



---

# Py



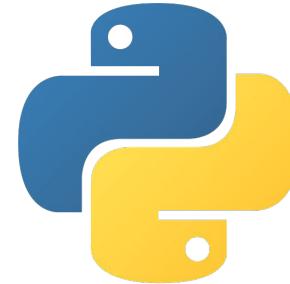
POSTMAN

API REST



# Flask

web development,  
one drop at a time



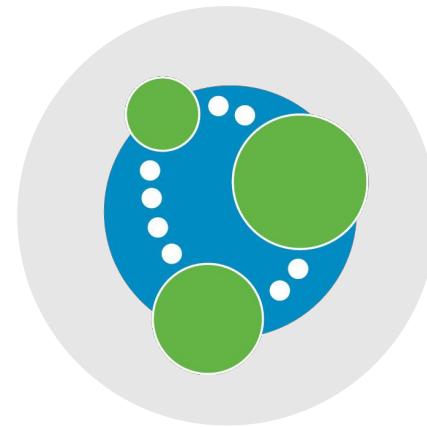
mongoDB

---

# Según el modelo de datos



Key-value stores



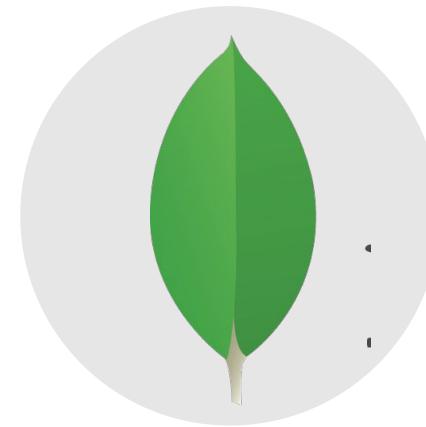
Graph  
databases

---

# Según el modelo de datos



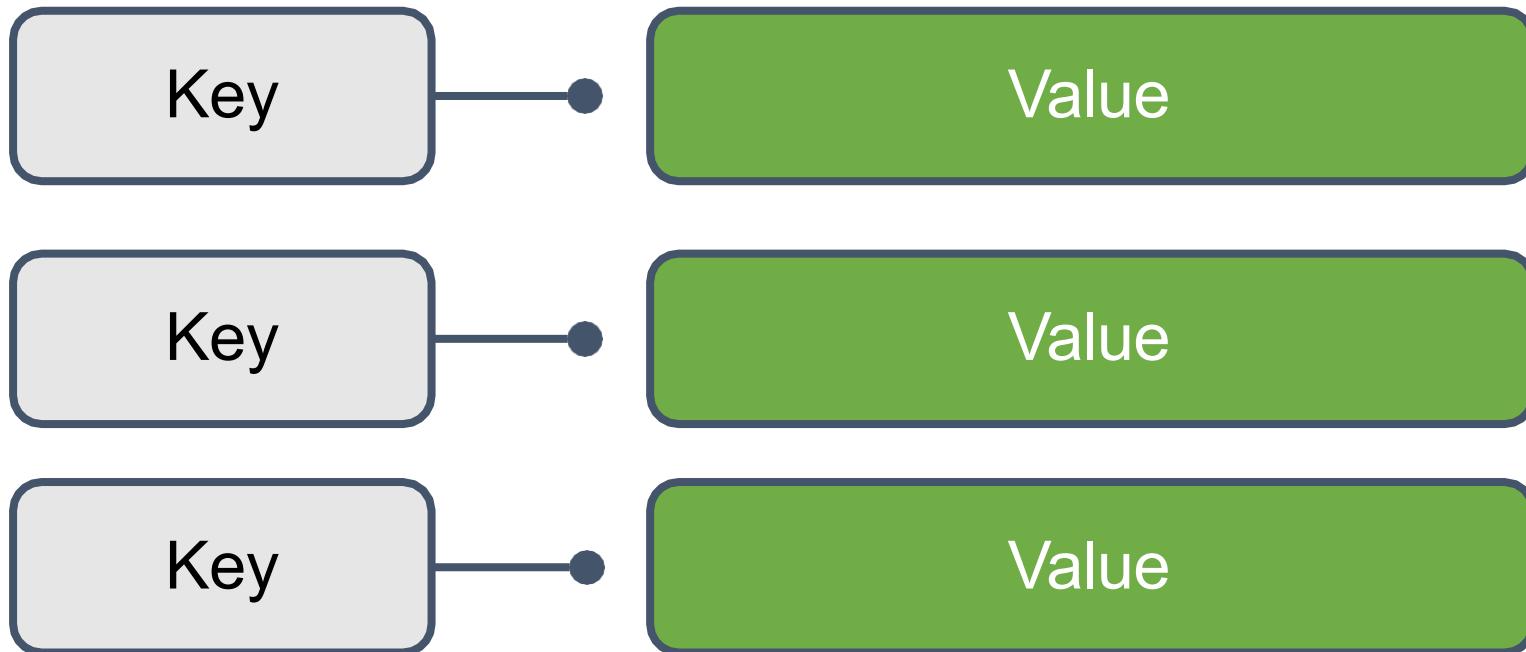
Wide-column  
stores



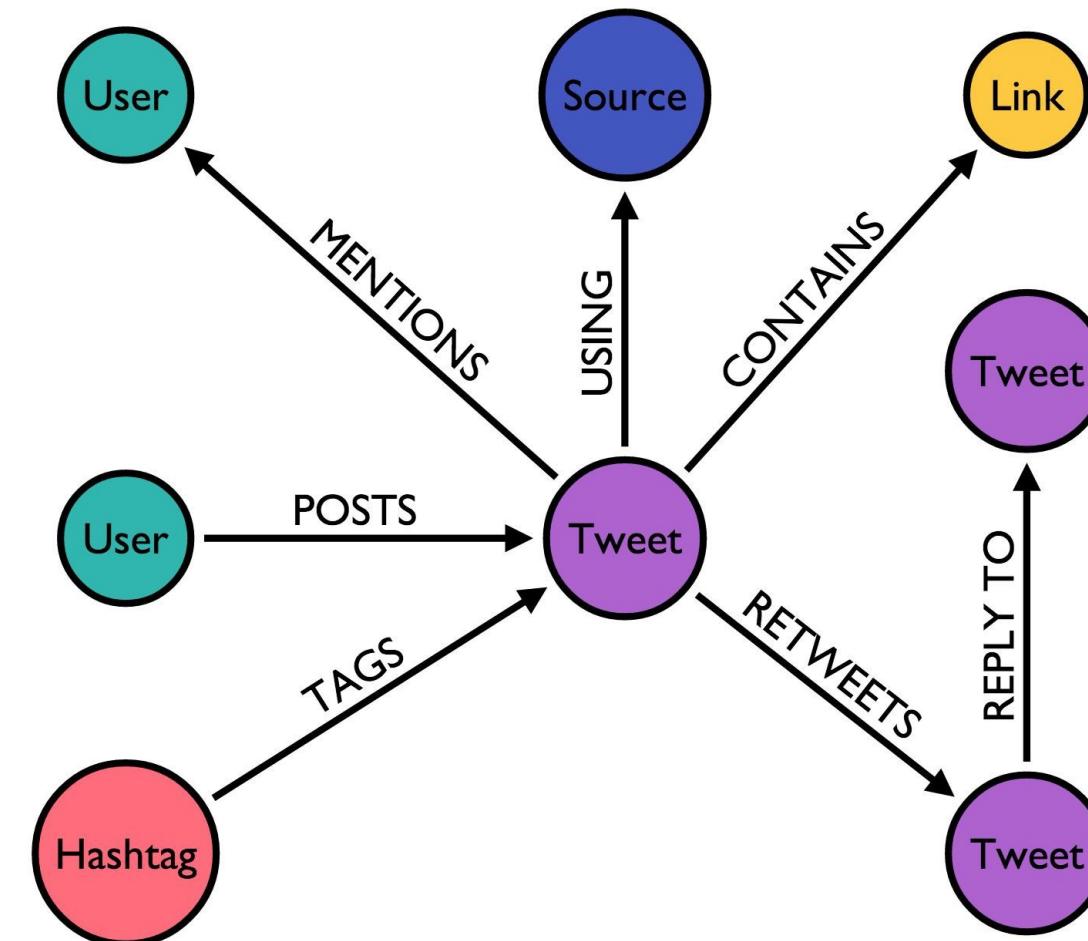
Document  
databases

---

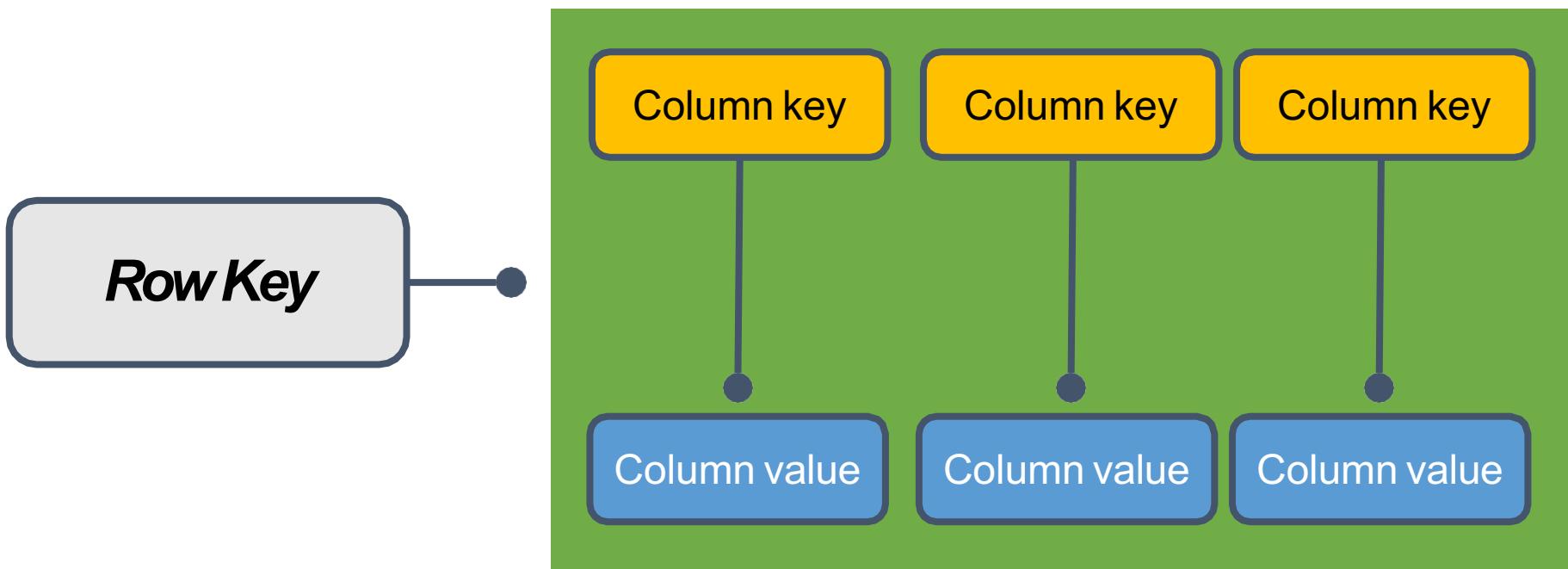
# Key-Value stores



# Graph databases



# Wide-column stores



# Document databases

```
{  
    "name": "Carlos González",  
    "age" :25,  
    "city": "Alicante",  
    "cars": [  
        {  
            "model": "Renault",  
            "year" : 2022,  
            "value": 20000  
        },  
        {  
            "model": "Chevrolet"  
            "year": 2009  
            "value": 10000  
        }  
    ]  
}
```

# En resumen

	<i>Caso de uso</i>	<i>Ejemplos</i>
<b><i>Key-value store</i></b>	Ideal para almacenar información de sesión, recomendaciones.	Redis, Memcached
<b><i>Graph database</i></b>	Es buena para establecer relaciones, mejor rendimiento que bases de datos relacionales.	Neo4j, JanusGraph
<b><i>Wide-column store</i></b>	Alto rendimiento y arquitectura escalable.	Cassandra, HBase
<b><i>Document database</i></b>	Propósito general.	MongoDB, Couchbase

MongoDB

---

# ¿Qué es MongoDB?

---

# Características de MongoDB

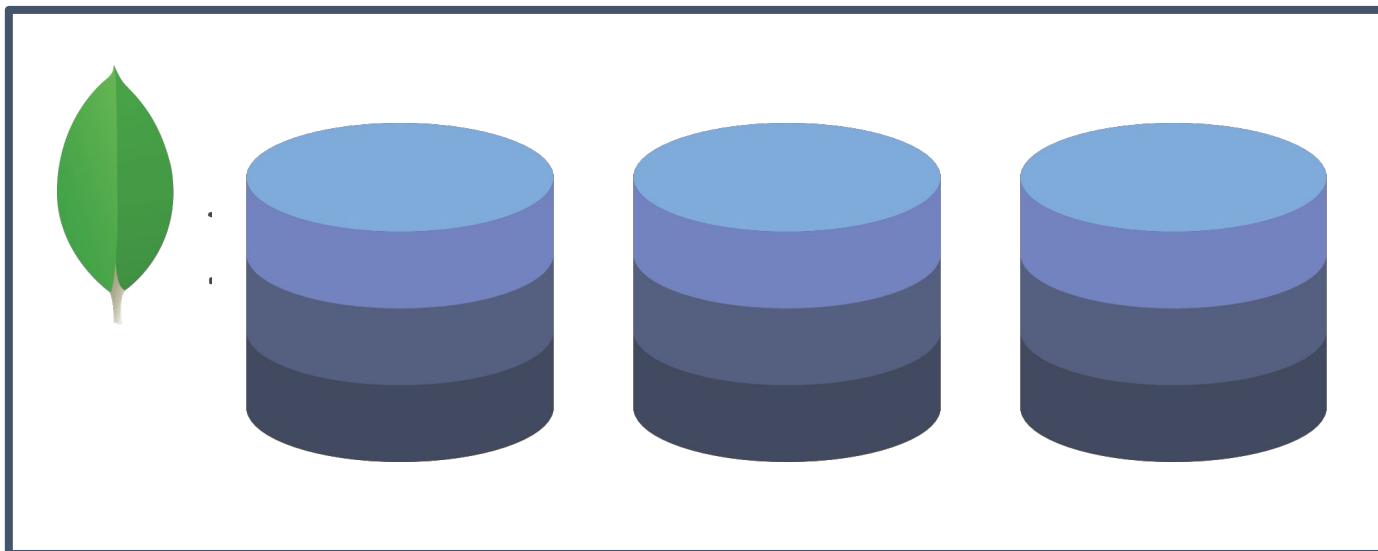
---

Los documentos son almacenados en una estructura parecida a un JSON (BSON)

```
{  
    "name": "Carlos González",  
    "age": 25,  
    "city": "Alicante",  
    "cars": [  
        {  
            "model": "Renault",  
            "year": 2022,  
            "value": 20000  
        },  
        {  
            "model": "Chevrolet"  
            "year": 2009  
            "value": 10000  
        }  
    ]  
}
```

---

# Es una base de datos distribuida

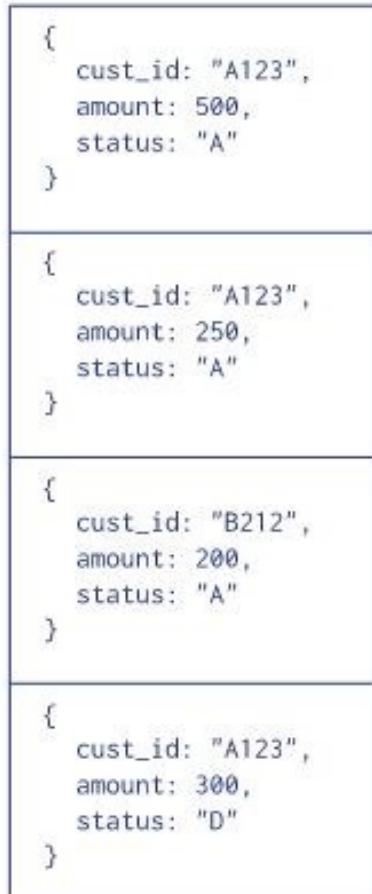


# Es schema less

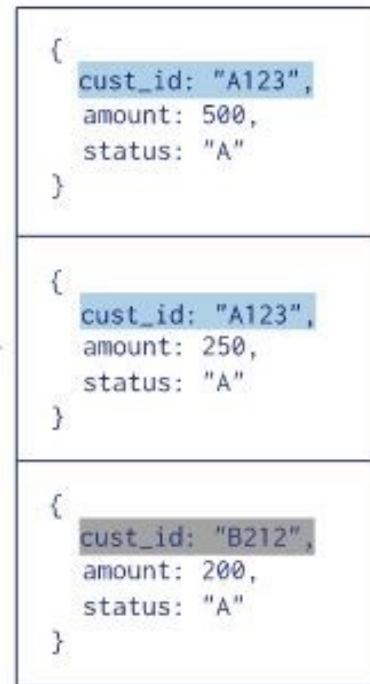
```
{  
    "name": "Carlos González",  
    "age" :25,  
    "city": "Alicante",  
    "cars": [  
        {  
            "model": "Renault",  
            "year" : 2022,  
            "value": 20000  
        },  
        {  
            "model": "Chevrolet"  
            "year": 2009  
            "value": 10000  
        }  
    ]  
}
```

# Queries, índices y agregaciones

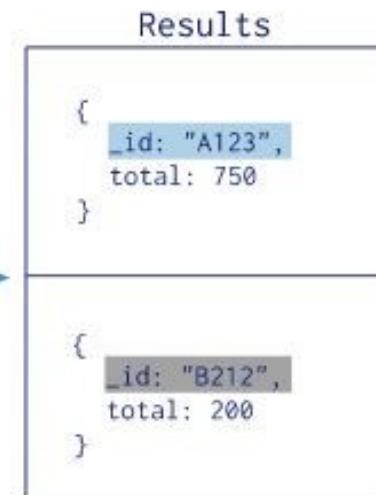
```
Collection  
↓  
db.orders.aggregate( [  
    $match stage → { $match: { status: "A" } },  
    $group stage → { $group: { _id: "$cust_id", total: { $sum: "$amount" } } }  
] )
```



\$match



\$group



---

# Es gratis y de código abierto



MongoDB

---

# Ecosistema de MongoDB

# *MongoDB*

MongoDB Server

MongoDB Mobile

Stitch

Community

Enterprise

Atlas (Cloud)

MongoDB Shell

MongoDB Compass

Conectores

MongoDB Charts

MongoDB

---

# MongoDB Atlas

---

# MongoDB como servicio



---

# MongoDB Atlas

- Aprovisionamiento automático de clusters con MongoDB
- Alta disponibilidad
- Altamente escalable
- Seguro
- Disponible en AWS, GCP y Azure
- Fácil monitoreo y optimización

---

# Creación de cuenta en MongoDB Atlas

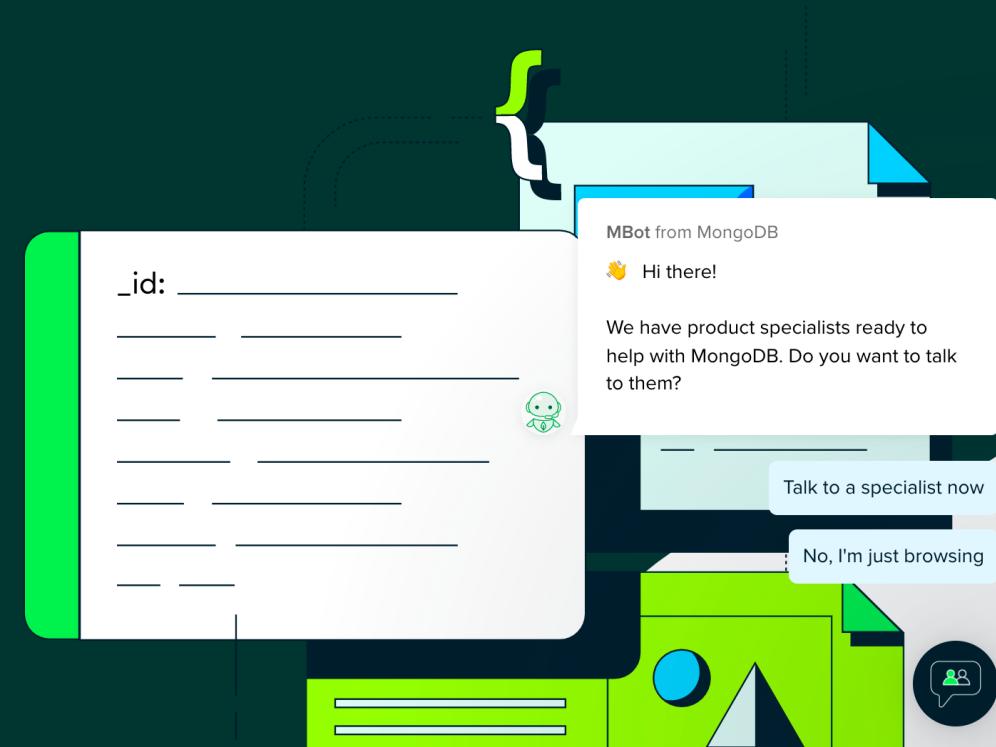
---

NEW

Introducing native support for time series data – [Learn more >](#)

# Build faster. Build smarter.

Get your ideas to market faster with an application data platform built on the leading modern database. Support transactional, search, analytics, and mobile use cases while using a common query interface and the data model developers love.



[www.mongodb.com/productos](http://www.mongodb.com/productos)

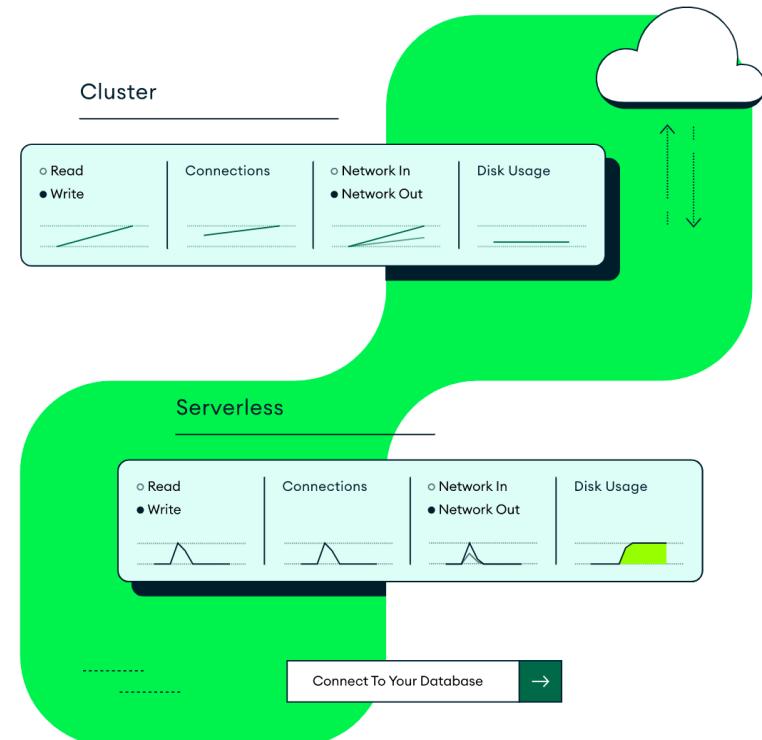
Seleccionar ATLAS (primera columna):  
<https://www.mongodb.com/atlas>

MONGODB ATLAS

# MongoDB Atlas.

## The multi-cloud application data platform.

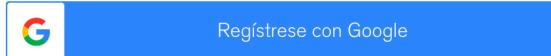
An integrated suite of cloud database and data services to accelerate and simplify how you build with data.

[Try Free](#)[Contact sales →](#)



## Empiece gratis

No se necesita tarjeta de crédito



— o —

8 caracteres como mínimo

Acepto las [condiciones del servicio](#) y la [política de privacidad](#).

Please acknowledge the following terms and conditions to finish creating your account.

I accept the [Privacy Policy](#) and the [Terms of Service](#)

[Cancel Signup](#)

[Submit](#)

[Empiece gratis](#)

Ya dispone de una cuenta? [Inicie sesión](#)

Hacer el registro, manual o social login y aceptar la política de privacidad



## Welcome!

Use your account to deploy a **cloud database**  
with [MongoDB Atlas](#) and contact [Support](#).



# Welcome to Atlas! 🌱

Tell us a few things about yourself and your project.



## What is your goal today?

Your answer will help us guide you to successfully getting started with MongoDB Atlas.

- Build a new application
- Learn MongoDB
- Explore what I can build
- Migrate an existing application

MBot from MongoDB

👋 Hi there!

Is there anything I can help you with?



## What type of application are you building?

Choose a subscription    Something else

No, I'm just browsing

Other

Tell us what you're building

bbdd about library



## What is your preferred language?

We'll use this to customize code samples and content we share with you. You can always change this later.

MBot from MongoDB

👋 Hi there!

Is there anything I can help you with?



Python

Choose a subscription    Something else

No, I'm just browsing

# Completar formulario

Finish





MONGODB ATLAS

## Deploy a cloud database

Experience the best of MongoDB on AWS, Azure, and Google Cloud. Choose a deployment option to get started.

**PREVIEW**

**Serverless**

For serverless applications that aren't critical with variable traffic. Minimal configuration required.

- ✓ Pay only for the operations you run
- ✓ Resources scale seamlessly to meet your workload
- ✓ Always-on security and backups

**Create**

Starting at  
**\$0.30/1M reads**

[I'll do this later](#)

**ADVANCED**

**Dedicated**

For production applications with sophisticated workload requirements. Advanced configuration controls.

- ✓ Network isolation and fine-grained access controls
- ✓ On-demand performance advice
- ✓ Multi-region and multi-cloud options available

**Create**

Starting at  
**\$0.08/hr\***  
\*estimated cost \$56.94/month

[Advanced Configuration Options](#)

**FREE**

**Shared**

For learning and exploring MongoDB in a cloud environment. Basic configuration options.

- ✓ No credit card required to start
- ✓ Explore with sample datasets
- ✓ Upgrade to dedicated clusters for full functionality

**Create**

Starting at  
**FREE**

MBot from MongoDB  
👋 Hey there!  
Is there anything I can help you with?  
Choose a subscription Something else  
No, I'm just browsing

Seleccionamos el plan gratuito

## Create a Shared Cluster

Welcome to MongoDB Atlas! We've recommended some of our most popular options, but feel free to customize your cluster to your needs. For more information, check our [documentation](#).

PREVIEW Serverless

Dedicated

FREE Shared

For learning and exploring MongoDB in a sandbox environment. Basic configuration controls.

No credit card required to start. Upgrade to dedicated clusters for full functionality.

Explore with sample datasets. Limit of one free cluster per project.

### Cloud Provider & Region



Google Cloud



AWS, Paris (eu-west-3)



MBot from MongoDB

👋 Hi there!

Is there anything I can help you with?

Choose a subscription

Something else

No, I'm just browsing

★ Recommended region ⓘ ⚡ Paid tier region ⓘ

FREE

Free forever! Your M0 cluster is ideal for experimenting in a limited sandbox. You can upgrade to a production cluster anytime.

Back

Create Cluster





julián ▾

CLUSTERS &gt; CREATE A SHARED CLUSTER

## Create a Shared Cluster

Welcome to MongoDB Atlas! We've recommended some of our most popular options, but feel free to customize your cluster to your needs. For more information, check our [documentation](#).

PREVIEW Serverless

Dedicated

FREE Shared

For learning and exploring MongoDB in a sandbox environment. Basic configuration controls.

No credit card required to start. Upgrade to dedicated clusters for full functionality.  
Explore with sample datasets. Limit of one free cluster per project.

### Cloud Provider & Region



AWS, Paris (eu-west-3)

★ Recommended region ⓘ ⚡ Paid tier region ⓘ

#### NORTH AMERICA

🇺🇸 N. Virginia (us-east-1) ★

🇺🇸 Oregon (us-west-2) ★

🇺🇸 Ohio (us-east-2) ⓘ

🇺🇸 N. California (us-west-1) ⓘ

🇨🇦 Montreal (ca-central-1) ⓘ

#### SOUTH AMERICA

🇧🇷 São Paulo (sa-east-1)

#### EUROPE

🇮🇪 Ireland (eu-west-1) ★

🇸🇪 Stockholm (eu-north-1) ★

🇫🇷 Paris (eu-west-3) ★

🇩🇪 Frankfurt (eu-central-1) ★

🇬🇧 London (eu-west-2) ⓘ

🇮🇹 Milan (eu-south-1) ⓘ

#### MIDDLE EAST

🇧🇭 Bahrain (me-south-1) ★

#### AFRICA

🇿🇦 Cape Town (af-south-1) ★

AWS

Paris

(eu-west-3)

MBot from MongoDB

👋 Hi there!

Is there anything I can help you with?

Choose a subscription

Something else

No, I'm just browsing



MBot from MongoDB

👋 Hi there!

Is there anything I can help you with?

Choose a subscription

Something else

No, I'm just browsing



### Cluster Tier

M0 Sandbox (Shared RAM, 512 MB Storage)

Encrypted

### Additional Settings

MongoDB 4.4, No Backup

### Cluster Name

Cluster0

MBot from MongoDB

👋 Hi there!

Is there anything I can help you with?

Choose a subscription

Something else

No, I'm just browsing



FREE

Free forever! Your M0 cluster is ideal for experimenting in a limited sandbox. You can upgrade to a production cluster anytime.

Back

Create Cluster

**Cluster Tier****M0 Sandbox (Shared RAM, 512 MB Storage)**

Encrypted

Base hourly rate is for a MongoDB replica set with **3 data bearing servers**.**Shared Clusters for development environments and low-traffic applications**

Tier	RAM	Storage	vCPU	Base Price
<b>M0 Sandbox</b>	Shared	512 MB	Shared	<b>Free forever</b>
M0 clusters are best for getting started, and are not suitable for production environments.				
500 max connections	Low network performance	100 max databases	500 max collections	
<b>M2</b>	Shared	2 GB	Shared	<b>\$9 / MONTH</b>
<b>M5</b>	Shared	5 GB	Shared	<b>\$25 / MONTH</b>

**Additional Settings**

MongoDB 4.4, No Backup

**Cluster Name**

Cluster0

**FREE**

Free forever! Your M0 cluster is ideal for experimenting in a limited sandbox. You can upgrade to a production cluster anytime.

[Back](#)[Create Cluster](#)

M2	Shared	2 GB	Shared	\$9 / MONTH
M5	Shared	5 GB	Shared	\$25 / MONTH

**Additional Settings** MongoDB 4.4, No Backup ▾

Turn on Backup (M2 and up)

See Backup Solutions for Paid Clusters (M2+)

**Cluster Name** MimongoDB ▾

NOMBRE DEL PROYECTO

MimongoDB

One time only: once your cluster is created, you won't be able to change its name.

Cluster names can only contain ASCII letters, numbers, and hyphens.



**FREE** Free forever! Your M0 cluster is ideal for experimenting in a limited sandbox. You can upgrade to a production cluster anytime.

[Back](#) [Create Cluster](#)



Ponemos el nombre de nuestro proyecto



## DEPLOYMENT

Databases

Data Lake

## DATA SERVICES

Triggers

Data API PREVIEW

## SECURITY

## Quickstart

Database Access

Network Access

Advanced

JULIÁN'S ORG - 2022-01-21 &gt; PROJECT 0

## Security Quickstart

To access data stored in Atlas, you'll need to create users and set up network security controls. [Learn more about security setup](#)

### 1 How would you like to authenticate your connection?

Your first user will have permission to read and write any data in your project.

Username and Password

Certificate

Create a database user using a username and password. Users will be given the *read and write to any database privilege* by default. You can update these permissions and/or create additional users later. Ensure these credentials are different to your MongoDB Cloud username and password.

Username

Password

 Enter username Enter passwordCreate User

M0 Cluster Provisioning...

This process will take 3-5 minutes.



to connect?

Enable access for any network(s) that need to read and write data to your cluster.

ADVANCED



julián's Org - 2022-0...



Access Manager

Billing

All Clusters

Get Help

julián

Project 0

Atlas

Realm

Charts



## DEPLOYMENT

Databases

Data Lake

## DATA SERVICES

Triggers

Data API PREVIEW

## SECURITY

## Quickstart

Database Access

Network Access

Advanced

Username and Password

Certificate

Create a database user using a username and password. Users will be given the *read and write to any database privilege* by default. You can update these permissions and/or create additional users later. Ensure these credentials are different to your MongoDB Cloud username and password. You can manage existing users via the [Database Access Page](#).

Username

Password

Enter username

Enter password

Create User

Username

Authentication Type

jules1972

Password

EDIT

## 2 Where would you like to connect from?



M0 Cluster Provisioning...

This process will take 3-5 minutes.

(s) that need to read and write data to your cluster.

ADVANCED



My Local Environment

Use this to add network IP addresses to the IP Access List. This can be modified at any time.



Cloud Environment

Use this to configure network access between Atlas and your cloud or on-premises.





Project 0

Atlas

Realm

Charts



## DEPLOYMENT

Databases

Data Lake

## DATA SERVICES

Triggers

Data API

## SECURITY

### Quickstart

Database Access

Network Access

Advanced

## 2 Where would you like to connect from?

Enable access for any network(s) that need to read and write data to your cluster.

**My Local Environment**  
Use this to add network IP addresses to the IP Access List. This can be modified at any time.

**Cloud Environment**  
ADVANCED  
Use this to configure network access between Atlas and your cloud or on-premise environment. Specifically, set up IP Access Lists, Network Peering, and Private Endpoints.

### Add entries to your IP Access List

Only an IP address you add to your Access List will be able to connect to your project's clusters.

IP Address	Description	
<input type="text" value="Enter IP Address"/>	<input type="text" value="Enter description"/>	<input type="button" value="Add Entry"/>
		<input type="button" value="Add My Current IP Address"/>



M0 Cluster Provisioning...

This process will take 3-5 minutes.



System Status: All Good





julián's Org - 2022-0...



Access Manager

Billing

All Clusters

Get Help

julián

Project 0



Atlas

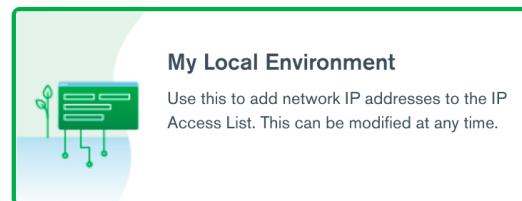
Realm

Charts



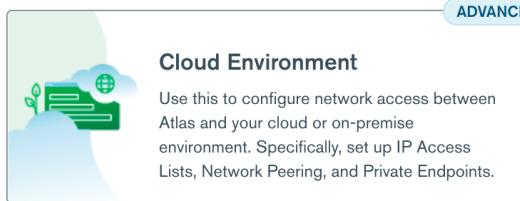
## 2 Where would you like to connect from?

Enable access for any network(s) that need to read and write data to your cluster.



## My Local Environment

Use this to add network IP addresses to the IP Access List. This can be modified at any time.



ADVANCED

## Cloud Environment

Use this to configure network access between Atlas and your cloud or on-premise environment. Specifically, set up IP Access Lists, Network Peering, and Private Endpoints.

## Add entries to your IP Access List

Only an IP address you add to your Access List will be able to connect to your project's clusters.

## IP Address

## Description

Add EntryAdd My Current IP Address

Finish and Close



M0 Cluster Provisioning...

This process will take 3-5 minutes.



Demora unos minutos antes de poder pinchar el 'FINISH AND CLOSE'



<https://www.mongodb.com/try/download/community>

Instalamos la consola en local

MongoDB

---

# MongoDB + Drivers

---

# ¿Qué son los drivers?

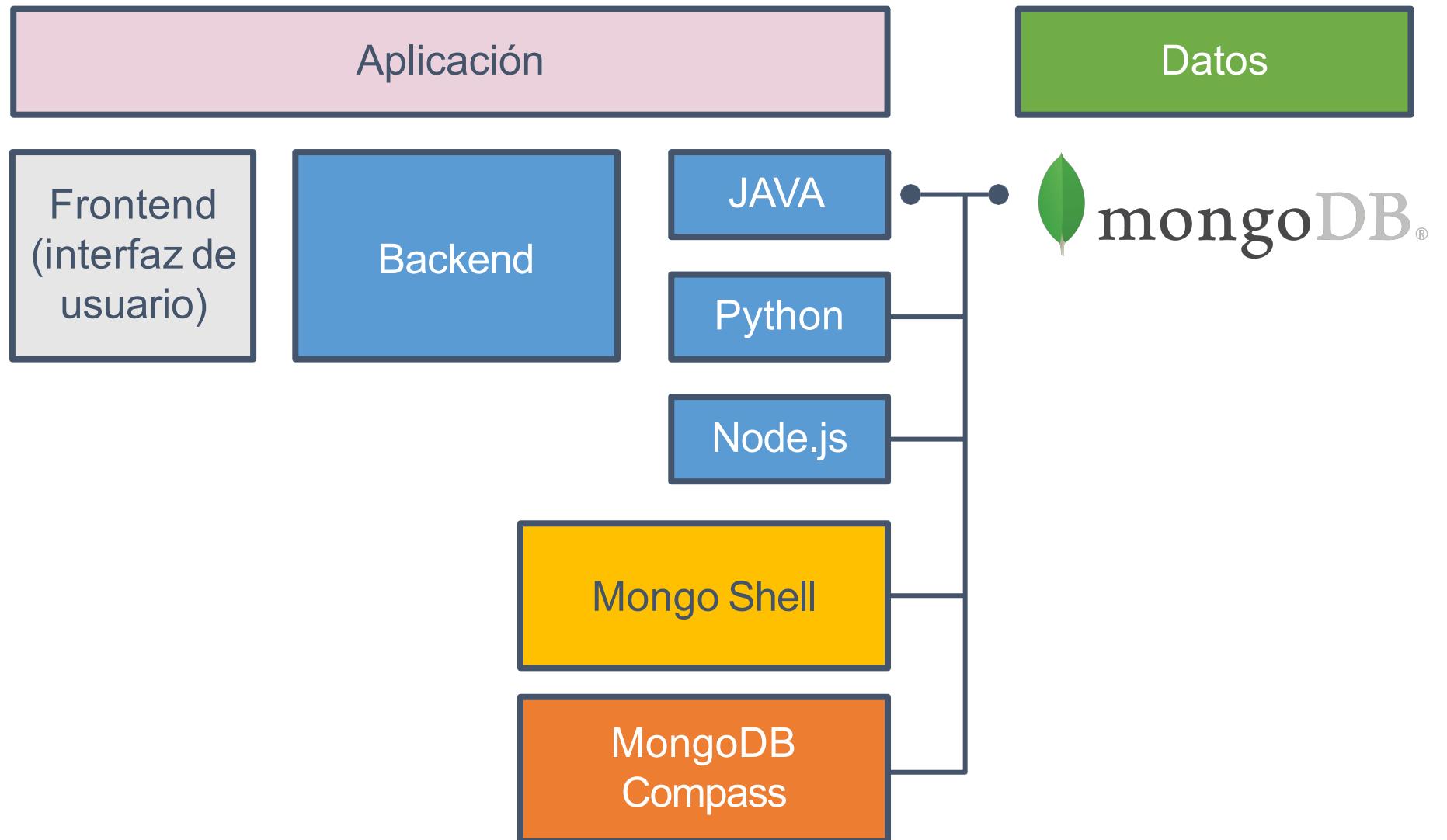
---

---

# Drivers oficiales

C	PHP
C++	Python
C#	Motor (Python Async)
Go (beta)	Ruby
Java	Mongoid(Ruby ODM)
Node.js	Scala
Perl	

# Arquitectura



# Agregar el driver a los proyectos



The screenshot shows the MongoDB Java Driver download page. At the top, there are four buttons: 'DOWNLOAD' (dark background), 'mongodb-driver-sync' (dropdown menu), '3.10.1' (dropdown menu), and 'Gradle' (green background). Below these is a code editor containing the following Gradle dependency code:

```
dependencies {  
    compile 'org.mongodb:mongodb-driver-sync:3.10.1'  
}
```

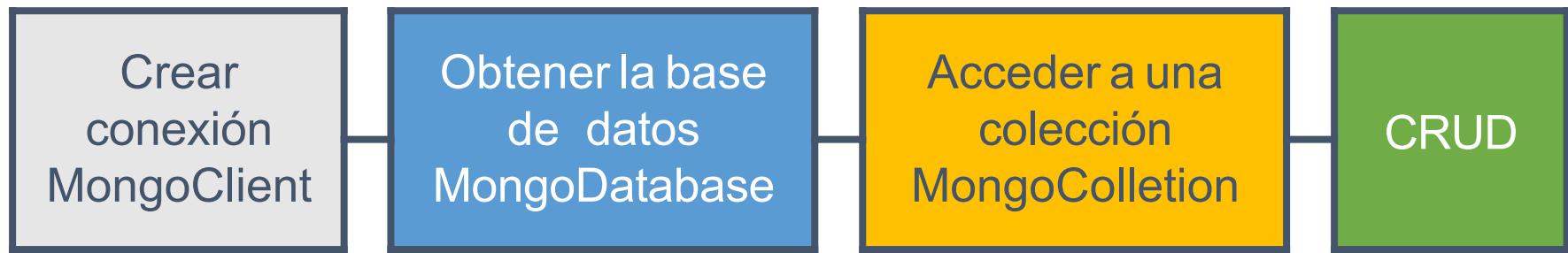
To the right of the code editor is a dark button with a white file icon.

```
python -m pip install pymongo
```

```
npm install mongodb --save
```

---

# Inicio rápido transversal a la mayoría de lenguajes



MongoDB

---

# Bases de datos, colecciones y documentos

# Base de datos

- Contenedor físico de colecciones
- Cada base de datos tiene su archivo propio en el sistema de archivos
- Un cluster puede tener múltiples bases de datos

# Colecciones

- Agrupación de documentos
- Equivalente a una tabla en las bases de datos relacionales
- No impone un esquema

# Documentos

- Un registro dentro de una colección
- Es análogo a un objeto JSON (BSON)
- La unidad básica dentro de MongoDB

# database

*collection*

*collection*

*collection*

```
{           {  
  .Docs     .Docs  
  .  
  .  
  }         }  
  
{           {  
  .Docs     .Docs  
  .  
  .  
  }         }
```

```
{           {  
  .Docs     .Docs  
  .  
  .  
  }         }  
  
{           {  
  .Docs     .Docs  
  .  
  .  
  }         }
```

```
{           {  
  .Docs     .Docs  
  .  
  .  
  }         }  
  
{           {  
  .Docs     .Docs  
  .  
  .  
  }         }
```

# MongoDB Drivers

JSON

```
{  
  "name": "Somename",  
  "age": 30,  
  "nickName": "nickname"  
}
```

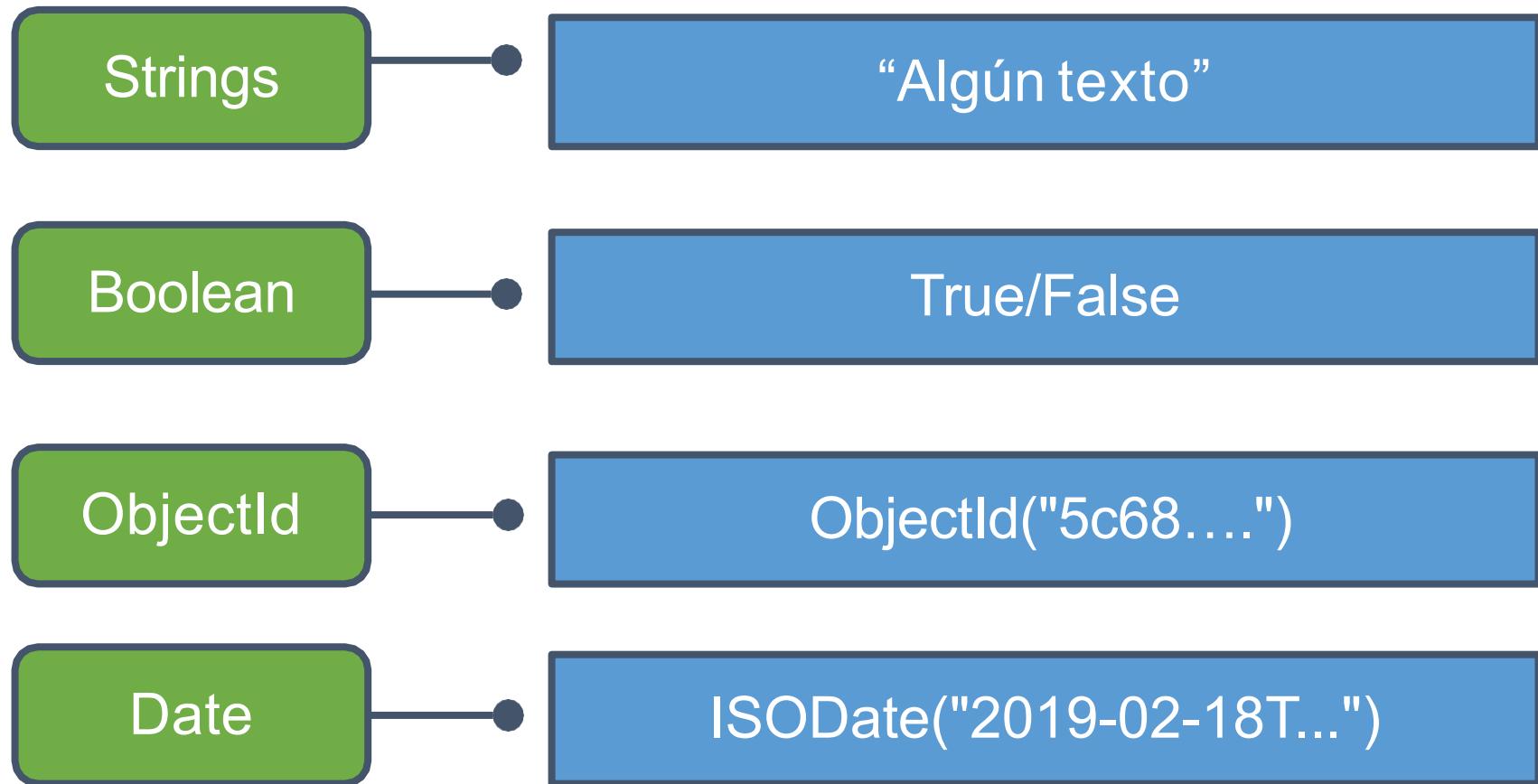
BSON

Codificación  
binaria de  
documentos JSON

MongoDB

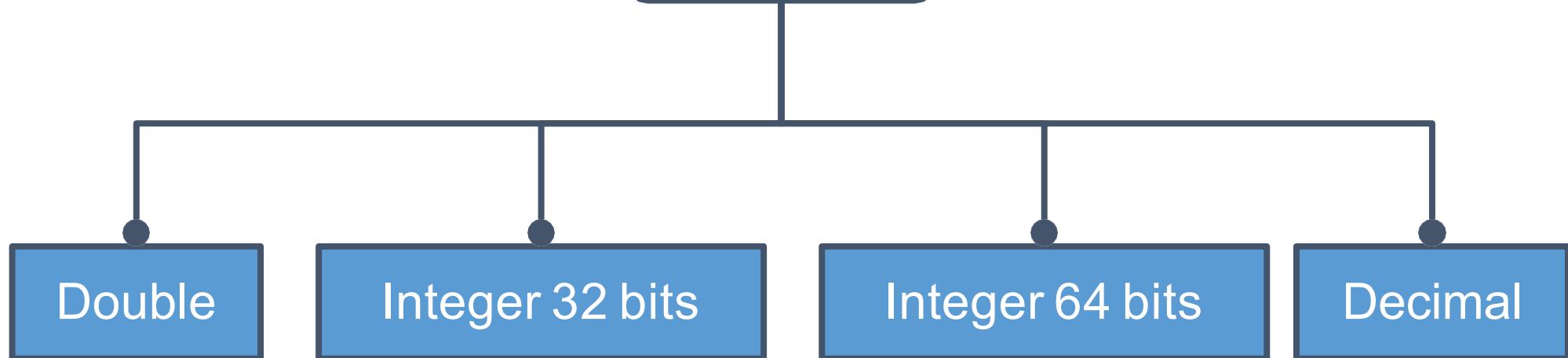
---

# Tipos de datos en MongoDB





*Number*



# Documentos embebidos

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



Embedded sub-document

Embedded sub-document

# Arreglos con documentos embebidos

```
{  
    "_id": ObjectId(<ObjectId1>).  
    "userName": "123user",  
    "age": 35,  
    "devices": [  
        {  
            "type": "computer",  
            "value": 1200,  
            "model": 2015  
        },  
        {  
            "type": "phone",  
            "value": 600,  
            "model": 2017  
        }  
    ]  
}
```

MongoDB

---

¿Qué son los  
esquemas y  
las  
relaciones?

MongoDB no impone un esquema dentro de las colecciones

```
{  
    "_id": ObjectId(<ObjectId1>).  
    "userName": "123user",  
    "age": 35,  
},  
{  
    "_id": ObjectId(<ObjectId2>).  
    "name": "Name",  
    "lastName": "Last Name",  
    "city": "Madrid"  
}
```

# MongoDB

# Mundo SQL

```
{  
    "_id": ObjectId(<ObjectId1>),  
    "userName": "123username",  
    "age": 30,  
},  
{  
    "_id": ObjectId(<ObjectId2>).  
    "name": "User Name",  
    "lastName": "Last Name",  
    "city": "Madrid"  
}
```

# MongoDB

# Mundo SQL

```
{  
    "_id": ObjectId(<ObjectId1>).  
    "userName": "123username",  
    "age": 30  
},  
{  
    "_id": ObjectId(<ObjectId2>).  
    "userName": "456username",  
    "age": 36  
    "city": "Madrid"  
}
```

# MongoDB

# Mundo SQL

```
{  
    "_id": ObjectId(<ObjectId1>)  
    "userName": "123username",  
    "age": 30,  
    "city": null  
},  
{  
    "_id": ObjectId(<ObjectId2>)  
    "userName": "456username",  
    "age": 36,  
    "city": "Madrid"  
}
```

---

# ¿Qué son las relaciones?

---

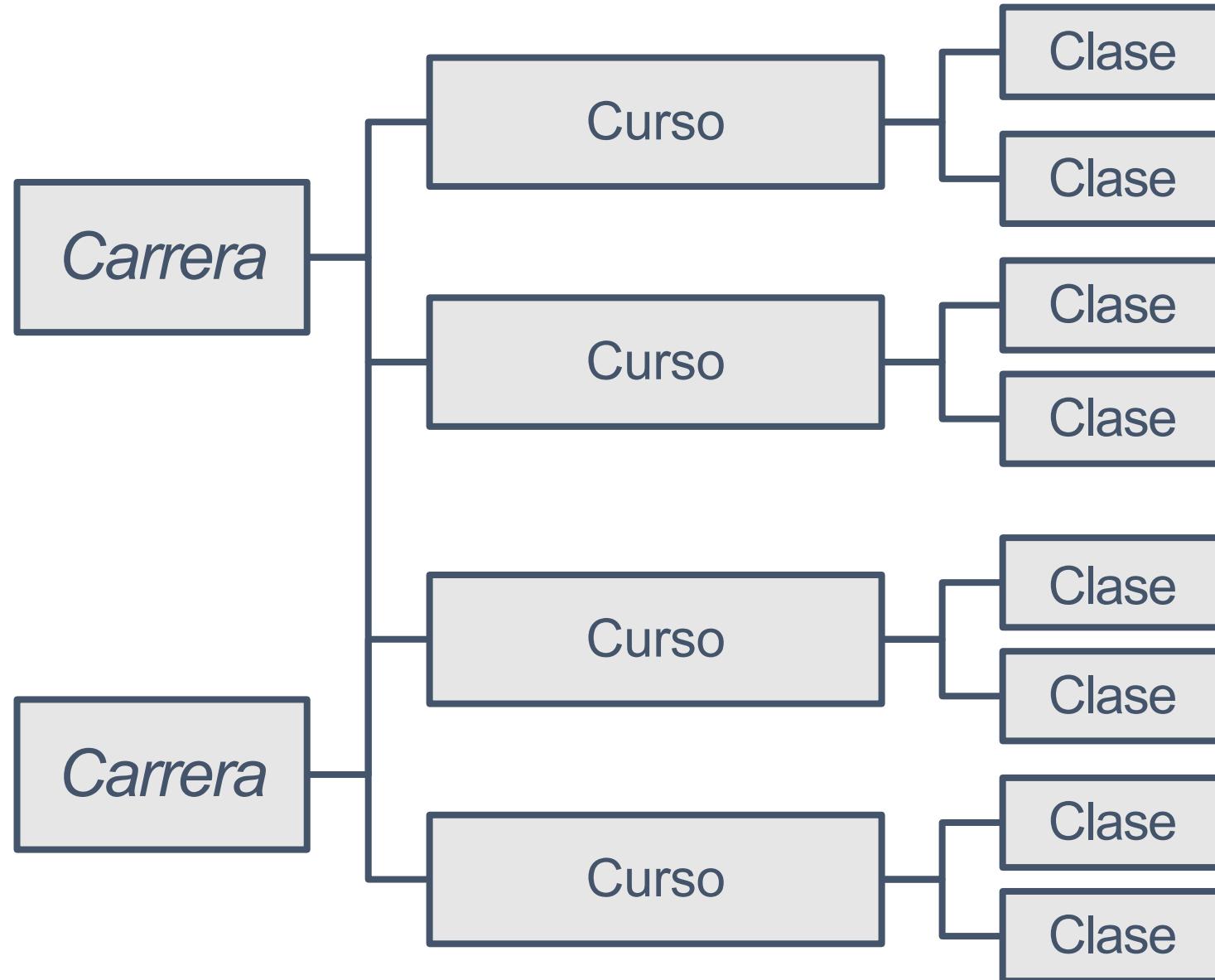
---

# ¿Por qué hablamos de relaciones dentro de MongoDB?

---

---

## Relaciones dentro del proyecto Mimongo



MongoDB

---

# Relaciones entre documentos

# Relaciones uno a uno usando referencias

```
{  
  _id: "joe",  
  name: "Joe Bookreader"  
}  
  
{  
  patron_id: "joe",  
  street: "123 Fake Street",  
  city: "Faketown",  
  state: "MA",  
  zip: "12345"  
}
```

# Relaciones uno a uno usando documentos embebidos

```
{  
  _id: "joe",  
  name: "Joe Bookreader",  
  address: {  
    street: "123 Fake Street",  
    city: "Faketown",  
    state: "MA",  
    zip: "12345"  
  }  
}
```

---

# Relaciones uno a muchos

---

# Relaciones uno a muchos usando documentos embebidos

```
{  
  _id: "joe",  
  name: "Joe Bookreader"  
}  
  
{  
  patron_id: "joe",  
  street: "Street 1",  
  city: "Faketon",  
  state: "MA",  
  zip: "12345"  
}  
  
{  
  patron_id: "joe",  
  street: "Street 2",  
  city: "Boston",  
  state: "MA",  
  zip: "12345"  
}  
  
{  
  _id: "joe",  
  name: "Joe Bookreader",  
  addresses: [  
    {  
      street: "Street 1",  
      city: "Faketon",  
      state: "MA",  
      zip: "12345"  
    },  
    {  
      street: "Street 2",  
      city: "Boston",  
      state: "MA",  
      zip: "12345"  
    }  
  ]  
}
```

```
{  
    title: "MongoDB:The Definitive Guide",  
    author:[ "Kristina Chodorow", "Mike Dirolf" ],  
    published_date: ISODate("2010-09-24"),  
    pages: 216,  
    language: "English",  
  
    publisher: {  
  
        name: "O'Reilly Media",  
  
        founded: 1980,  
  
        location: "CA"  
    }  
}
```

```
{  
  title: "50 Tips and Tricks for MongoDB Developer",  
  author: "KristinaChodorow",  
  published_date: ISODate("2011-05-06"),  
  pages: 68,  
  language: "English",  
  
  publisher: {  
  
    name: "O'Reilly Media",  
  
    founded: 1980,  
  
    location: "CA"  
  }  
}
```

---

# Relaciones uno a muchos usando referencias

---

```
{  
  _id: 234567890,  
  title: "50 Tips and Tricks for MongoDB Developer",  
  author:"KristinaChodorow",  
  published_date: ISODate("2011-05-06"),  
  pages: 68,  
  language: "English"  
}  
  
{  
  _id: 123456789,  
  title: "MongoDB:The Definitive Guide",  
  author:["Kristina Chodorow", "Mike Dirolf" ],  
  published_date: ISODate("2010-09-24"),  
  pages: 216,  
  language: "English"  
}
```

```
{  
  name: "O'Reilly Media",  
  founded: 1980,  
  location:"CA",  
  
  books: [123456789, 234567890, ...]  
}
```

```
{  
  _id: 234567890,  
  title: "50 Tips and Tricks for MongoDB Developer",  
  author:"KristinaChodorow",  
  published_date: ISODate("2011-05-06"),  
  pages: 68,  
  language: "English",  
  
  publisher_id: "oreilly"  
}  
{  
  _id: 123456789,  
  title: "MongoDB:The Definitive Guide",  
  author:[ "Kristina Chodorow", "Mike Dirolf" ],  
  published_date: ISODate("2010-09-24"),  
  pages: 216,  
  language: "English",  
  
  publisher_id: "oreilly"  
}
```

```
{  
  _id: "oreilly",  
  name: "O'Reilly Media",  
  founded: 1980,  
  location:"CA"  
}
```

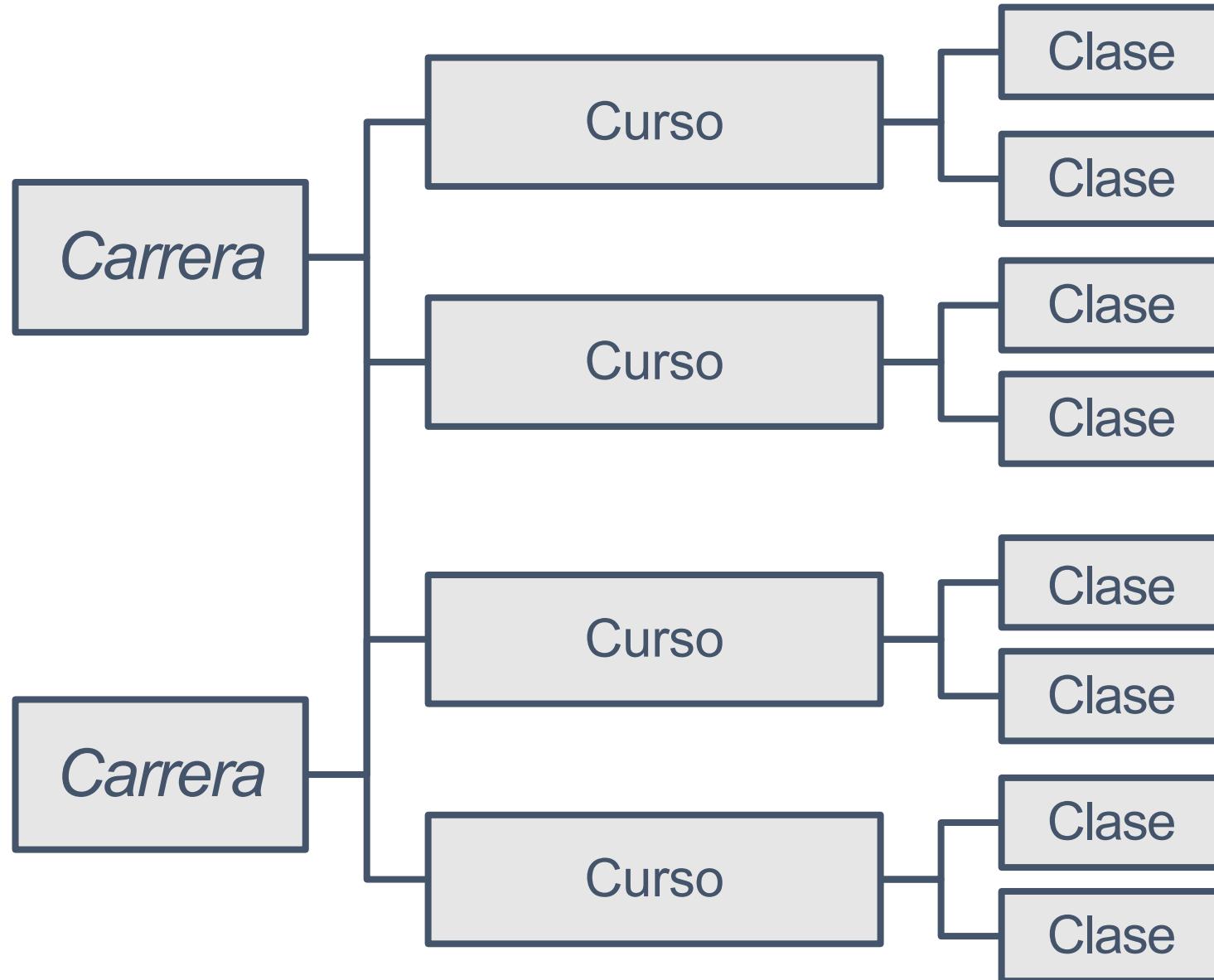
MongoDB

---

# Esquema de Mimongo

---

## Relaciones dentro del proyecto Mimongo



# Carreras

```
{  
    "_id" : ObjectId("5c76..."),  
    "nombre": "Especialidad AWS",  
    "descripcion" : "Desarrollar .....",  
    "cursos": [  
        {  
            "_id" : ObjectId("35f..."),  
            "nombre": "Fundamentos de AWS 2019"  
        }  
    ]  
}
```

# Cursos y clases

```
{  
    "_id" : ObjectId("052..."),  
    "nombre" : "Fundamentos de AWS2019",  
    "descripcion" : "Aprenderá a desplegar ...",  
    "clases" : [  
        {  
            "orden" : 1,  
            "nombre" : "Clase 1",  
            "descripcion": "Descripción de la ...",  
            "video" : "https://video.video",  
            "archivos": [  
                "https://url1.com",  
                "https://url2.com"  
            ]  
        }  
    ]  
}
```

MongoDB

---

# Operadores para realizar queries y proyecciones

# Filtros

```
db.inventory.find( { status: { $in: [ "A", "D" ] } } )
```

```
{ <field1>: { <operator1>: <value1> }, ... }
```

# Proyecciones

```
db.inventory.findOne({status: "A"})  
  
{  
  "_id" : ObjectId("5c6c603aefead611c2d37a96"),  
  "item" : "journal",  
  "status" : "A",  
  "size" : {  
    "h" : 14,  
    "w" : 21,  
    "uom" : "cm"  
  },  
  "instock" : [  
    {  
      "warehouse" : "A",  
      "qty" : 5  
    }  
  ]  
}
```

# Proyecciones

```
db.inventory.findOne({status: "A"}, {item: 1, status: 1})  
  
{  
  "_id" : ObjectId("5c6c603aefead611c2d37a96"),  
  "item" : "journal",  
  "status" : "A"  
}
```

# Operadores de comparación

<i>Nombre</i>	<i>Descripción</i>
\$eq	=
\$gt	>
\$gte	>=
\$lt	<
\$lte	<=
\$ne	!=
\$in	Valores dentro de un arreglo
\$nin	Valores que no están dentro de un arreglo

---

# Operadores lógicos

<i>Nombre</i>	<i>Descripción</i>
\$and	Une queries con un and lógico
\$not	Invierte el efecto de una query
\$nor	Une queries con un nor lógico
\$or	Une queries con un or lógico

---

# Operadores por elemento

<i>Nombre</i>	<i>Descripción</i>
\$exist	Documentos que cuentan con un campo específico
\$type	Documentos que cuentan con un campo de un tipo específico

---

# Operadores para arreglos

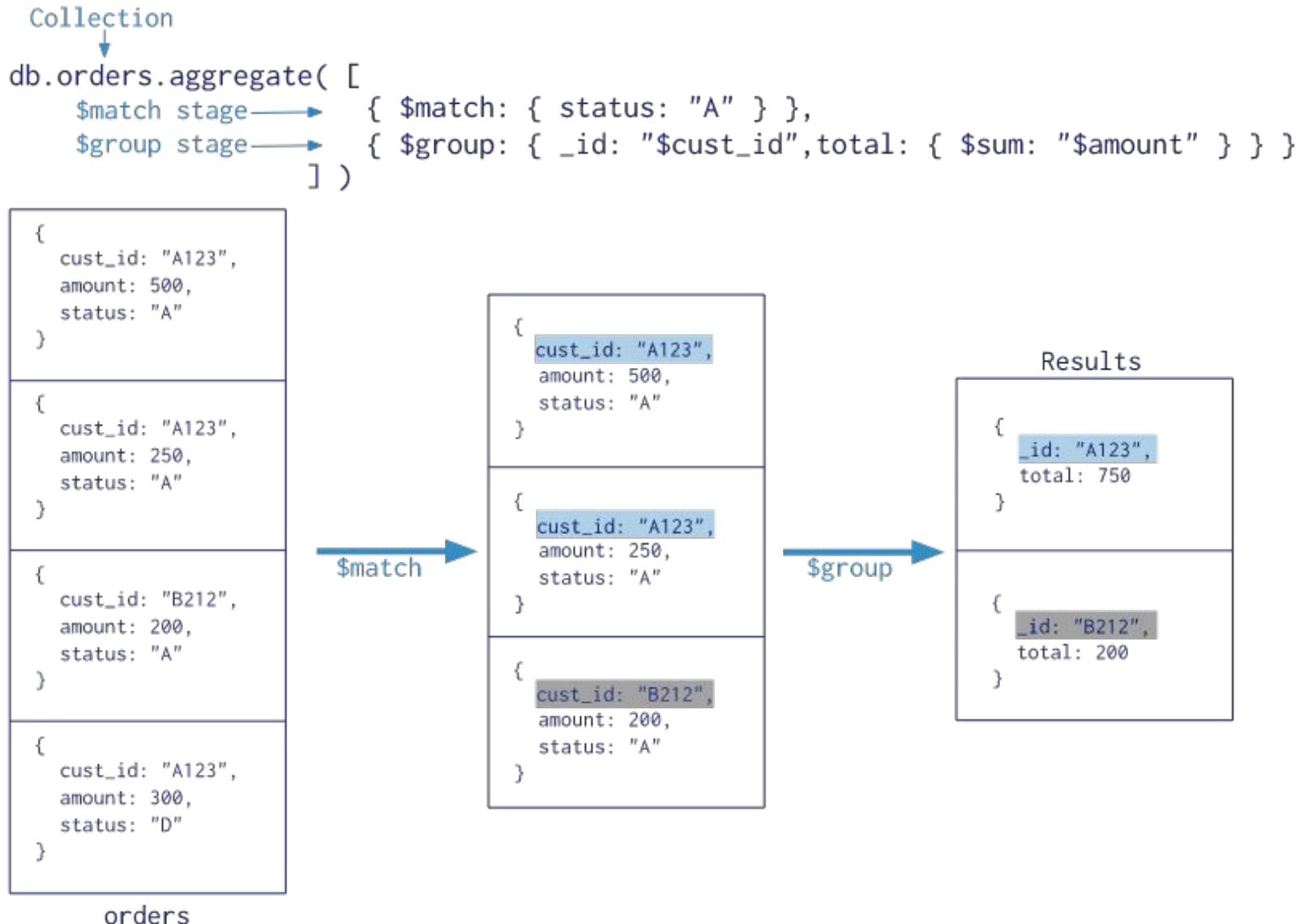
<i>Nombre</i>	<i>Descripción</i>
\$all	Arreglos que contengan todos los elementos de la query
\$elemMatch	Documentos que cumplen la condición del \$elemMatch en uno de sus elementos
\$size	Documentos que contienen un campo tipo arreglo de un tamaño específico

MongoDB

---

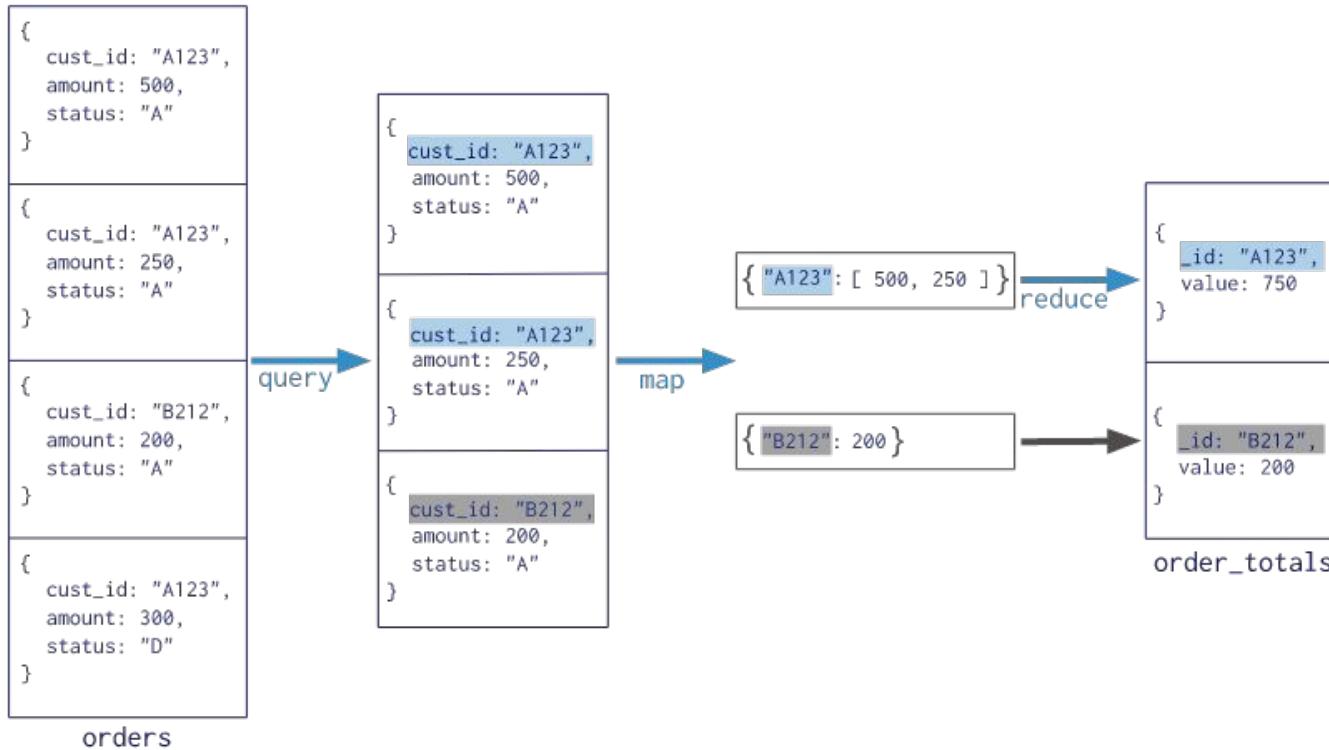
# Agregaciones

# Pipeline de agregaciones



# Map-Reduce

```
Collection  
↓  
db.orders.mapReduce(  
    map → function() { emit( this.cust_id, this.amount ); },  
    reduce → function(key, values) { return Array.sum( values ) },  
    query → { query: { status: "A" } },  
    output → { out: "order_totals" }  
)
```



# Agregaciones de único propósito

```
db.collection.estimatedDocumentCount()
```

```
db.collection.count()
```

```
db.collection.distinct()
```

Collection  
↓  
`db.orders.distinct( "cust_id" )`

{ cust_id: "A123", amount: 500, status: "A" }
{ cust_id: "A123", amount: 250, status: "A" }
{ cust_id: "B212", amount: 200, status: "A" }
{ cust_id: "A123", amount: 300, status: "D" }

orders

distinct [ "A123", "B212" ]

MongoDB

---

# Índices

---

# Definición

En MongoDB los índices ayudan a que las consultas sean más rápidas. Sin índices, MongoDB debe hacer un escaneo de toda la colección.

# **Tipos de índices**

- De un solo campo
- Compuestos
- Multi llave
- Geoespaciales
- De texto
- Hashed

MongoDB

---

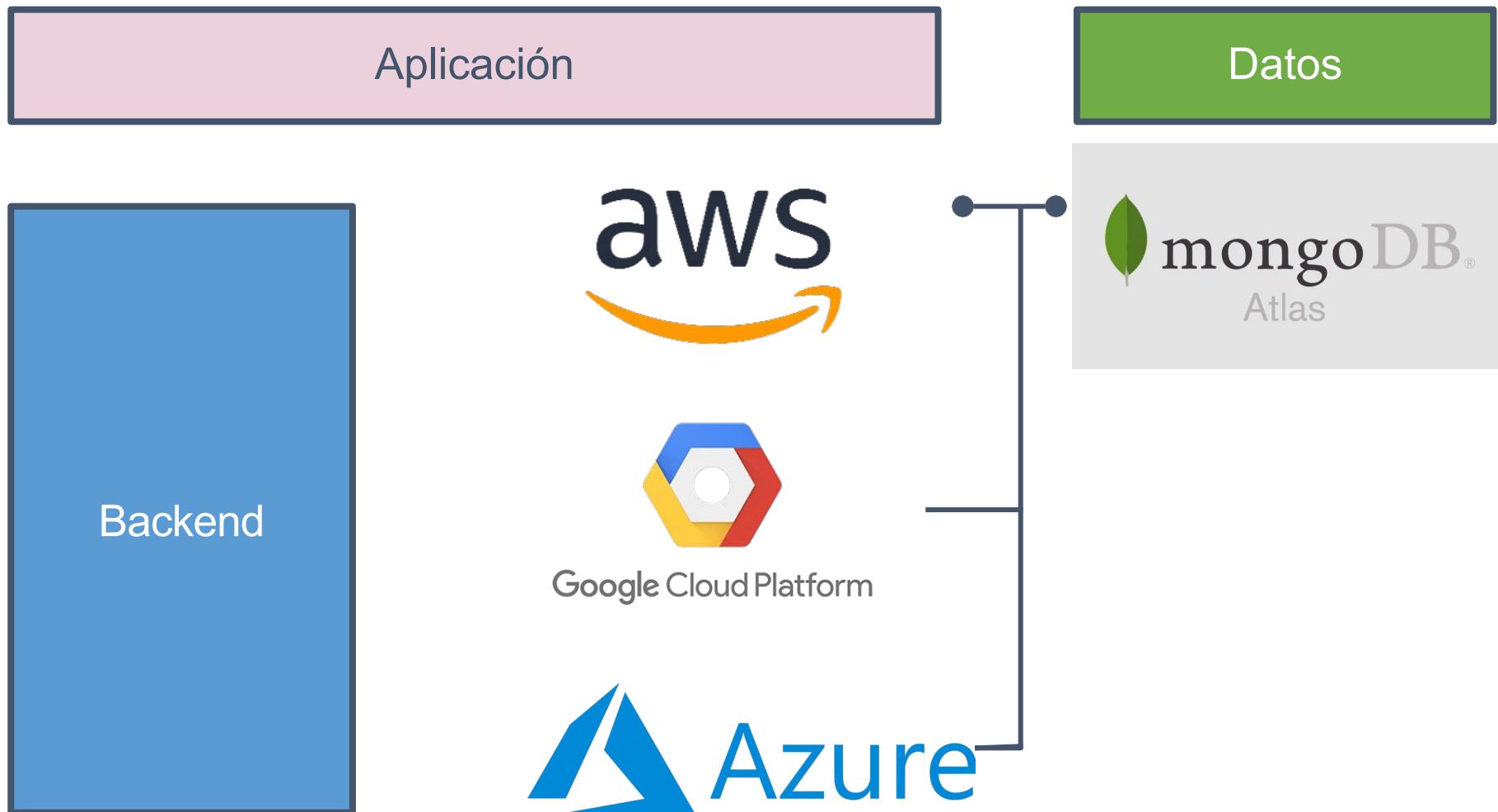
# Recomendaciones paso a producción

---

# Arquitectura recomendada

---

# Arquitectura



---

# Recomendaciones

---



Guardar las credenciales en variables de entorno o archivos de configuración fuera del proyecto.

Asegura que tu cluster se encuentre en la misma región del proveedor que tu aplicación.

Haz VPC peering entre la VPC de tu aplicación y la VPC de tu cluster.

- Cuida tu lista de IP's blancas
- Habilitar autenticación de dos pasos
- Actualiza constantemente tu versión de MongoDB



Ten separados tus ambientes de dev/test/prod



Habilita la opción de storage encriptado



Primeros Take aways



A por el resto !!!

- MONGO DB ES UNA BBDD DISTRIBUIDA
- El **URI** (Uniform Resource Identifier, “Identificador uniforme **de** recursos”) identifica un recurso por su nombre, por su ubicación o por ambos. En este último caso, el **URI** indica que un recurso identificado y dónde está disponible.  
Comprende el URL y el URN. NO DEBE ESTAR EN NUESTRO REPOSITORIO PÚBLICO
- ES BUENO ENcriptar DATOS GUARDADOS EN NUESTRA BBDD/CLUSTER
- LA FUNCIÓN PRETTY MUESTRA EL RESULTADO DE UNA QUERY EN CONSOLA DE MANERA MÁS AMIGABLE
- EN MONGODB SE PUEDEN GUARDAR ARREGLOS DE DOCUMENTOS Y ES UNA FORMA DE EXPRESAR RELACIONES DE UNO A MUCHOS.
- SU LECTURA NO ES TAN COMPLICADA DE ENTENDER, POR EJEMPLO SI EJECUTO db.collection.find({}) nos retornará todos los documentos de la colección ‘collection’
- O POR EJEMPLO si en MongoDB, si quiero insertar muchos documentos en la bbdd, lo podríamos hacer con ‘insert many’
- Recuerda que MongoDB es Schema Less (sin esquema) y que en un cluster de MongoDB puede haber muchas bases de datos.

- EN UN CLUSTER DE MONGODB PUEDE HABER MUCHAS BASES DE DATOS
- LOS DOCUMENTOS ALMACENADOS EN MONGODB NO ES NECESARIO QUE TENGAN UNA MISMA ESTRUCTURA, DE HECHO ESTA ES UNA DE SUS PRINCIPALES VENTAJAS QUE HACE QUE MONGODB SEA MÁS ESCALABLE Y FLEXIBLE