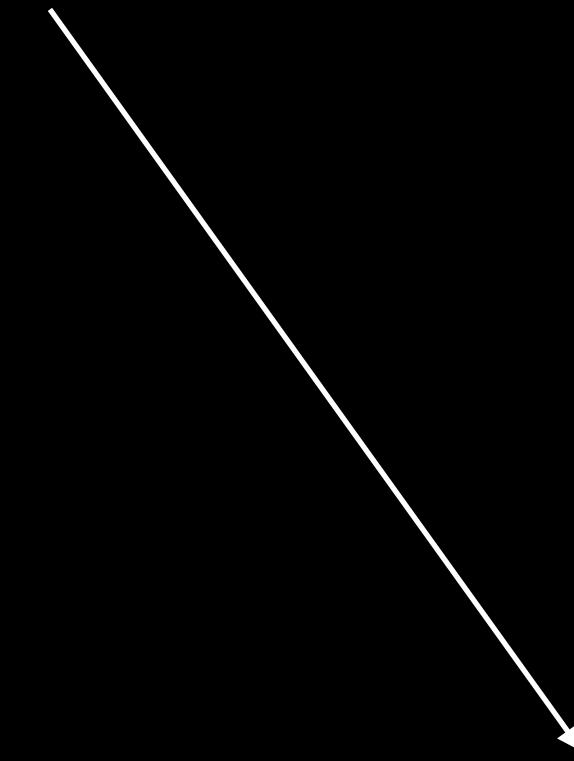


# MongoDB deep dive

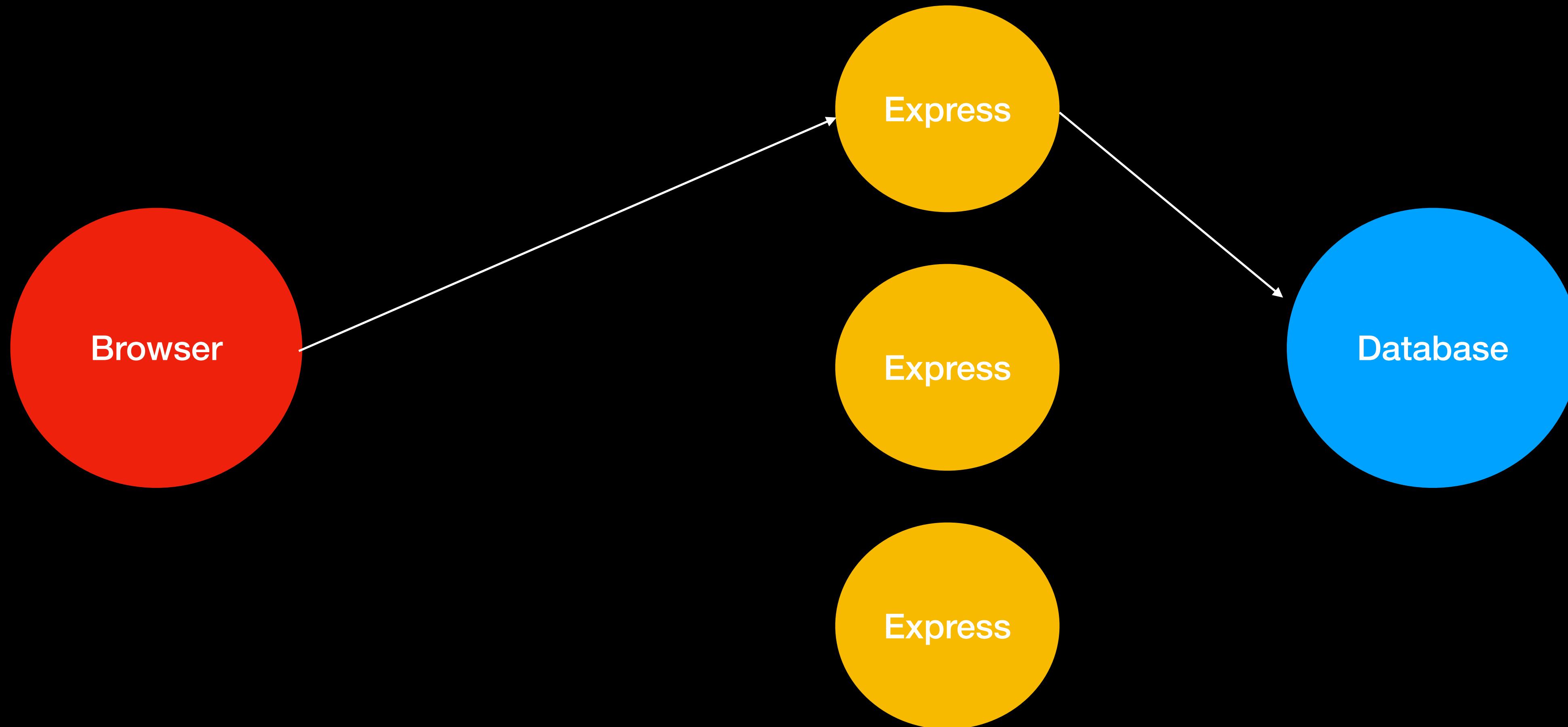
Understanding CRUD, mongoose and building an end to end  
authenticated app

# Supreme Court example



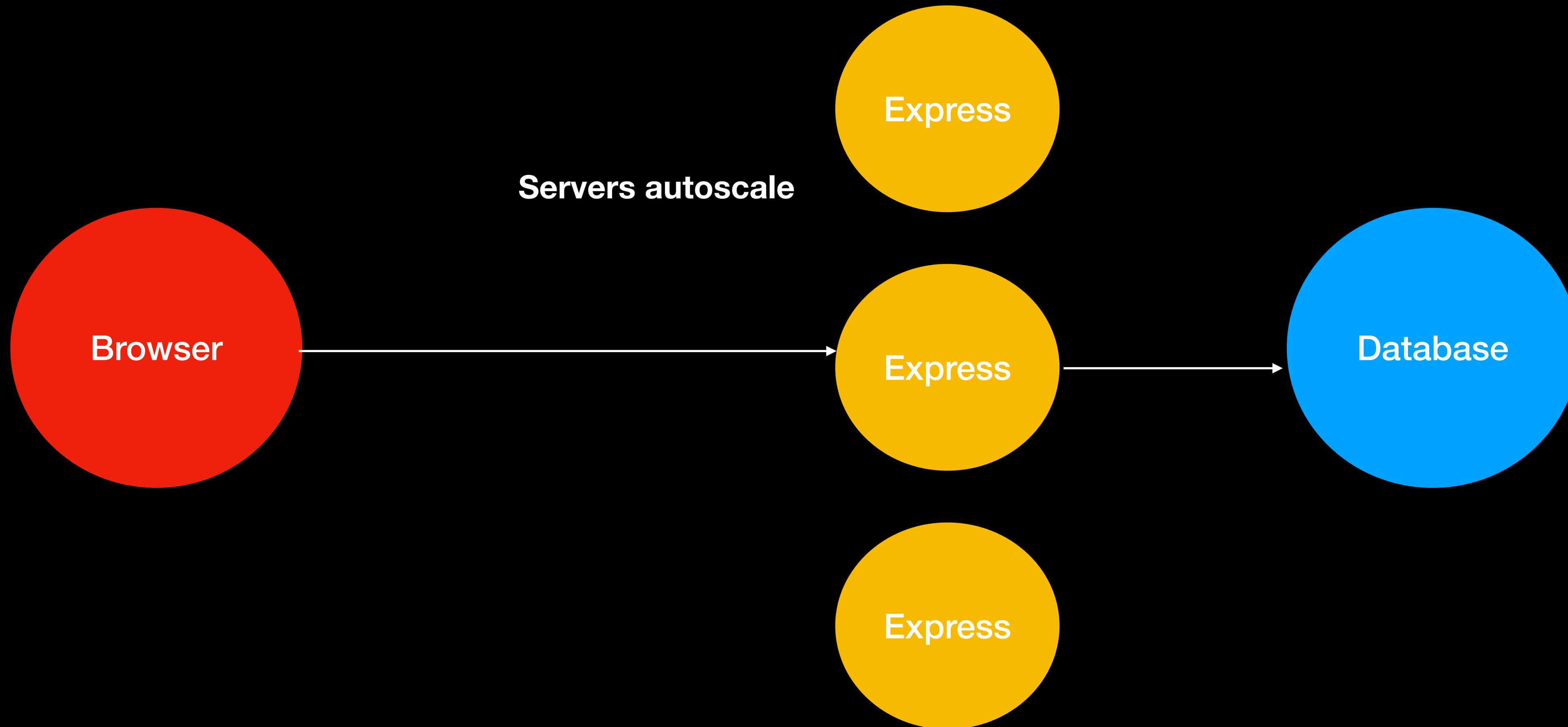
# What is a database

It is a place where data is stored persistently



# What is a database

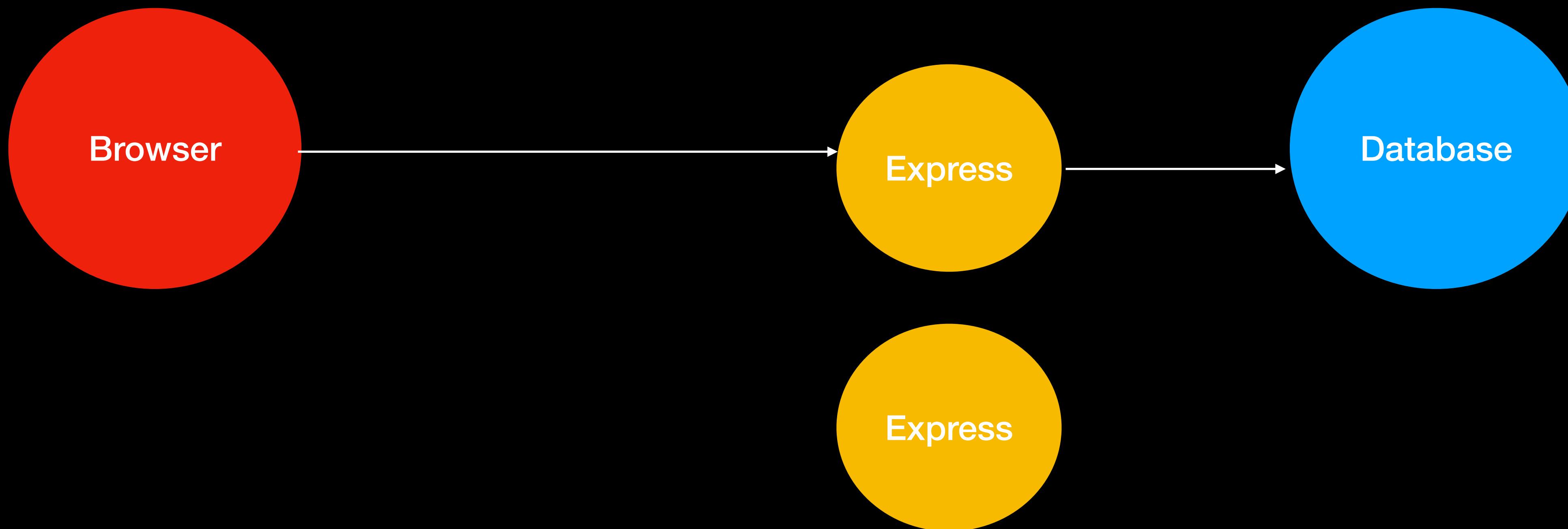
It is a place where data is stored persistently



# What is a database

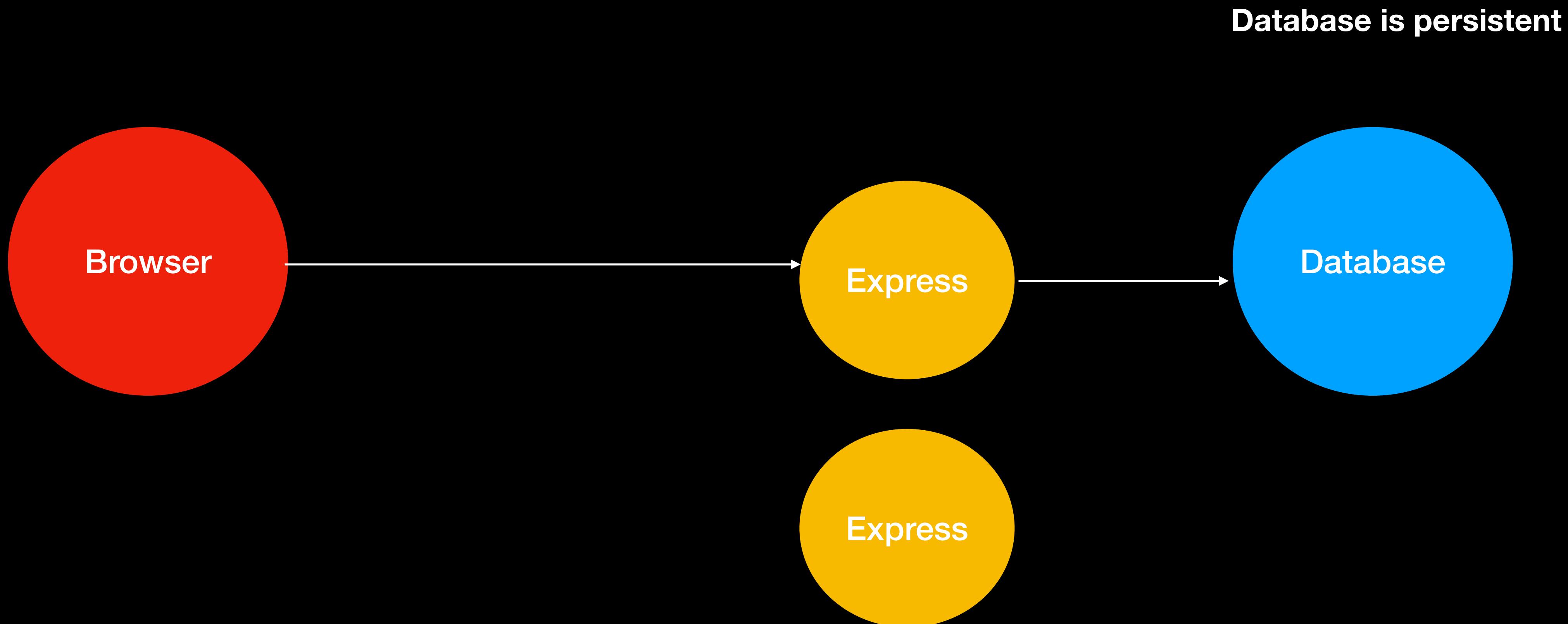
It is a place where data is stored persistently

Servers are transient



# What is a database

It is a place where data is stored persistently



# What is a database

Examples of data stored in databases -

For LinkedIn

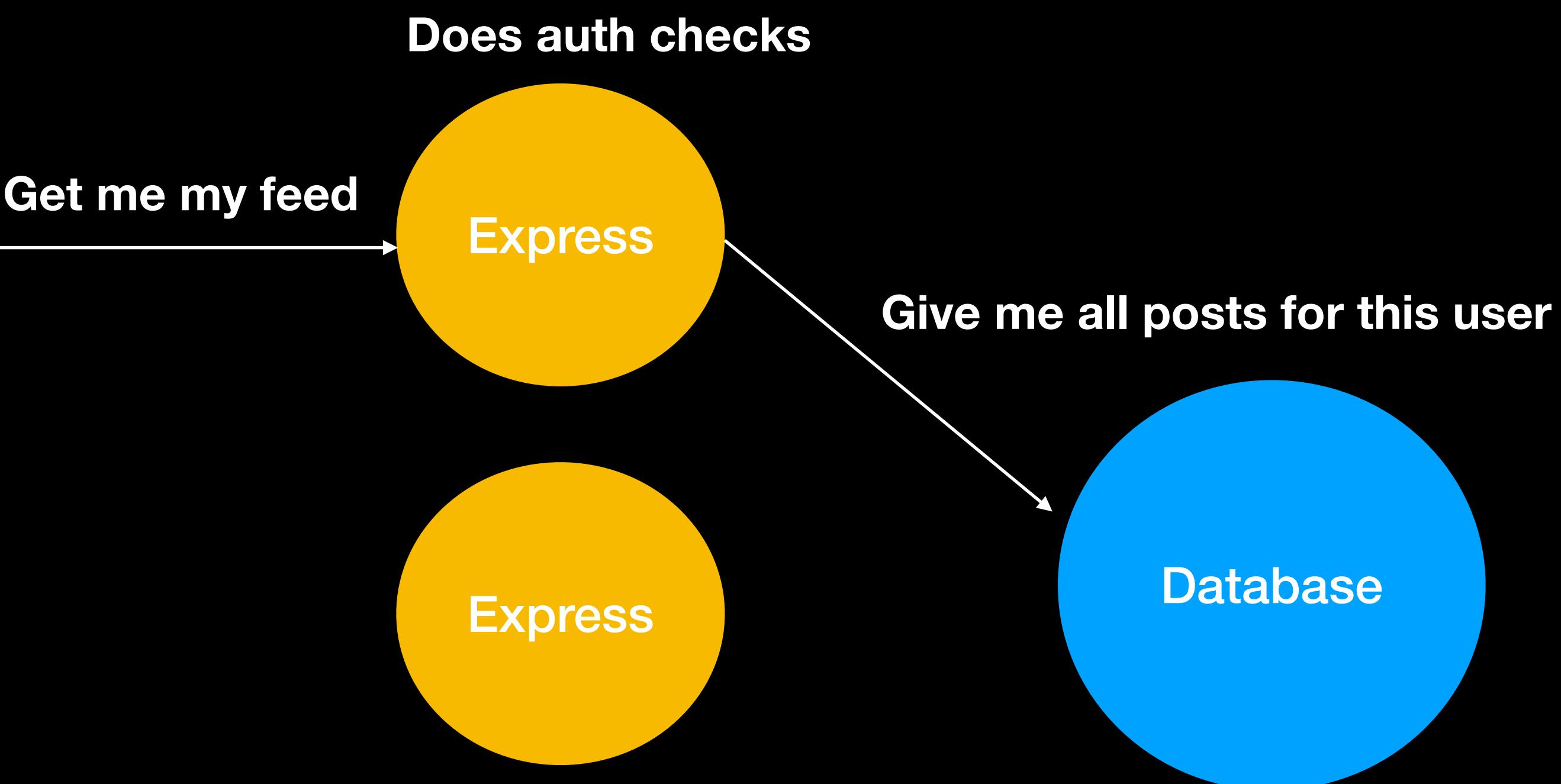
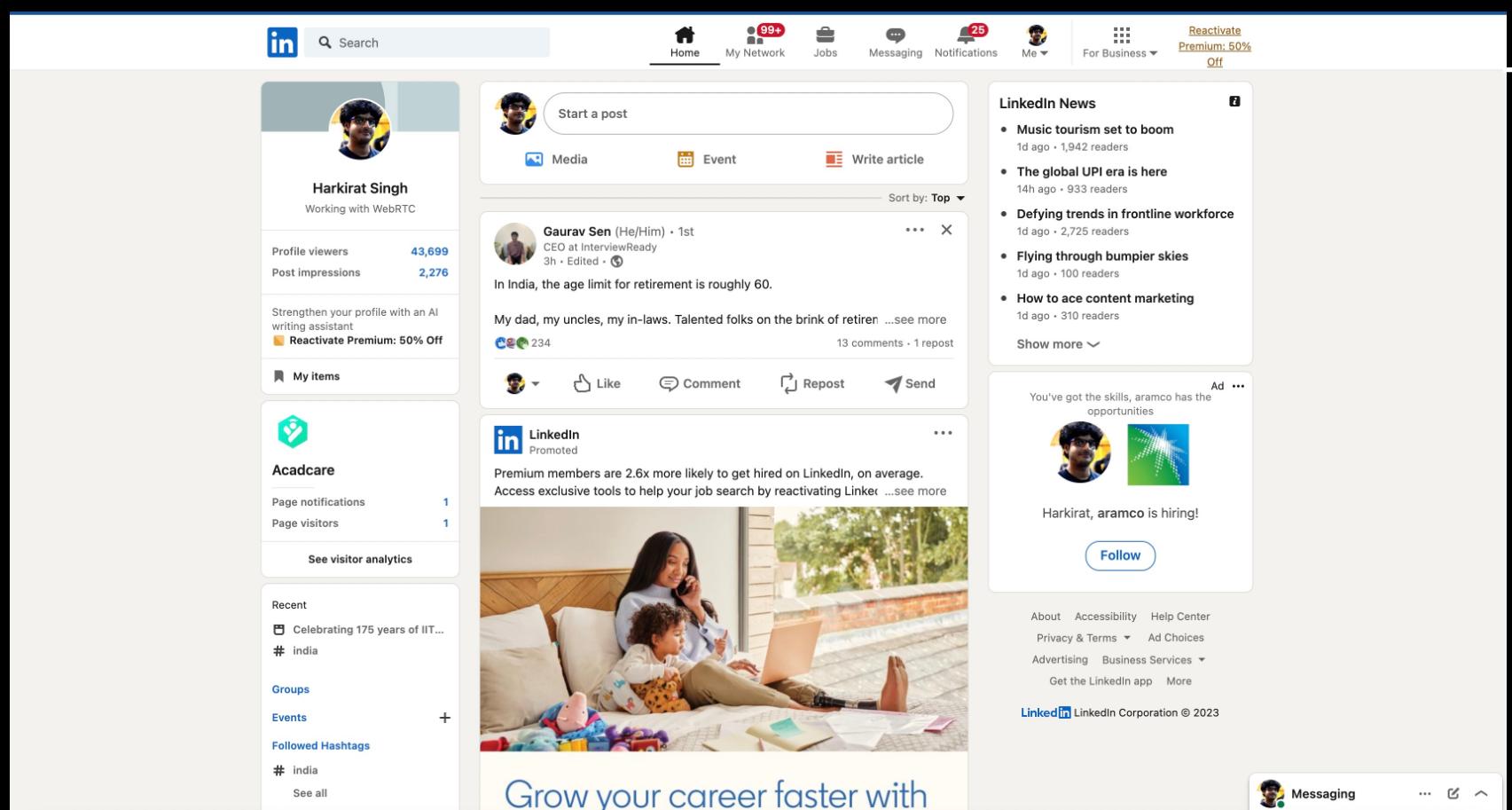
1. User data
2. Users posts
3. Users connection relationships
4. Messages

The screenshot shows the LinkedIn homepage with the following visible elements:

- Header:** LinkedIn logo, search bar, and navigation menu with links for Home, My Network, Jobs, Messaging, Notifications, and Me.
- User Profile:** A profile card for "Harkirat Singh" showing 43,699 profile viewers and 2,276 post impressions.
- News Feed:** Posts from "Gaurav Sen (He/Him)" and "LinkedIn Promoted" ads.
- Sidebar:** Profile sidebar for "Acadcare" showing page notifications (1), page visitors (1), and visitor analytics.
- Bottom:** Call-to-action button "Grow your career faster with".

# What is a database

Examples of data stored in databases -

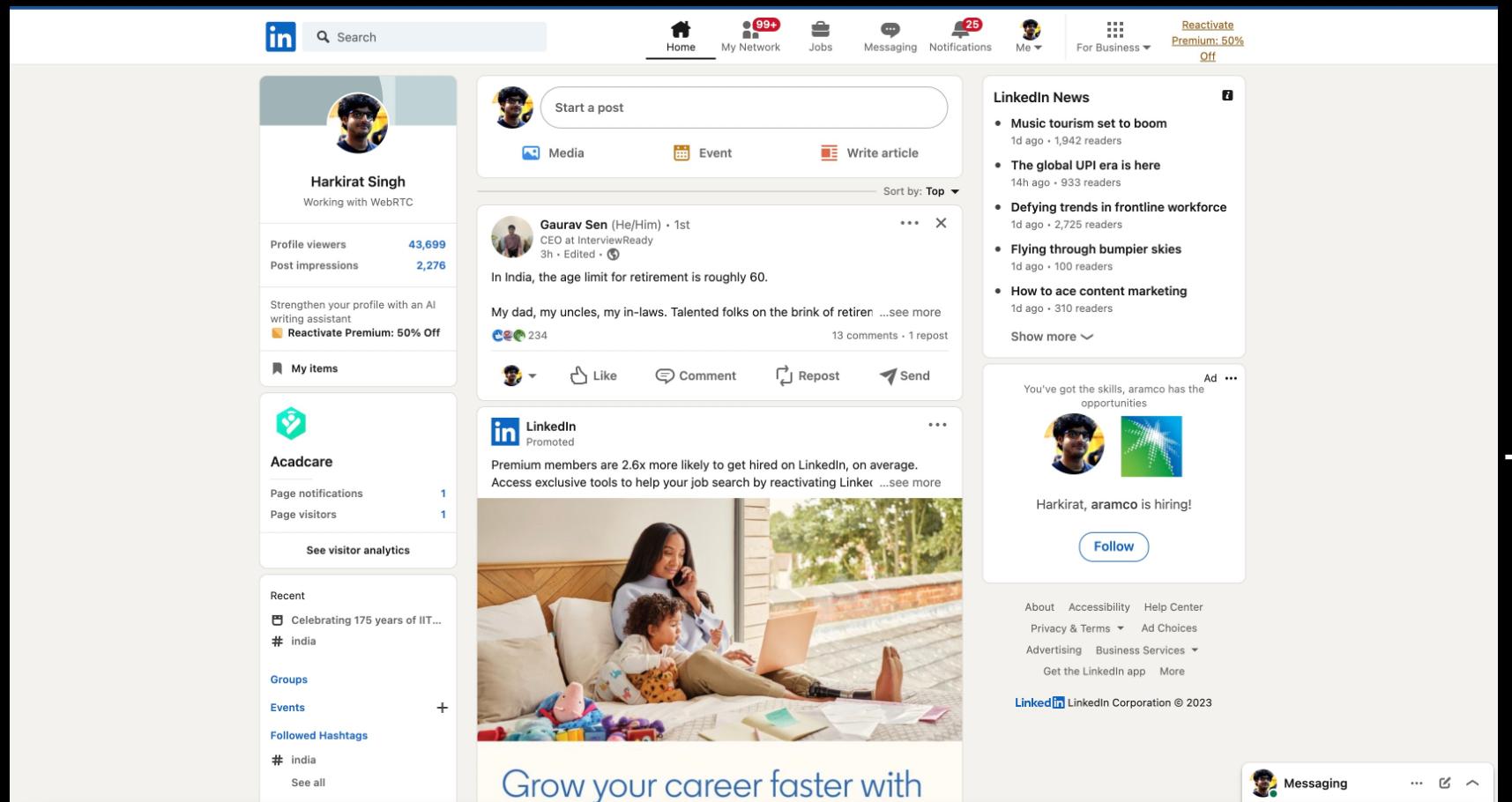


# What is a database

Good question to have at this point

Why don't we let the user hit the database directly?

What extra does the http server provide exactly?



Give me all posts for myself

Database

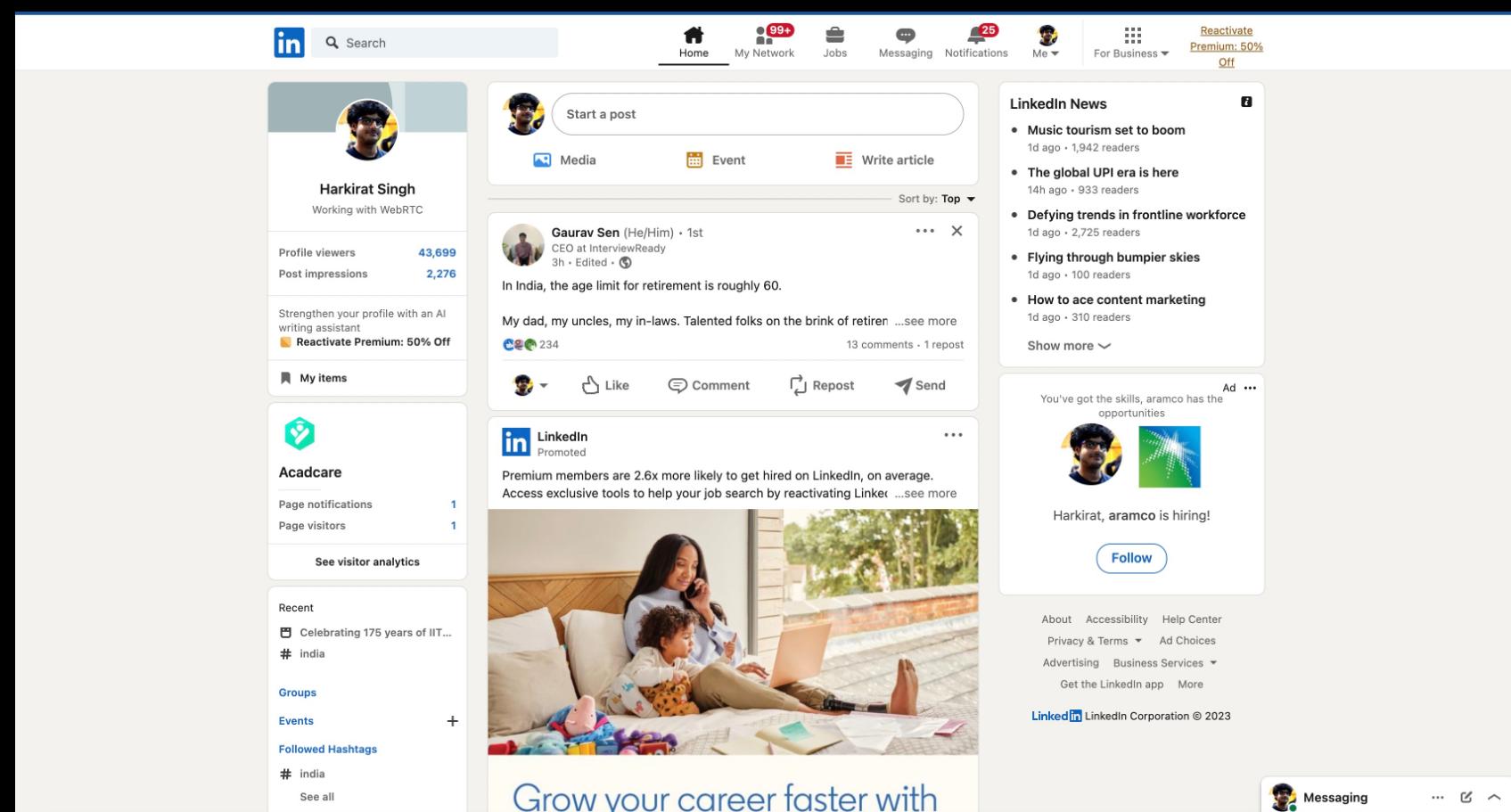
# What is a database

Good question to have at this point

Why don't we let the user hit the database directly?

What extra does the http server provide exactly?

1. Databases were created using protocols that browsers don't understand
2. Databases don't have granular access as a first class citizen. Very hard to do user specific access in them
3. There are some databases (firebase) that let you get rid of the http server and try their best to provide granular access



Give me all posts for myself

Database

# What is a database

**Databases usually allow access to 4 primitives**

- 1. Create Data**
- 2. Read Data**
- 3. Update Data**
- 4. Delete Data**

**Popularly known as CRUD**

# What is a database

Let's see the API for the mongoose library

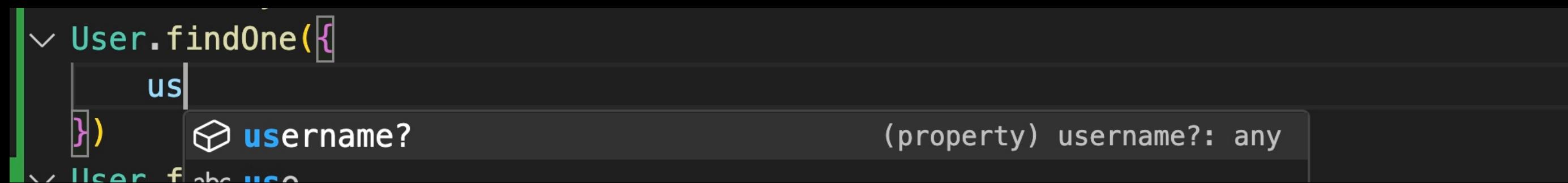
Eventually, we'll be using prisma (which is the industry standard way of doing this)

In mongoose, first you have to define the schema

This sounds counter intuitive since mongodb is schemaless?

That is true, but mongoose makes you define schema for things like autocompletions/  
Validating data before it goes in the DB to make sure you're doing things right

Schemaless Dbs can be very dangerous, using schemas in mongo makes it slightly less  
Dangerous



# What is a database

## Defining schema

```
const UserSchema = new mongoose.Schema({
  email: String,
  password: String,
  purchasedCourses: [
    {
      type: mongoose.Schema.Types.ObjectId,
      ref: 'Course'
    }
});
```

```
const CourseSchema = new mongoose.Schema({
  title: String,
  price: 5999
});
```

```
const User = mongoose.model('User', UserSchema);
const Course = mongoose.model('Course', CourseSchema);
```

# What is a database

Create

```
const UserSchema = new mongoose.Schema({  
  username: String,  
  password: String  
});
```

```
const User = mongoose.model('User', UserSchema);
```

```
User.create({  
  username: req.body.username,  
  password: req.body.password  
});
```

# What is a database

## Read

```
const UserSchema = new mongoose.Schema({  
  username: String,  
  password: String  
});  
  
const User = mongoose.model('User', UserSchema);
```



```
User.findById("1");  
User.findOne({  
  username: "harkirat@gmail.com"  
})  
User.find({  
  username: "harkirat96@gmail.com"  
})
```

```
User.updateOne(  
  { "id": "1" },  
  { $push: { purchasedCourses: courseId } }  
)
```

# What is a database

## Update

```
const UserSchema = new mongoose.Schema({  
  username: String,  
  password: String  
});  
  
const User = mongoose.model('User', UserSchema);
```



```
User.updateOne({  
  id: "1"  
}, {  
  password: "newPassword"  
})  
  
User.update({}, {  
  premium: true  
})
```

# What is a database

## Delete

```
const UserSchema = new mongoose.Schema({  
  username: String,  
  password: String  
});  
  
const User = mongoose.model('User', UserSchema);
```

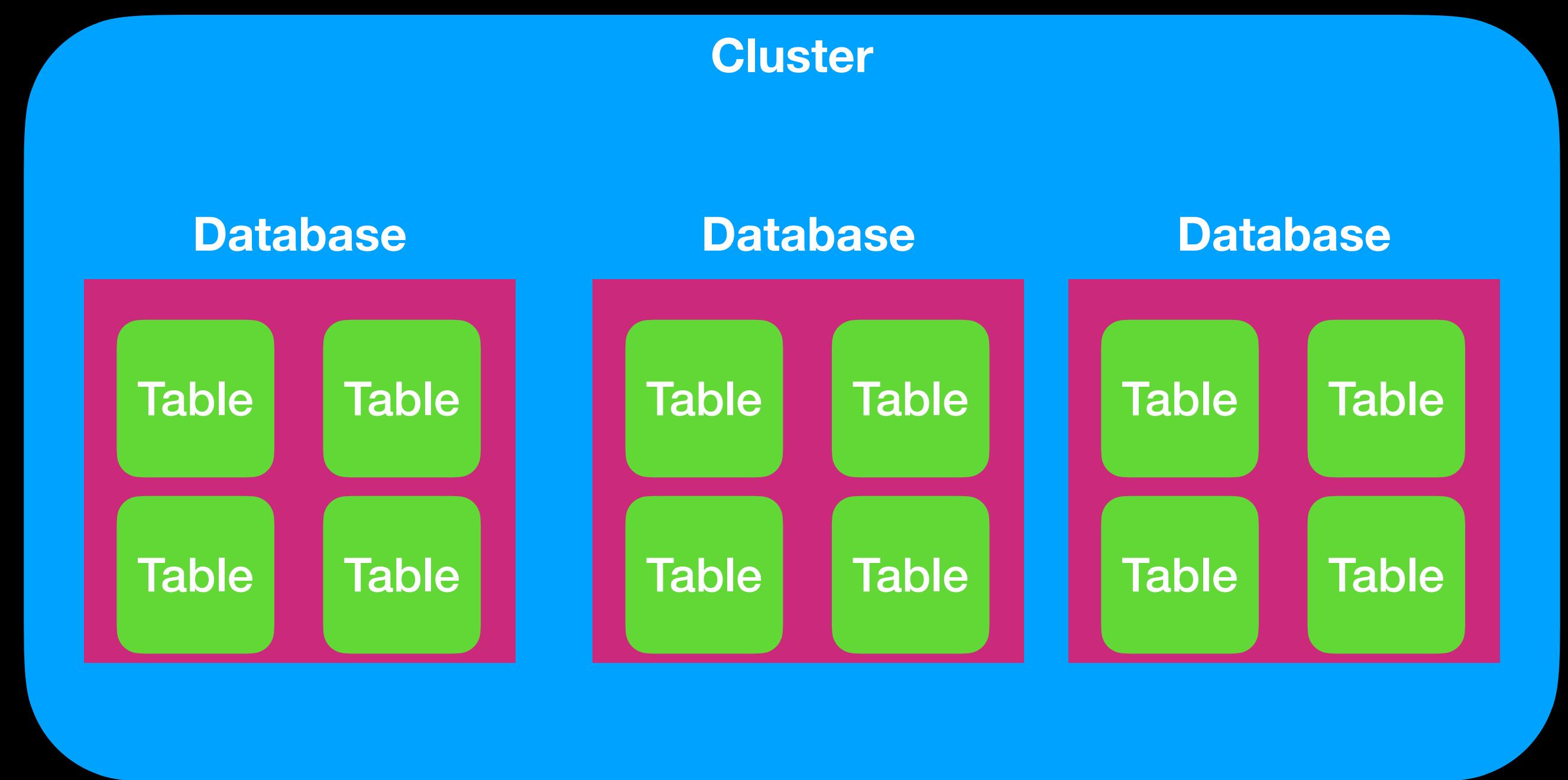


```
User.deleteMany({})  
|  
| User.deleteOne({  
|   |   username: "harkirat@gmail.com"  
| })  
|  
|
```

# What is a database

## 3 Jargons to know in Databases

1. Cluster
2. Database
3. Table



# What is a database

What would this mean for a simple course app

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**Bestseller**

**Bestseller**

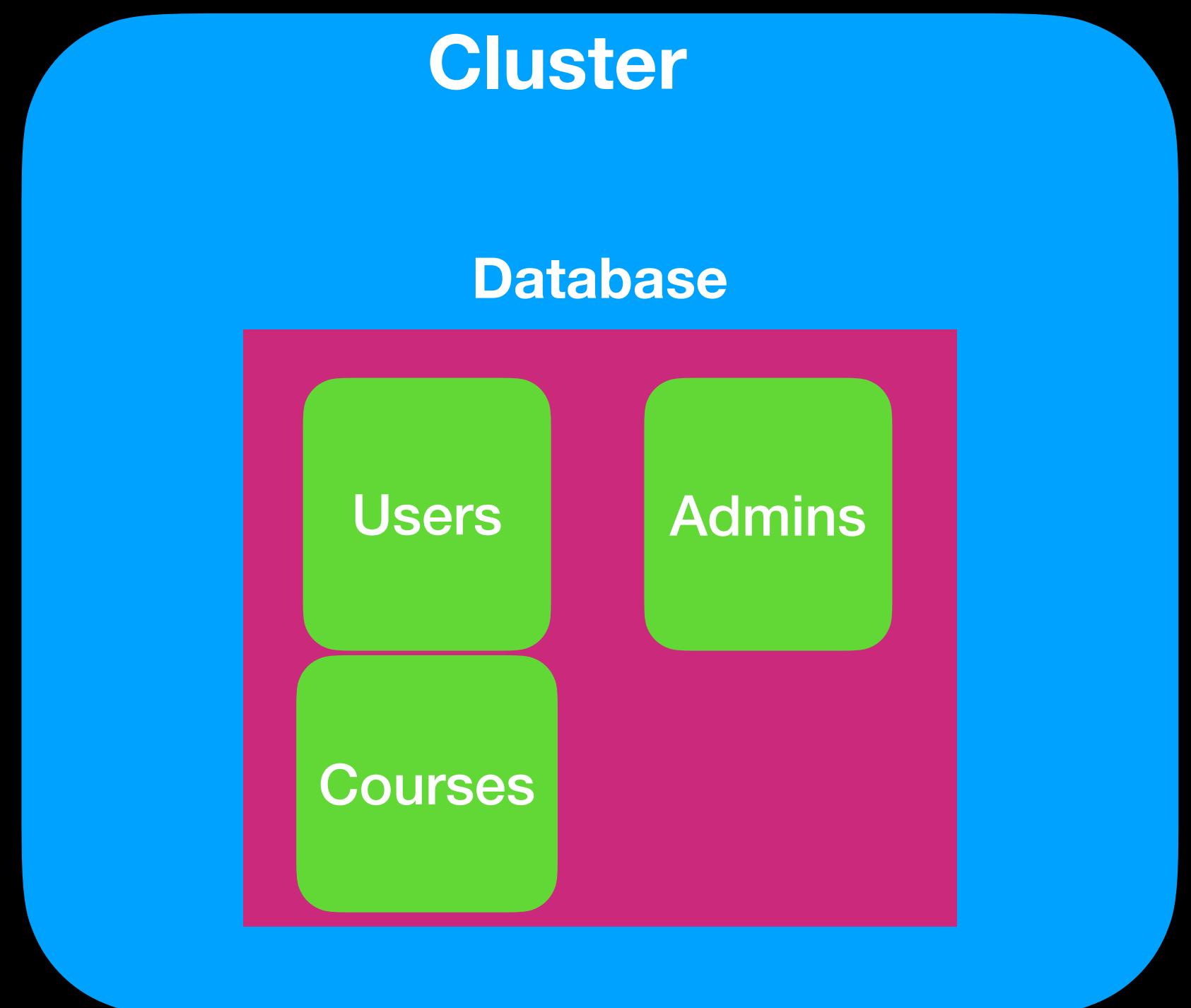
**How learners like you are achieving their goals**

“ I am proud to say that after a few months of taking this course...I passed my exam and am now an AWS Certified Cloud Practitioner! ”

“ This course helped me **freshen up on my product manager skills** and land a job at Facebook! Thanks guys :) ”

“ One of the best courses on management and leadership I have come across so far. The advice is practical, and examples highly ”

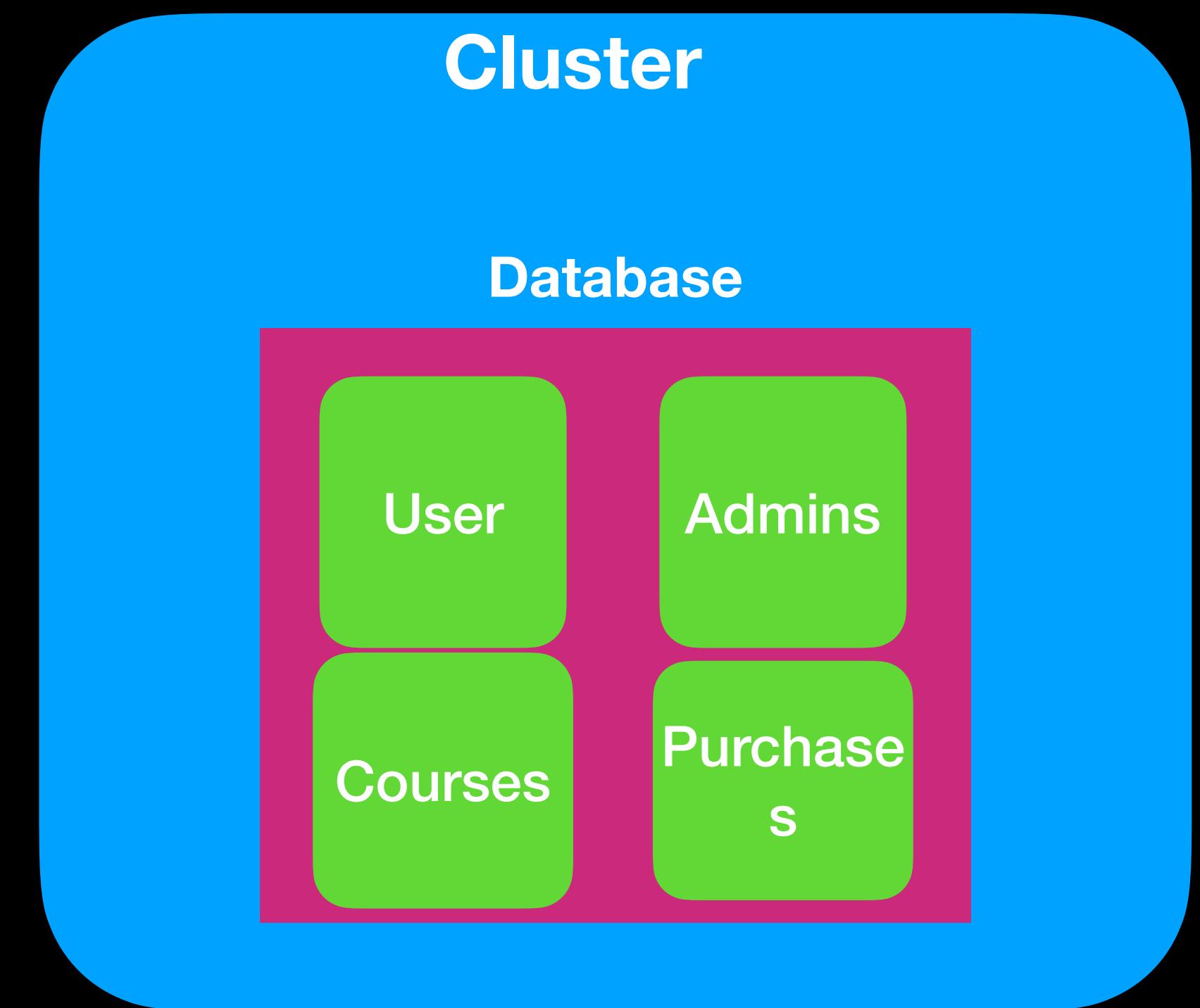
“ I highly **buddin** prior kr ”



# What is a database

What would this mean for a simple course app

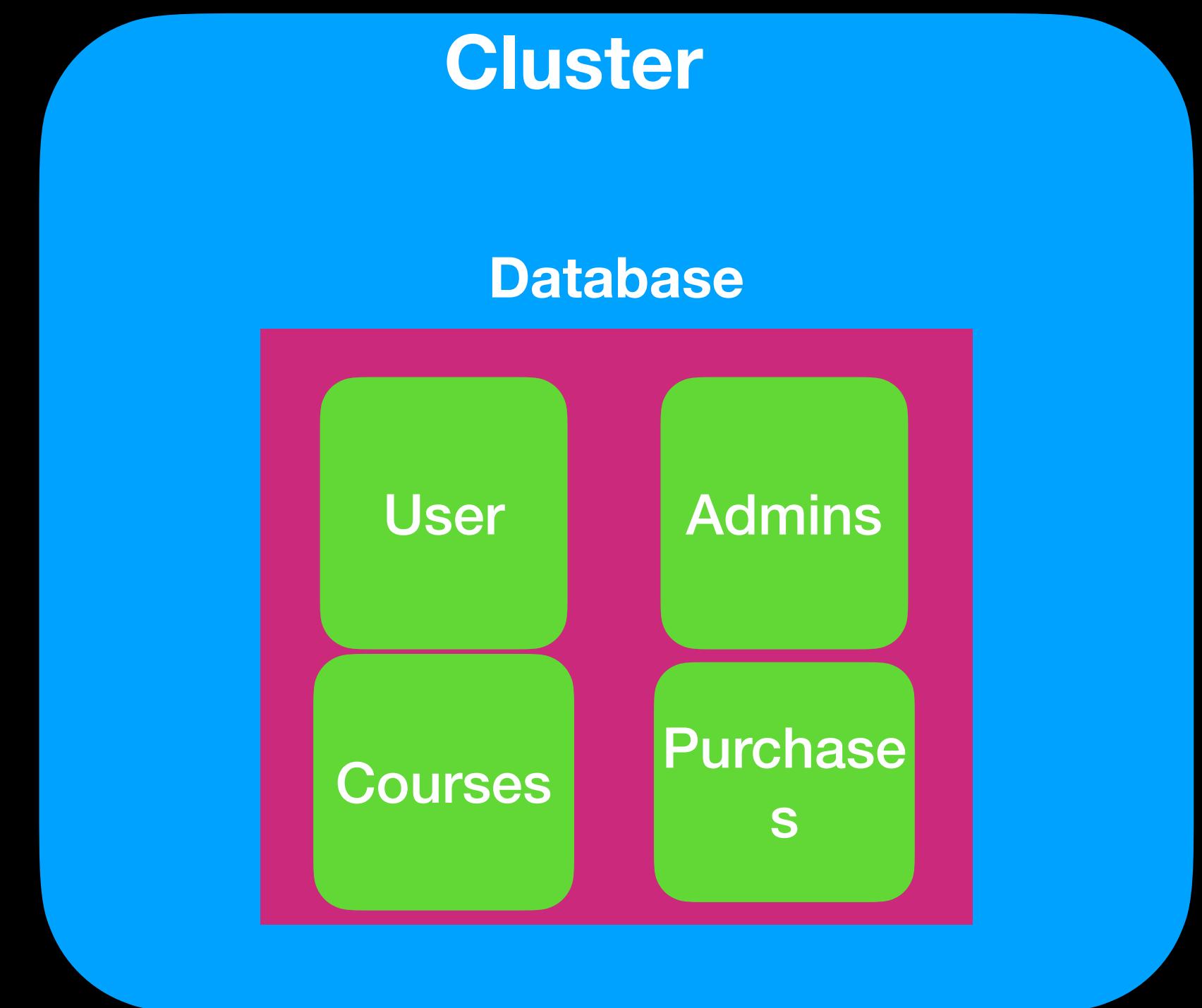
Users				
Id	Email	Password	Name	Age
1	<a href="mailto:harkirat@gmail.com">harkirat@gmail.com</a>	123123	harkirat	20
2	<a href="mailto:raman@gmail.com">raman@gmail.com</a>	kirat123	harkirat	22



# What is a database

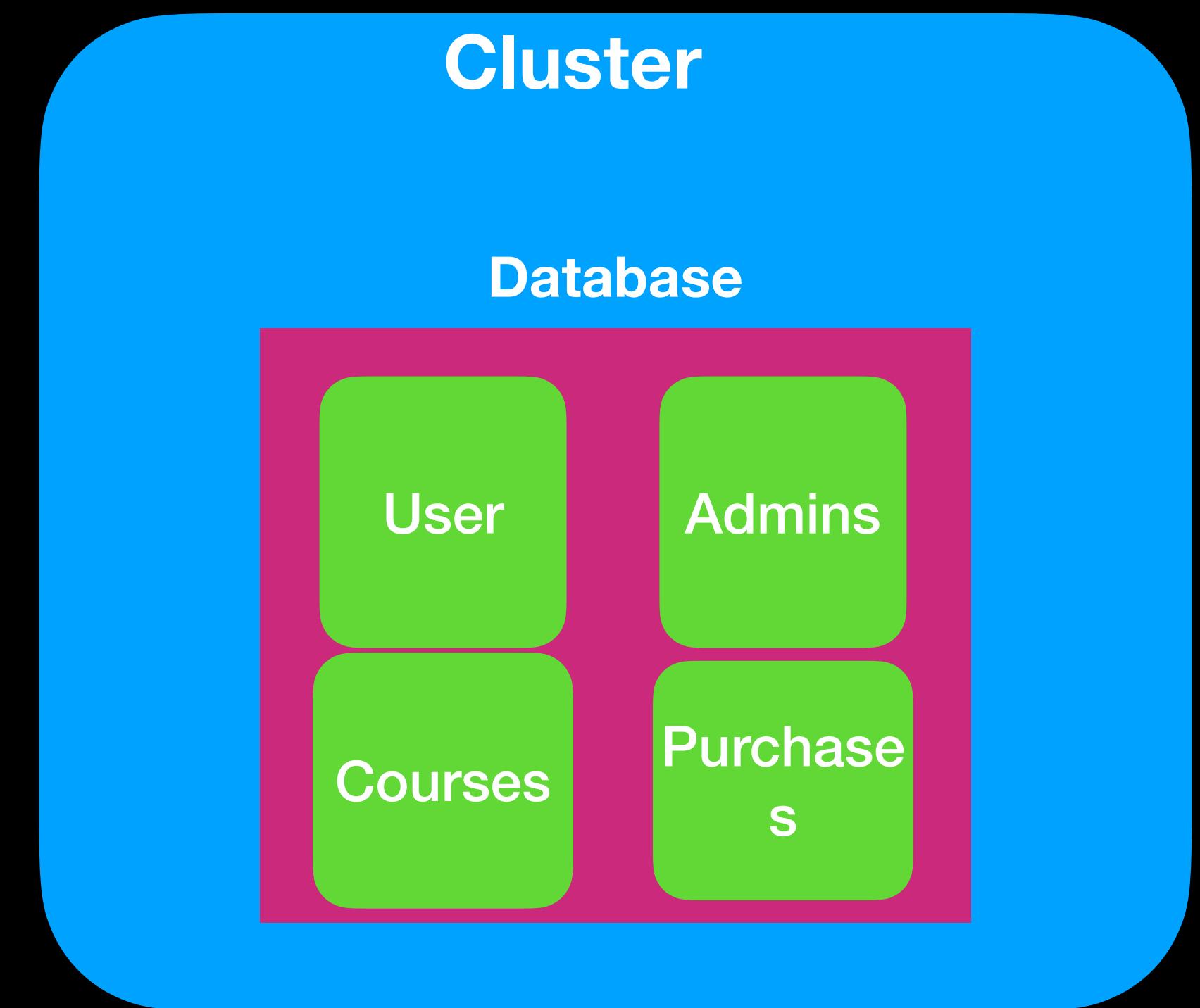
What would this mean for a simple course app

Admins			
Id	Email	Password	Name
1	<a href="mailto:admin@gmail.com">admin@gmail.com</a>	123123	Raman
2	<a href="mailto:admin2@gmail.com">admin2@gmail.com</a>	123123	Kirat



# What is a database

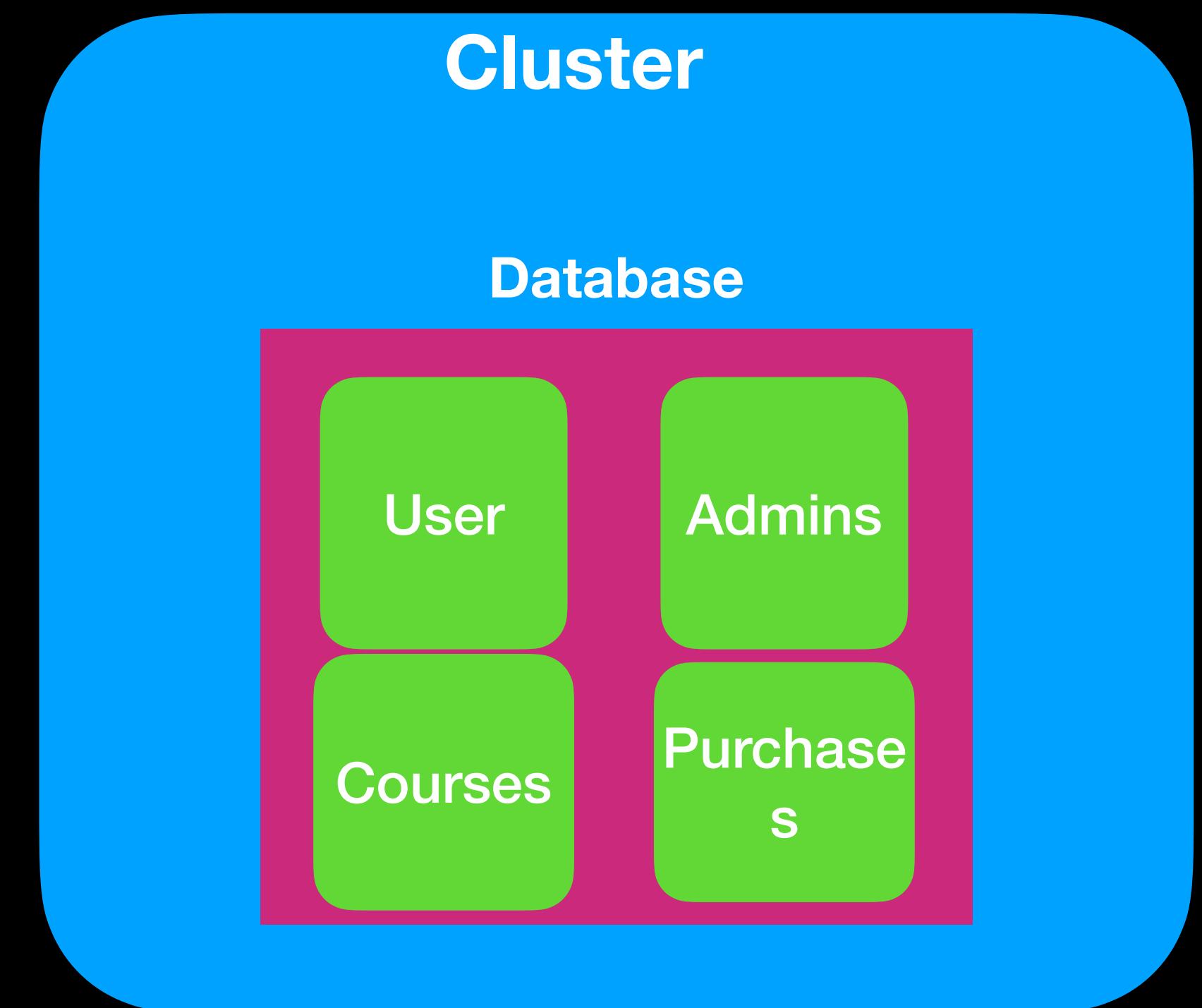
Courses			
id	Title	Description	Price
1.	Full stack	Learn Full stack	5000
2.	Web3	Learn Web3.	3999



# What is a database

What would this mean for a simple course app

Purchases			
user_id	course_id	timestamp	payment_ref
1.	1	02/12/2024.	pay_123123
2.	1	02/12/2024.	pay_331213



# What is a database

Lets try to target the assignments from this week

# What is a database

Something extra

You can attach methods to schema  
And call them on objects later

```
UserSchema.methods.purchaseCourse = async function(courseId) {  
    this.purchasedCourses.push(courseId);  
    await this.save();  
};
```

```
User.findById(userId).then(user => {  
    user.purchaseCourse(courseId).then(() => {  
        console.log('Course purchased successfully');  
    });  
});
```