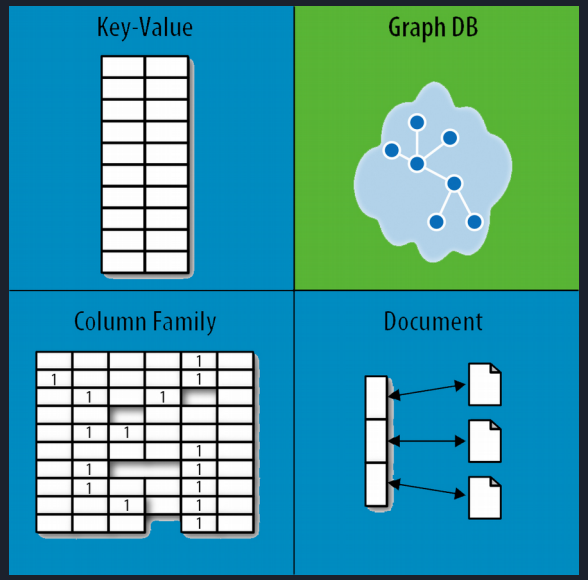
Employees Table

IdNum	LName	FName	JobCode	Salary	Phone
1876	CHIN	JACK	TA1	42400	212/588-5634
1114	GREENWALD	JANICE	ME3	38000	212/588-1092
1556	PENNINGTON	MICHAEL	ME1	29860	718/383-5681
1354	PARKER	MARY	FA3	65800	914/455-2337
1130	WOOD	DEBORAH	PT2	36514	212/587-0013

#{LL.u}
Libre Lab UCM



- NoSQL: Non SQL / Not Only SQL
  - Cassandra
  - Redis
  - MongoDB
  - CouchDB



- XML
- Yaml
- Redis
- MongoDB
- Elasticsearch
- MySQL / MariaDB

XML: Extensible Markup Language


```xml
<?xml version="1.0" encoding="UTF-8" ?>
<ProductInformation ExportTime="2010-11-23 23:56:40" ExportContext="german" ContextID="german" WorkspaceID="Test" id="1" parent="0">
- <AnalyzerResult>
  - <AnalyzerLists>
    - <AnalyzerList name="items.added">
        <AnalyzerElement ItemID="product?id=123456" ProductID="123456" />
        <AnalyzerElement ItemID="product?id=789" ProductID="789" />
      </AnalyzerList>
    - <AnalyzerList name="items.deleted">
        <AnalyzerElement ItemID="product?id=111111" ProductID="111111" />
        <AnalyzerElement ItemID="product?id=222222" ProductID="222222" />
      </AnalyzerList>
    - <AnalyzerList name="items.dummy_test">
        <AnalyzerElement ItemID="product?id=test1" ProductID="test1" />
        <AnalyzerElement ItemID="product?id=test2" ProductID="test2" />
      </AnalyzerList>
    </AnalyzerLists>
  - <AnalyzerDummyTest>
      <AnalyzerDummyTest name="Dummy not processed" />
    </AnalyzerDummyTest>
  </AnalyzerResult>
- <Products>
  - <Product id="123456" name="Product A">
    - <MetaData>
        <Value AttributeID="AttrA">false</Value>
        <Value AttributeID="AttrB">true</Value>
        <Value AttributeID="AttrShortName">Product A Short Name</Value>
        <Value AttributeID="AttrLongName">Product A Long Name</Value>
      </MetaData>
    </Product>
  - <Product id="789" name="Product B">
    - <MetaData>
        <Value AttributeID="AttrA">true</Value>
        <Value AttributeID="AttrB">false</Value>
        <Value AttributeID="AttrShortName">Product B Short Name</Value>
        <Value AttributeID="AttrLongName">Product B Long Name</Value>
      </MetaData>
    </Product>
  </Products>
</ProductInformation>
```

Yaml: YAML Ain't Markup Language

```yaml
---
first_name: Adam
last_name: Bertram
hair_color: Brown
married: true
spouse:
    name: Miranda
    occupation: Mom
    interests:
        - Instagram
        - Facebook
        - "keeping the Bertram family in check"
dog_count: 2
dogs:
    dog1:
        name: Elliott
        breed: Shih-Tzu
        color: black/white
    dog2:
        name: Brody
        breed: Shih-Tzu
        color: black/white
```

```yaml
sky:
  name: "\n   Get to the sky!"
  startingRoom: "hell_7_start"
  description: "\n   You start in hell.\n   It's hot in there, so.... You should go somewhere cooler:\n    To the sky XD"
  rooms:
    hell_7_start:
      arrivalText: "Floor: -7, Start\n  It's hot in here.... I should find a way out...\n  Perhaps... if I could find Lucifer
      options:
        's':
          text: "Go down"
          action:
            text: "You can't go down... You are at the bottom of hell..."
            repeatTimes: -1
        'w':
          text: "Go up"
          required:
            knowledge_secretDoor_hell_6_main: 1
          nextRoom: "hell_6_main"
        'q':
          text: "Search around"
          action:
            text: "This place is empty as hell..."
            items:
              point: 5
            repeatTimes: 1
        'd':
          text: "Go to next room"
          nextRoom: "hell_7_1"
    hell_7_1:
      arrivalText: "Floor: -7, 1\n  Something shines here... With a dark red color..."
      options:
```

https://github.com/DevPGSV/GameMaker/games.yml

Redis

Redis Data Examples

Keys	Values	
page:index.html →	<html><head>[...]	← String
login_count →	7464	
users_logged_in_today →	{ 1, 2, 3, 4, 5 }	← Set
latest_post_ids →	[201, 204, 209,..]	← List
user:123:session →	time => 10927353 username => joe	← Hash
users_and_scores →	joe ~ 1.3483 bert ~ 93.4 fred ~ 283.22 chris ~ 23774.17	← Sorted (scored) Set

https://github.com/yagop/telegram-bot

MongoDB

```
db.users.insertOne(
   {
      name: "sue",
      age: 26,
      status: "pending"
   }
)
```

collection

field: value

field: value

field: value

document

```
{
  name: "sue",
  age: 26,
  status: "A",
  groups: [ "news", "sports" ]
}
```

field: value

field: value

field: value

field: value

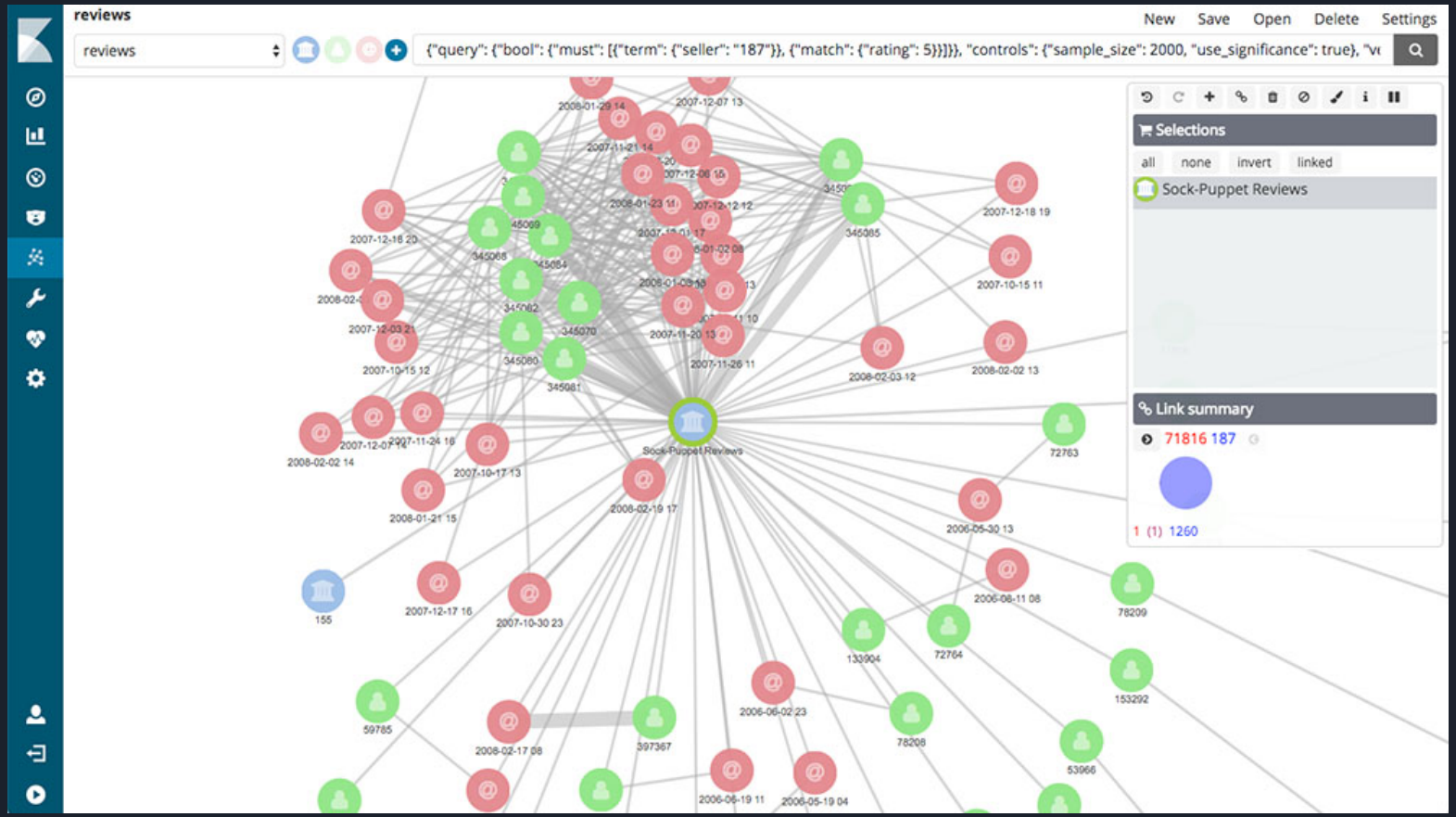
MongoDB

```
{
  _id: <ObjectId1>,
  username: "123xyz",
  contact: {
              phone: "123-456-7890",
              email: "xyz@example.com"
            },
  access: {
             level: 5,
             group: "dev"
           }
}
```

Embedded sub-document

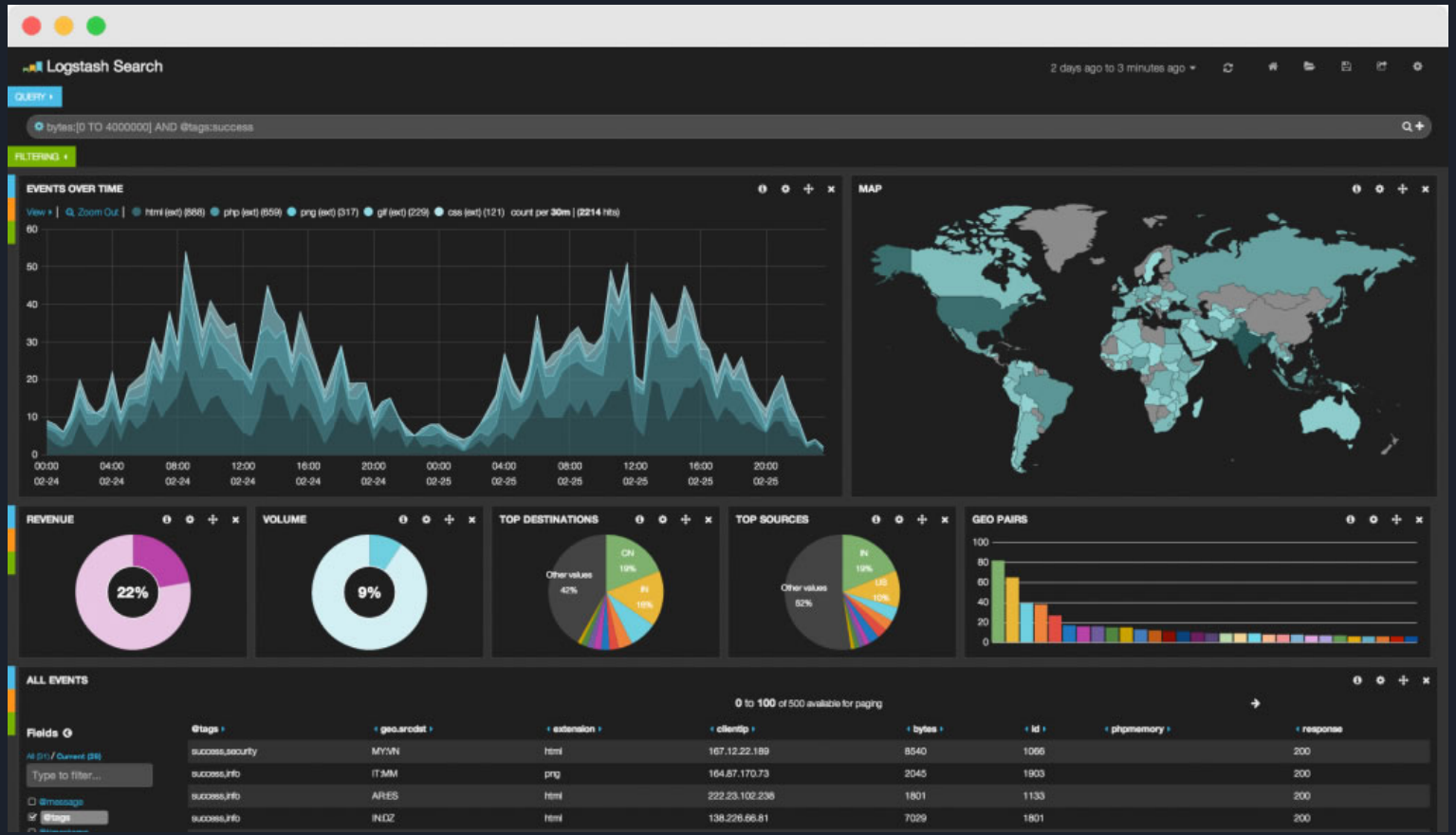
Embedded sub-document

Elasticsearch & Kibana



Elastic Stack

Elastic Stack



LibreLabUCM - 4º Semana de la Informática
Bases de Datos

MySQL & MariaDB

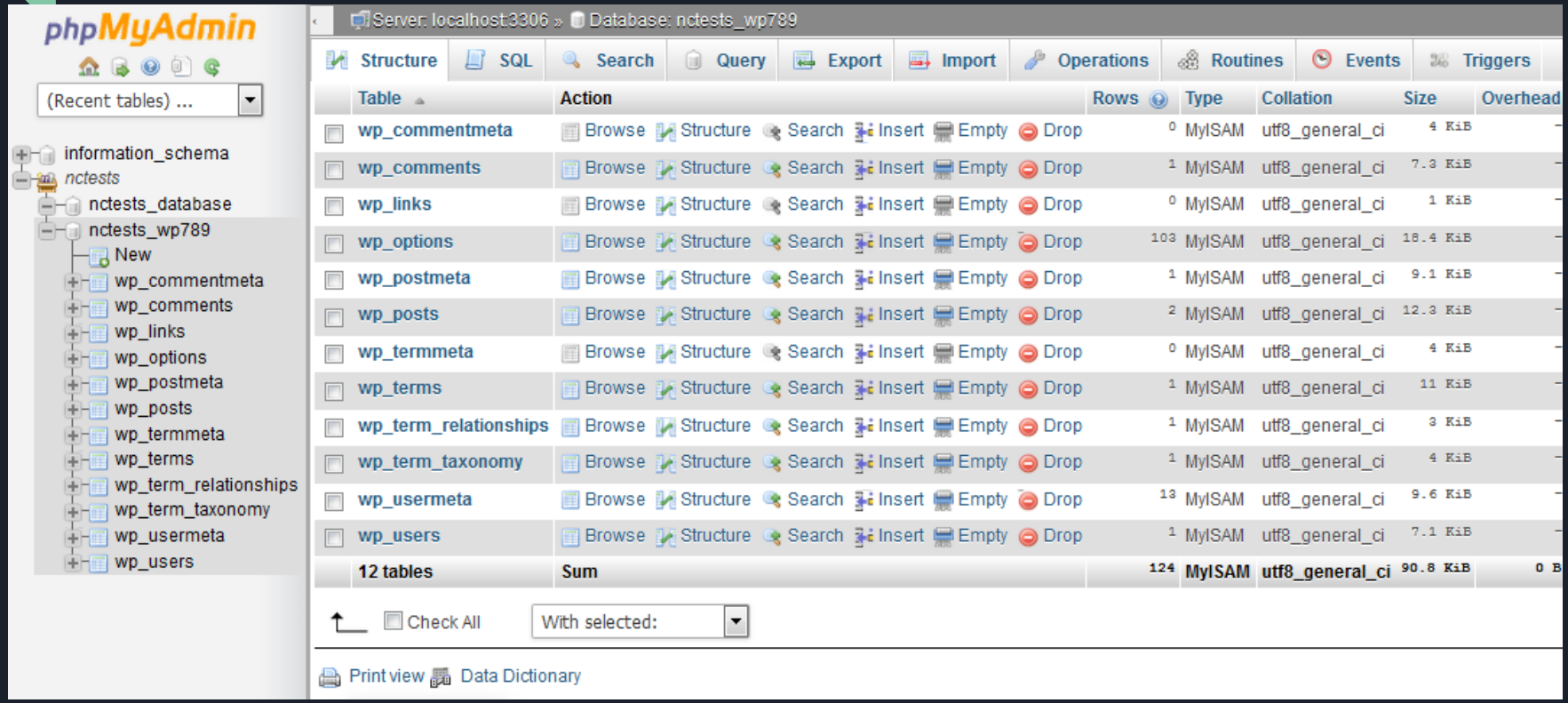
- XAMPP
- LAMPP
- …

- Worpress
- Joomla
- Drupal
- Magento
- Prestashop

MySQL & MariaDB

- DBeaver
- PhpMyAdmin

MySQL & MariaDB: PhpMyAdmin



MySQL & MariaDB: PhpMyAdmin

phpMyAdmin

Recent Favorites

- nickn_db1
  - New
  - form
    - Columns
      - New
      - address
      - behind_on_mortgag
      - credit
      - email
      - facing_foreclosure
      - fname
      - home_value
      - lname
      - lower_payment
      - mortgage_balance
      - mortgage_due
      - other
      - owe_more_than_hc
      - phone
      - reduce_rate
      - zip
    - Indexes
  - wp_commentmeta
  - wp_comments
  - wp_links

Server: localhost » Database: nickn_db1 » Table: form

Browse | Structure | SQL | Search | Insert | Export | Import | Operations | Triggers

```
SELECT * FROM `form`
```

Profiling [Inline] [Edit] [Explain SQL] [Create PHP Code] [Refresh]

Show all | Number of rows: 25 | Filter rows: Search this table

Sort by key: None

+ Options

fname	lname	email	phone	address	zip	credit	home_value	mortgage_balance	mortgage_due	behind_on_mortgage	facing_foreclosure	lower_
sam	aburto	a@b.com	123-123-1234	123 fake st, 4	12345	Excellent						
jim	bean	jim@bean.com	1233334444	2 blah st	12312	Excellent						
slim	jim	slimjim@yahoo.com	7149989087	123 long street name	90210	Good						
sam	iam	a@b.com	123-123-1234	111111 frgh vfbgtr wwd	11112	Fair						
jaime	aburto	sambabli.sb@gmail.com	7147878888	333 city blvd westttttttt	11111	Poor						
Sam	aburto	a@b.com	123-123-1234	123 fake st, 4444444444444444	11111	Excellent						
sam	s	sambabli.sb@gmail.com	123-123-1234	123 fake st, 4ddddddddddddddd	11222	Excellent						

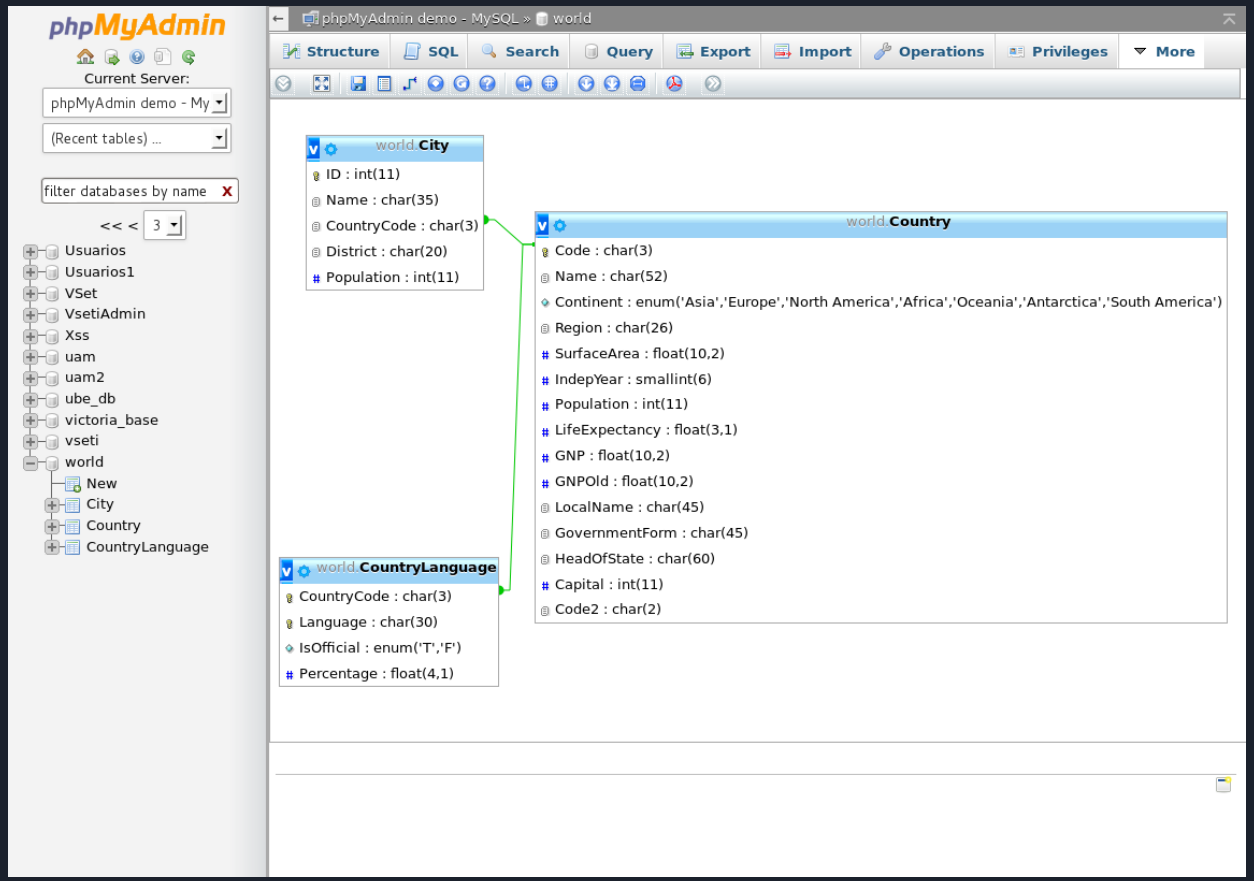
Show all | Number of rows: 25 | Filter rows: Search this table

Query results operations

Print view | Print view (with full texts) | Export | Display chart | Create view

Console

MySQL & MariaDB: PhpMyAdmin



MySQL & MariaDB

```
INSERT INTO table_name
(column1, column2, column3, ...)
VALUES (value1, value2, value3, ...);
```

```
INSERT INTO Customers (CustomerName,
ContactName, Address, City, PostalCode, Country)
VALUES ('Cardinal', 'Tom B. Erichsen', 'Skagen 21',
'Stavanger', '4006', 'Norway');
```

MySQL & MariaDB

```
UPDATE table_name
SET c1 = v1, c2 = v2, ...
WHERE condition;
```

```
UPDATE Customers
SET Name = 'Agent Smith', City = 'Machine City'
WHERE CustomerID = 149;
```

MySQL & MariaDB

```
SELECT column1, column2, ...
FROM table_name;
```

```
SELECT username, password, ...
FROM users;
```

MySQL & MariaDB

```
SELECT f.animal_id AS farm_animal_id,
       f.animal_type AS farm_animal_type,
       d.animal_description AS farm_animal_description,
       f.animal_name AS farm_animal_name,
       att.animal_type_description AS description

FROM tutorial.farm f

LEFT OUTER JOIN tutorial.animal_types att
ON f.animal_type = att.animal_type_id

LEFT OUTER JOIN tutorial.animal_descriptions d
on f.animal_description = d.animal_description_id

UNION

SELECT f.animal_id AS farm_animal_id,
       f.animal_type AS farm_animal_type,
       d.animal_description AS farm_animal_description,
       f.animal_name AS farm_animal_name,
       att.animal_type_description AS description

FROM tutorial.farm f

RIGHT OUTER JOIN tutorial.animal_types att
ON f.animal_type = att.animal_type_id

RIGHT OUTER JOIN tutorial.animal_descriptions d
on f.animal_description = d.animal_description_id
```

LibreLabUCM

@LibreLabUCM

https://t.me/LLUchat

https://librelabucm.org/

Pablo García de los Salmones Valencia
Febrero 2018

LibreLabUCM - 4º Semana de la Informática
Bases de Datos