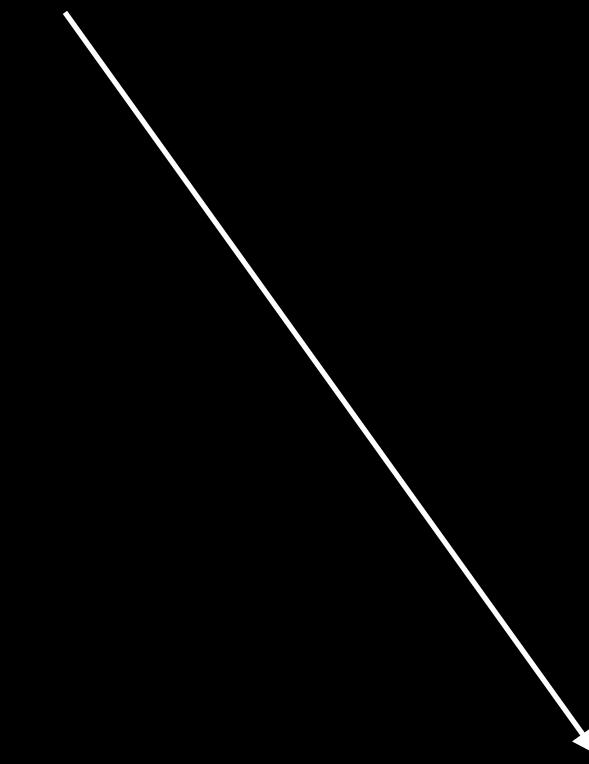


MongoDB deep dive

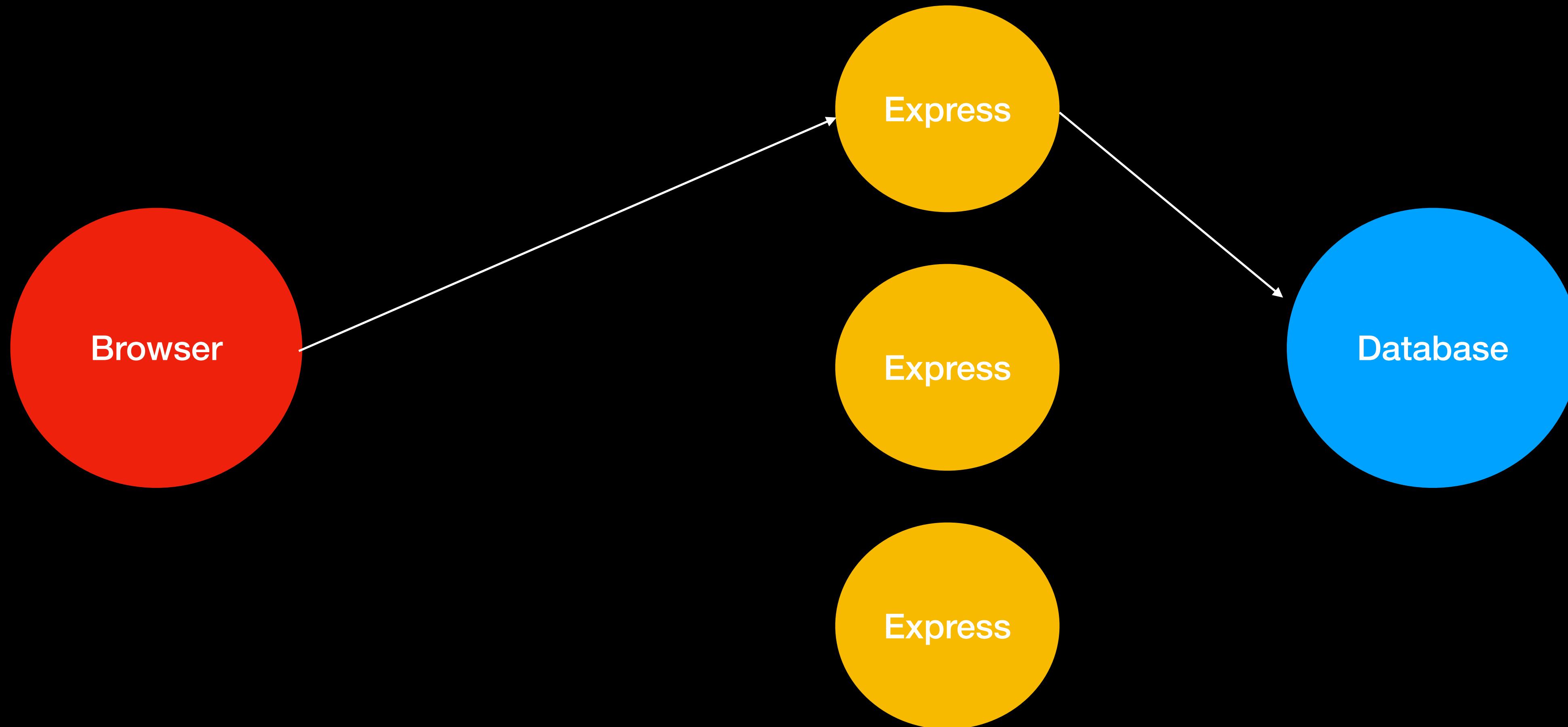
Understanding CRUD, mongoose and building an end to end
authenticated app

Supreme Court example



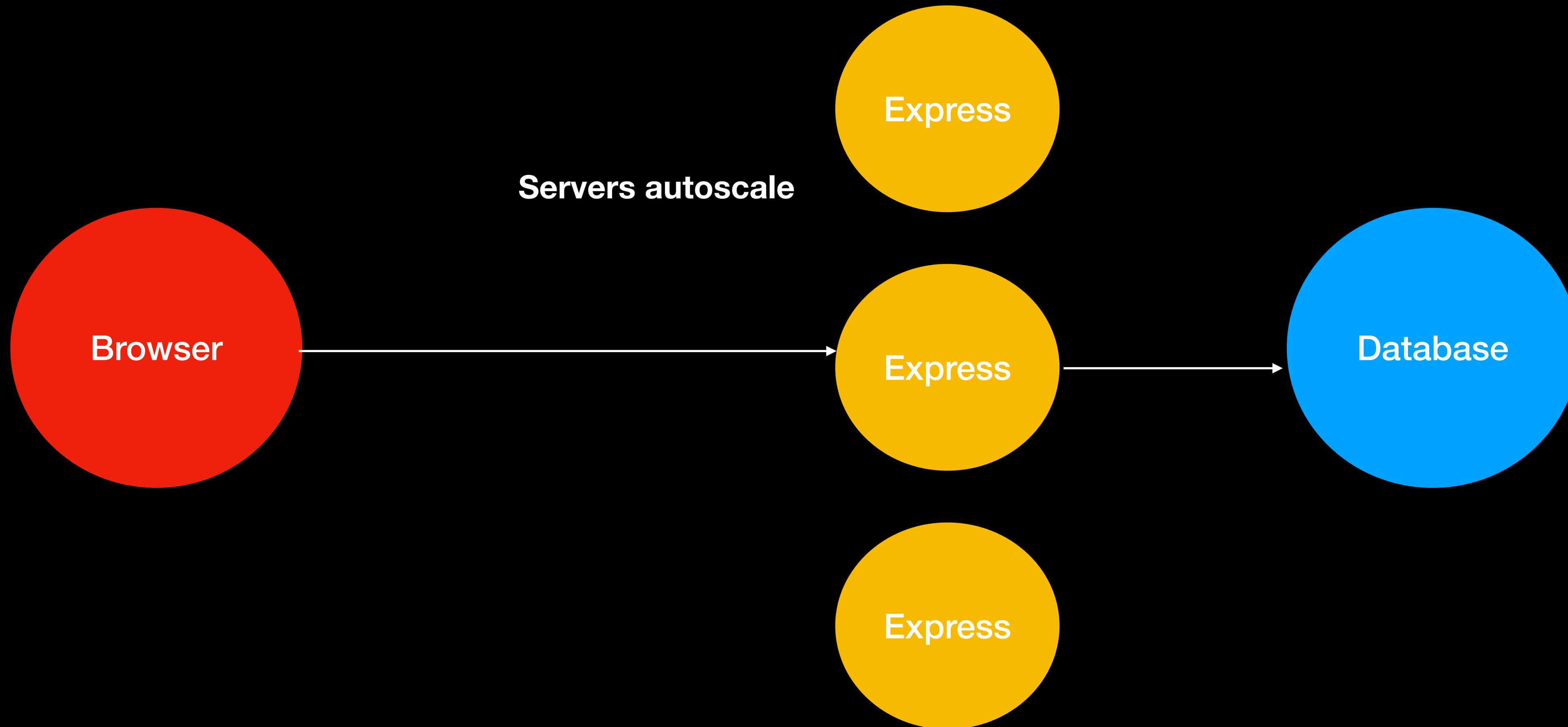
What is a database

It is a place where data is stored persistently



What is a database

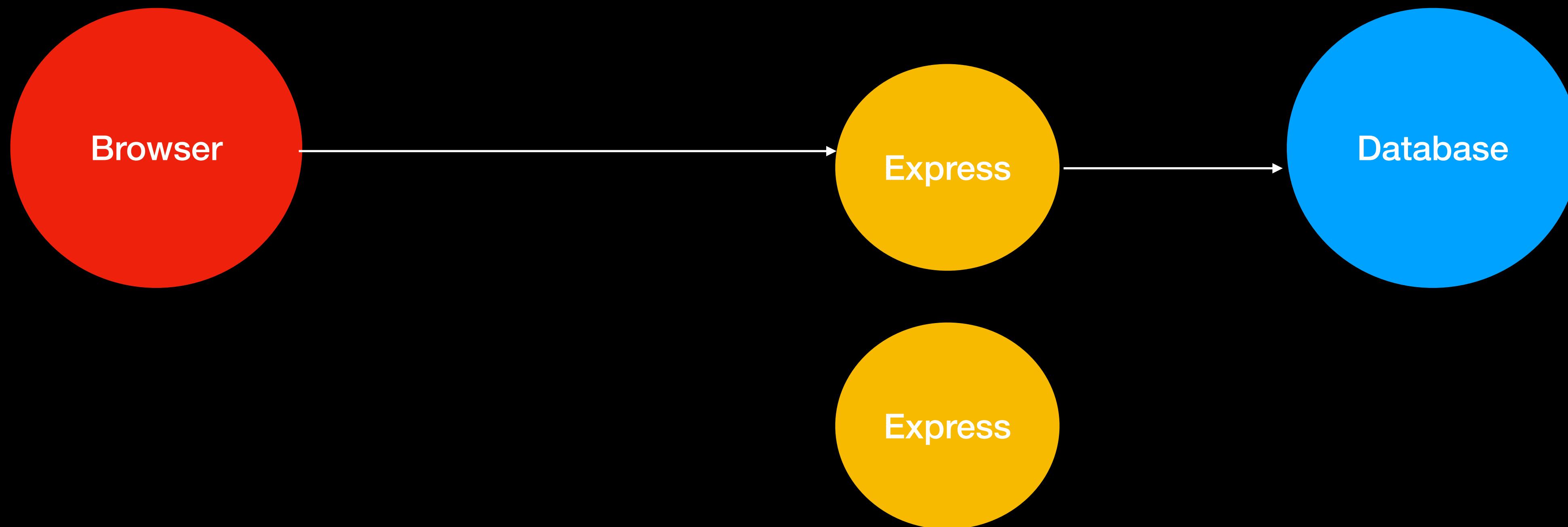
It is a place where data is stored persistently



What is a database

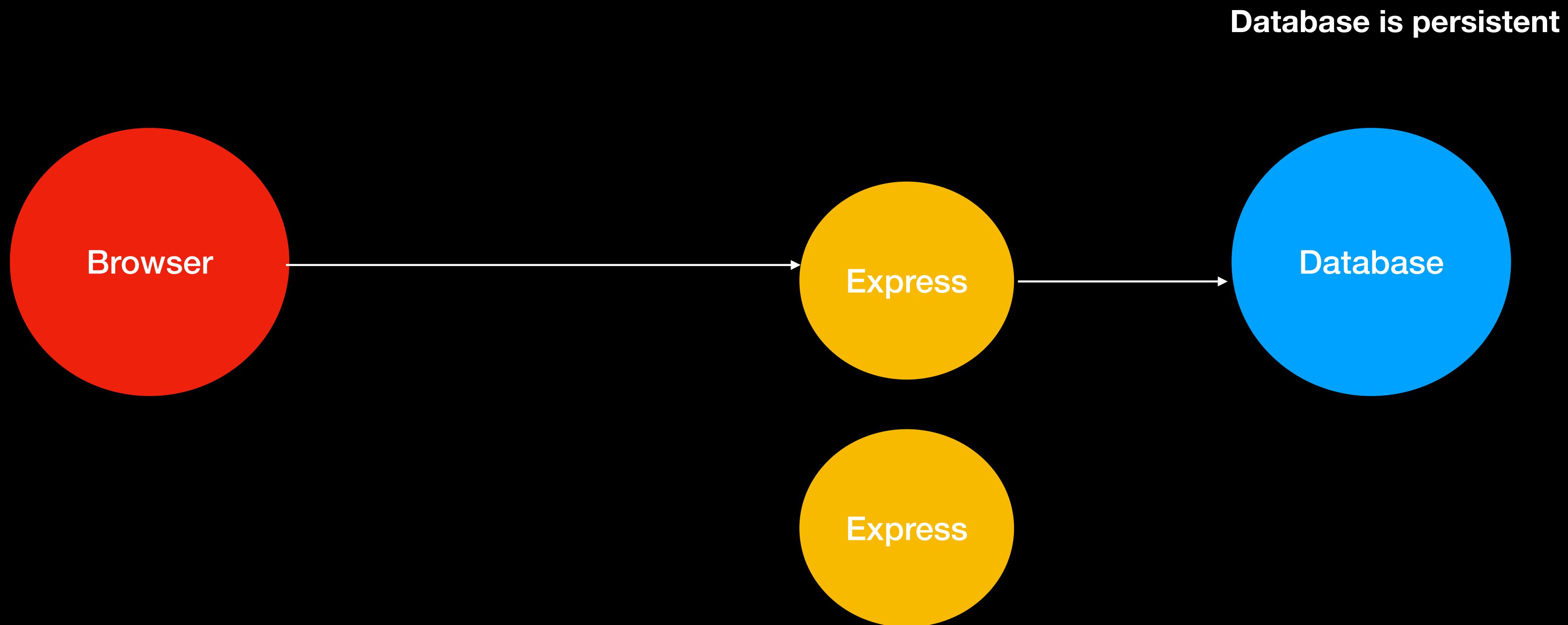
It is a place where data is stored persistently

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

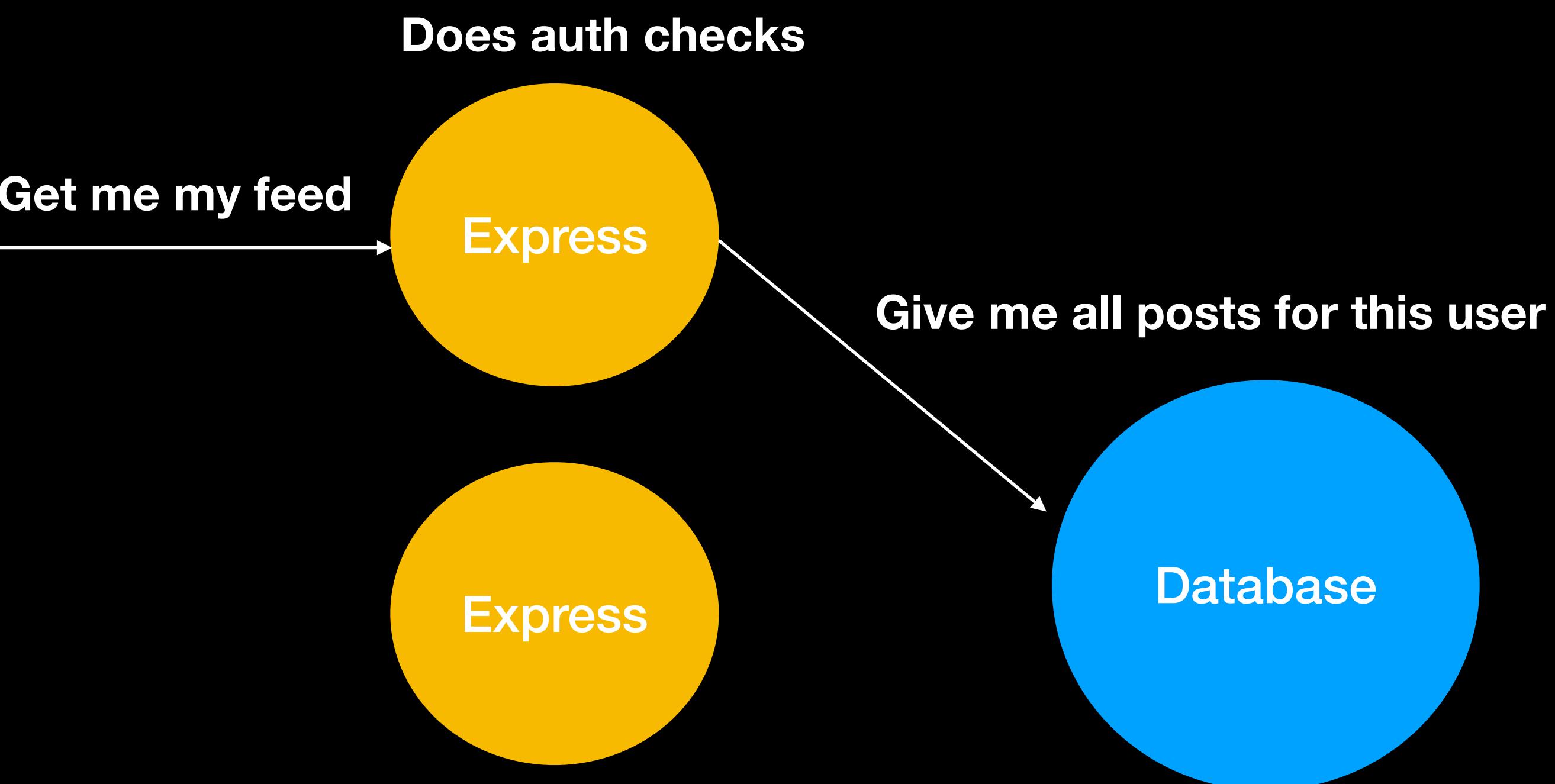
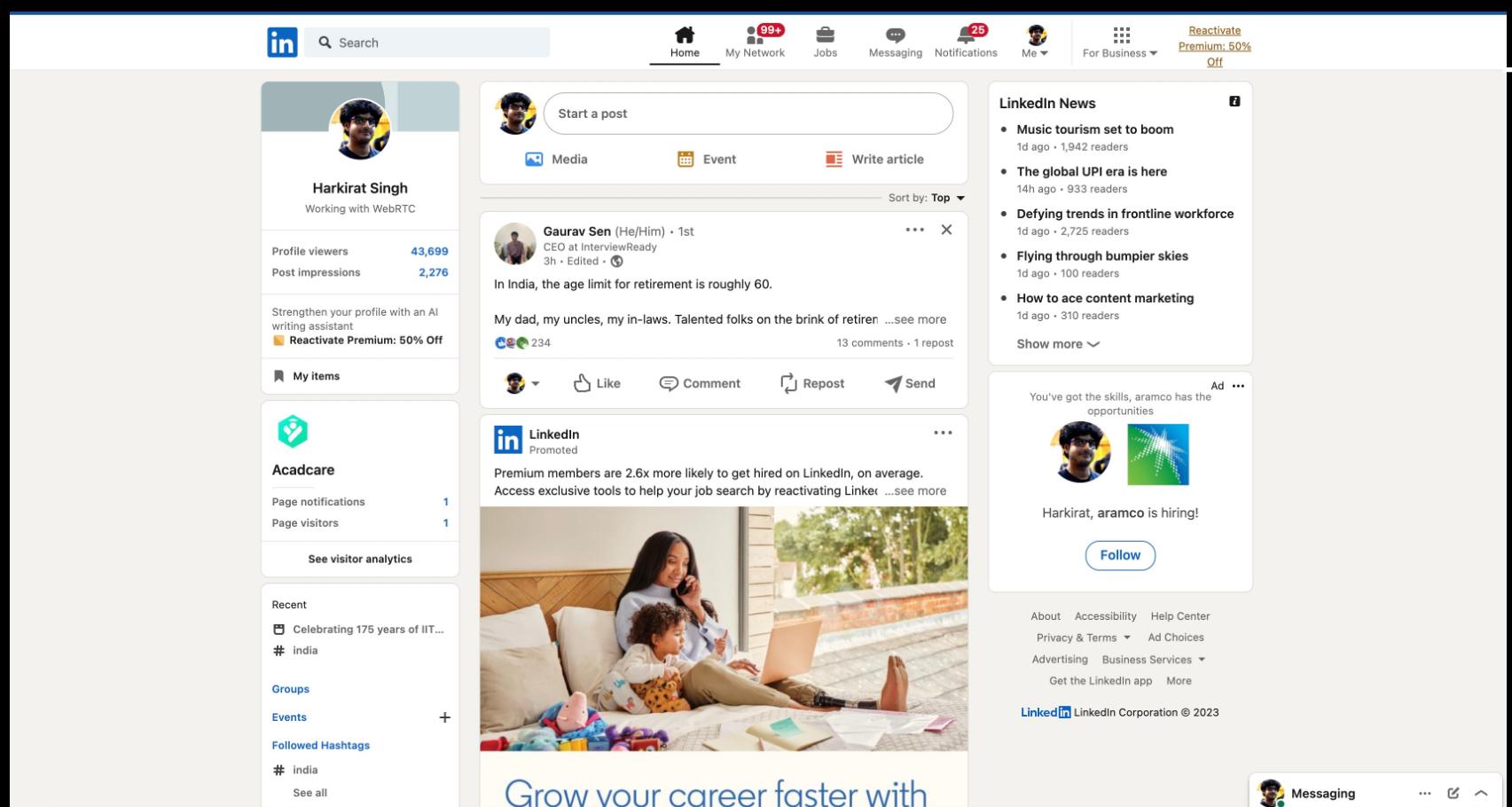
1. User data
2. Users posts
3. Users connection relationships
4. Messages

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 -

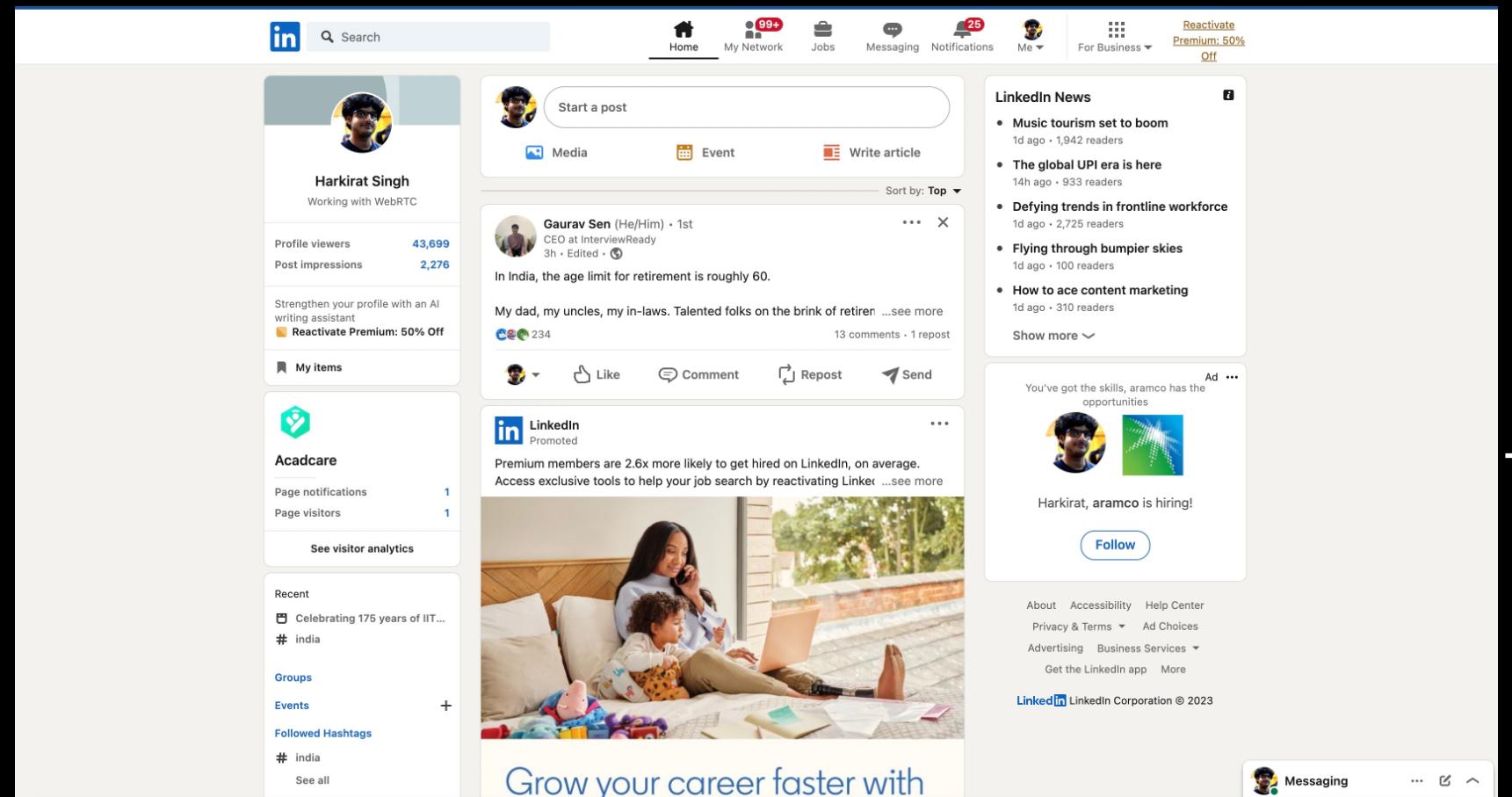


What is a database

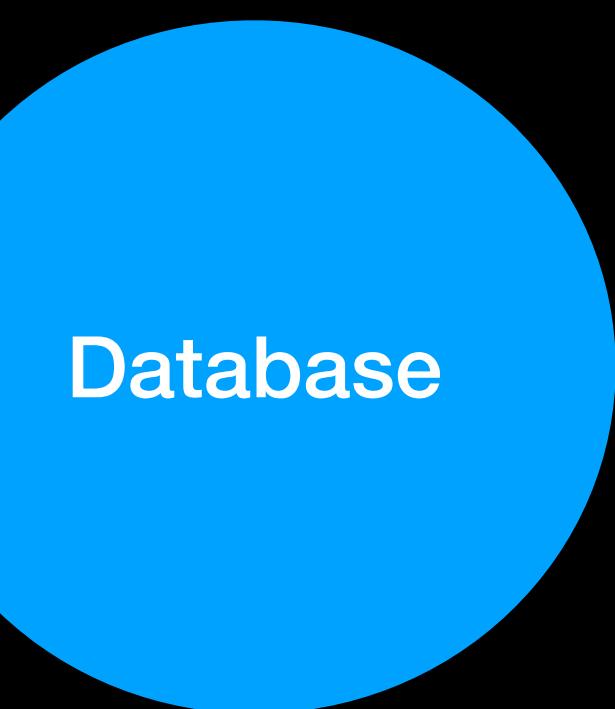
Good question to have at this point

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



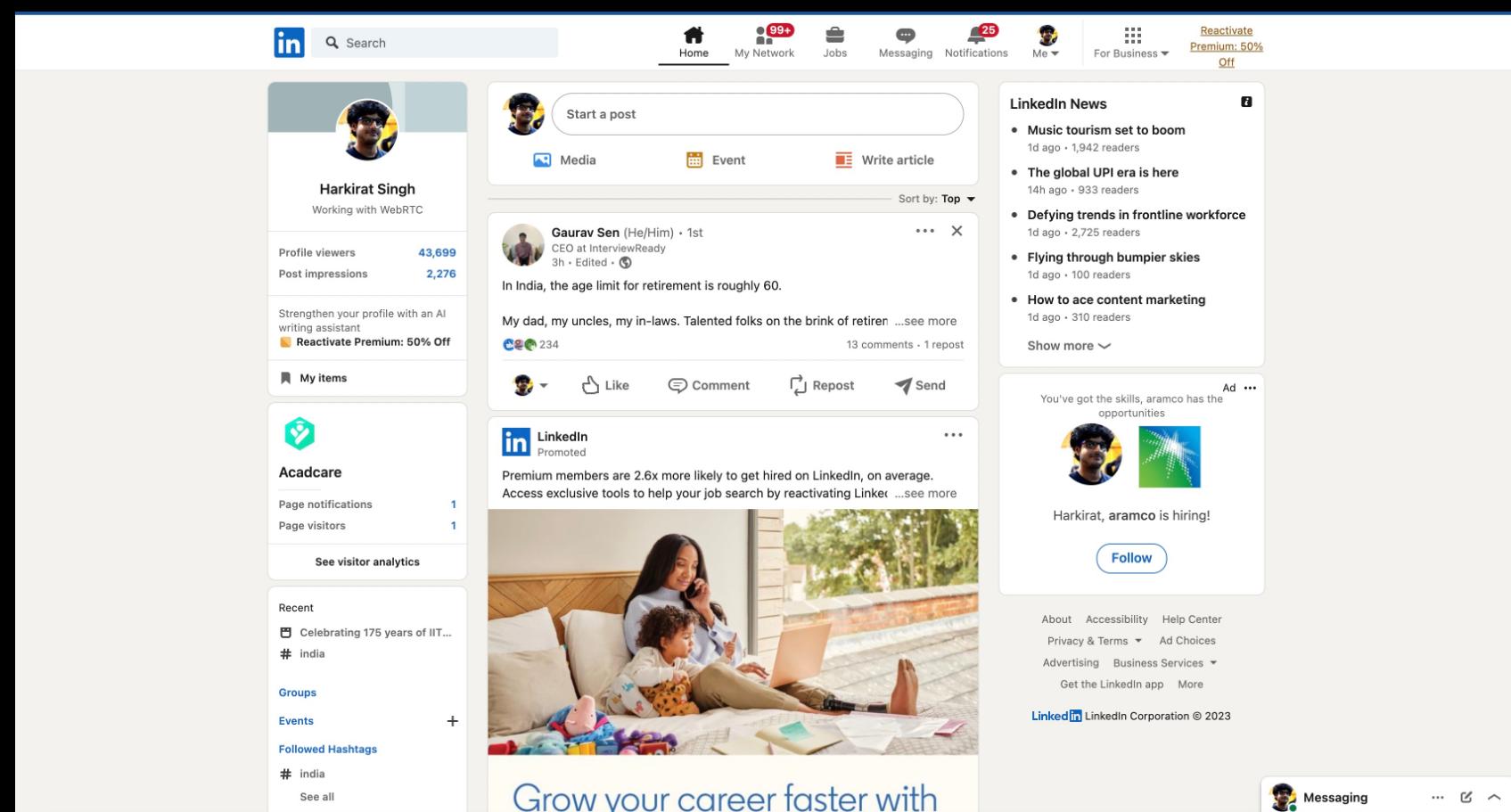
What is a database

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

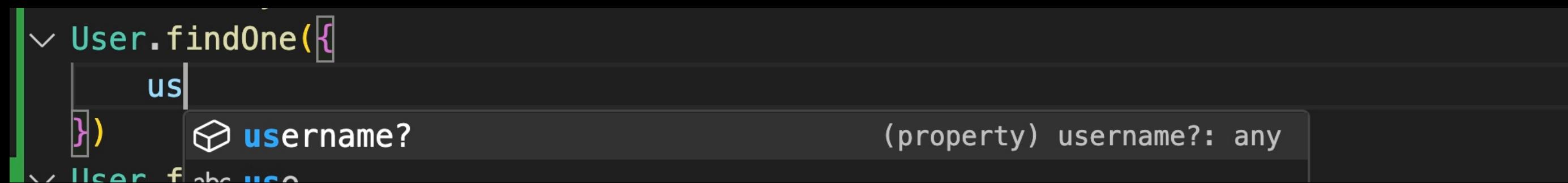
Eventually, we'll be using prisma (which is the industry standard way of doing this)

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);
```

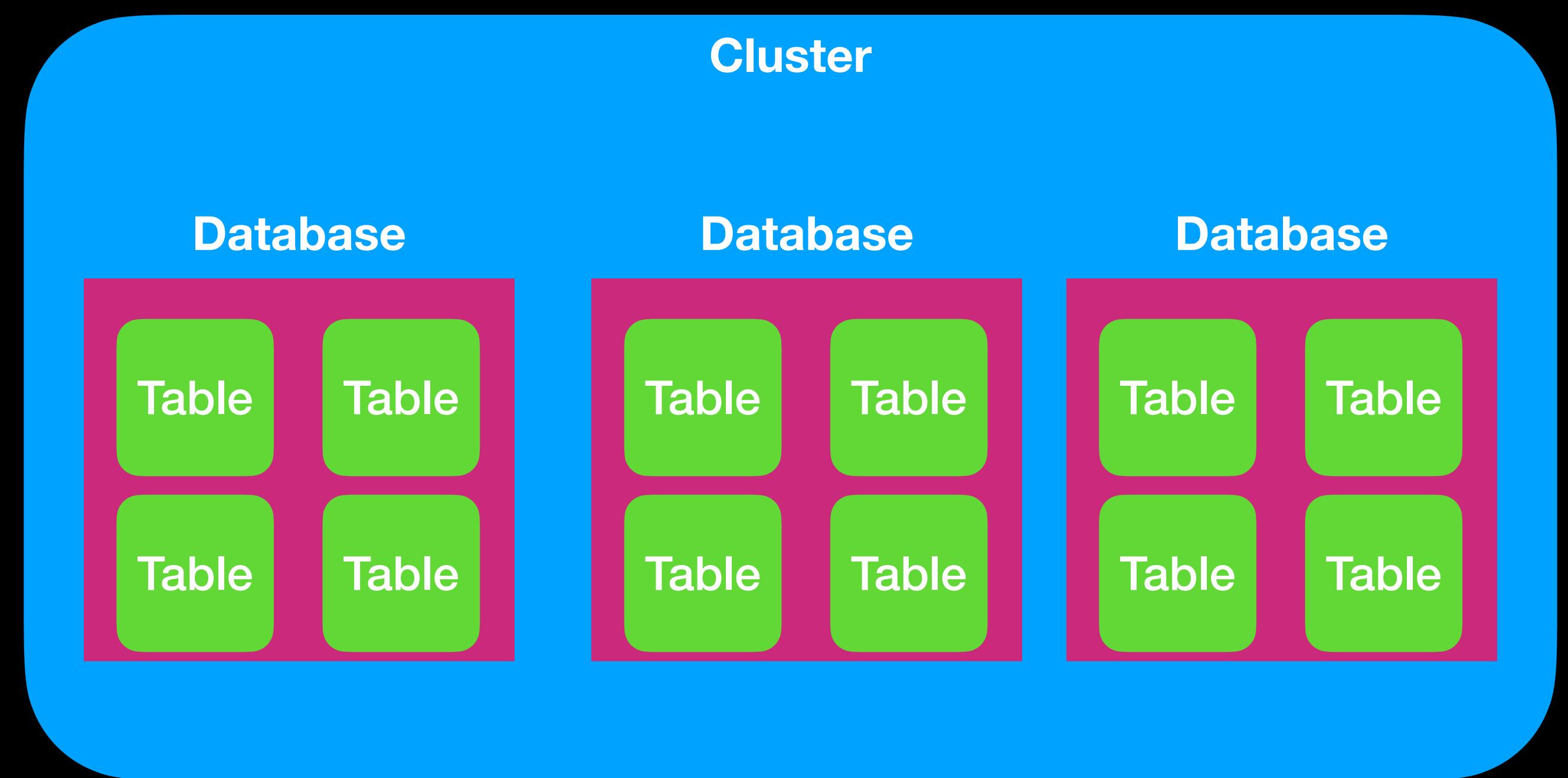


```
User.deleteMany({})  
|  
| User.deleteOne({  
|   |   username: "harkirat@gmail.com"  
| })  
|  
|
```

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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Take one of Udemy's range of Python courses and learn how to code using this incredibly useful language. Its simple syntax and readability makes Python perfect for Flask, Django, data science, and machine learning. You'll learn how to build everything from games to sites to apps. Choose from a range of courses that will appeal to...

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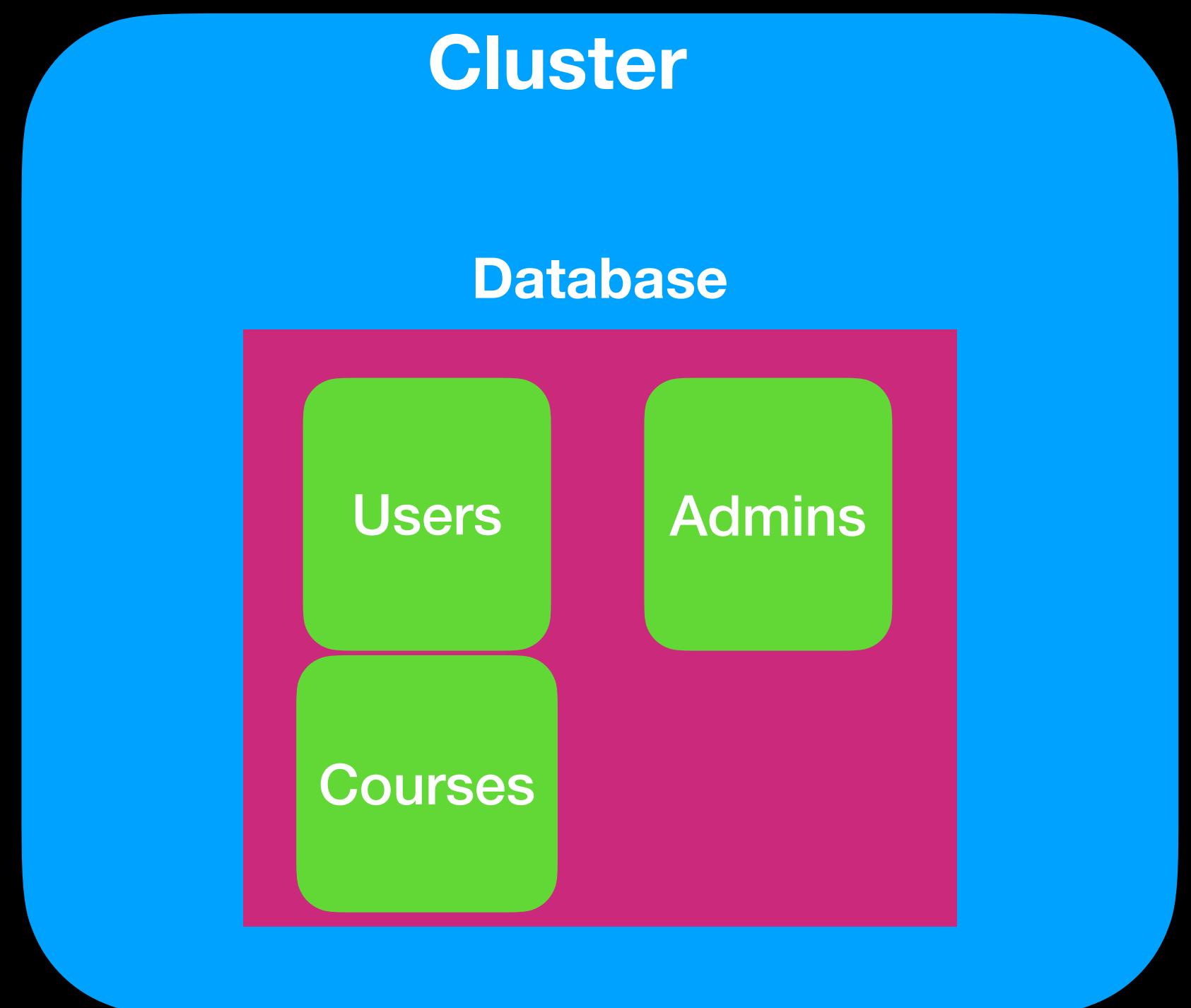
How learners like you are achieving their goals

“ 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 ”

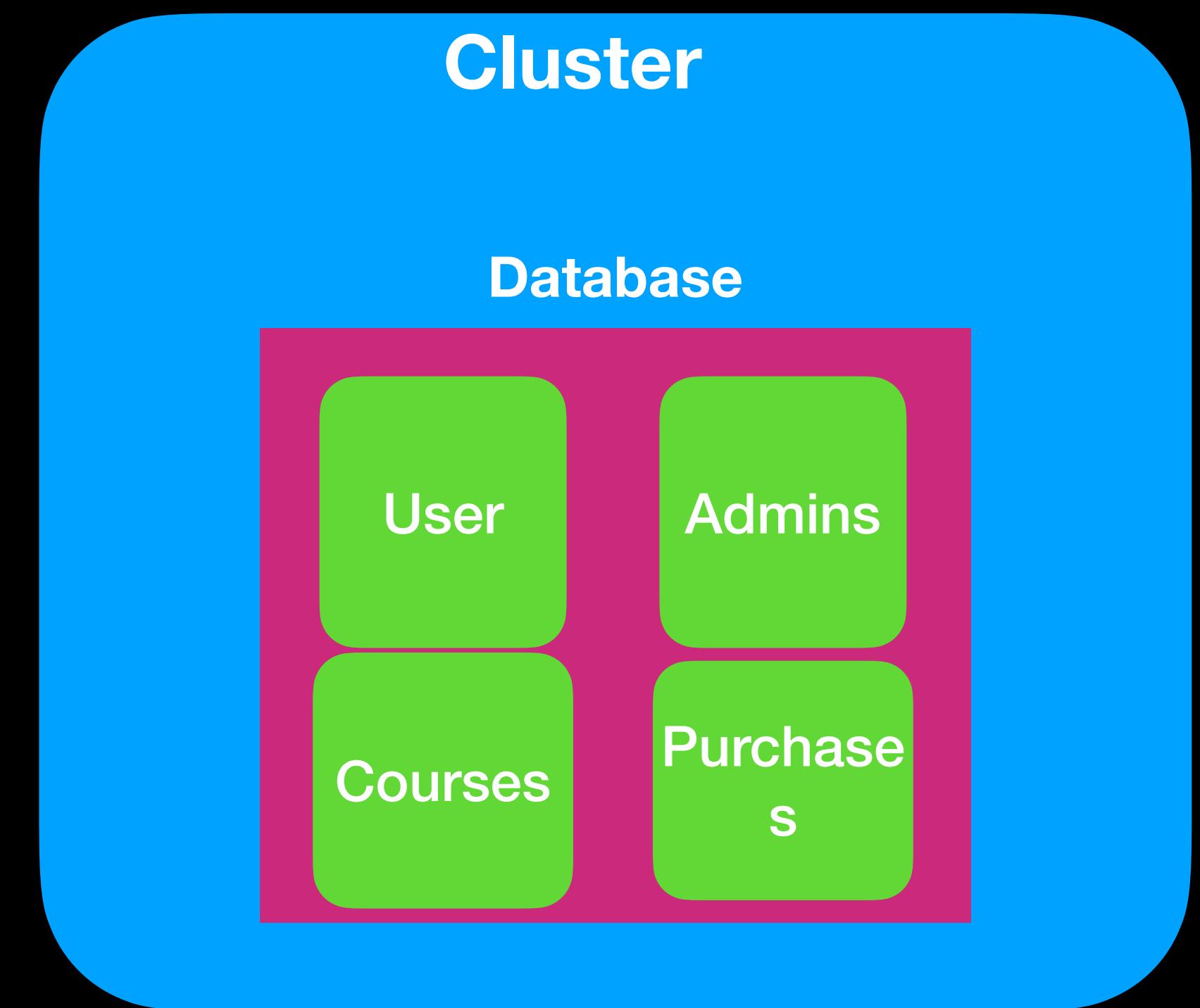
“ I highly **buddin** prior kr ”



What is a database

What would this mean for a simple course app

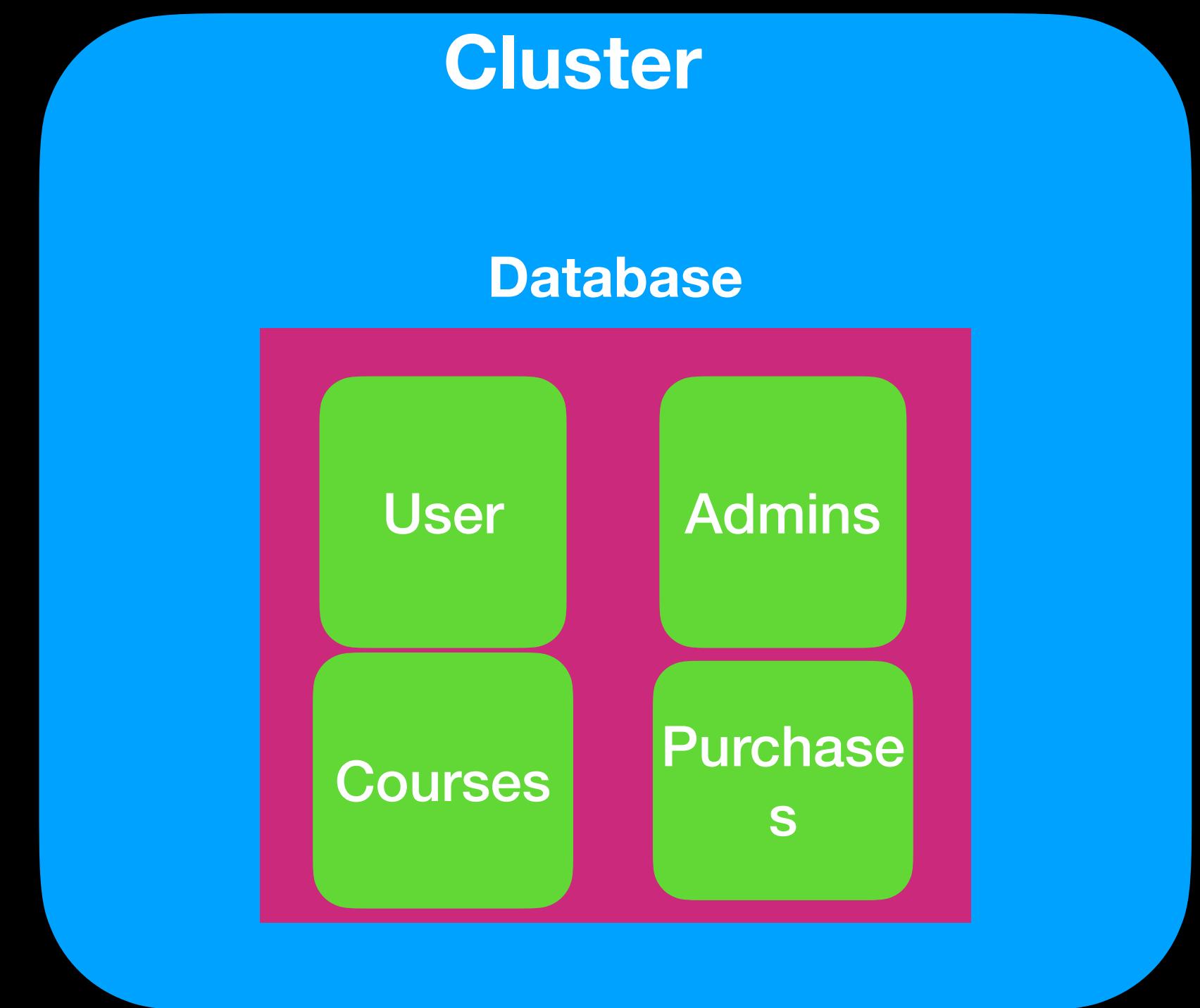
Users				
Id	Email	Password	Name	Age
1	harkirat@gmail.com	123123	harkirat	20
2	raman@gmail.com	kirat123	harkirat	22



What is a database

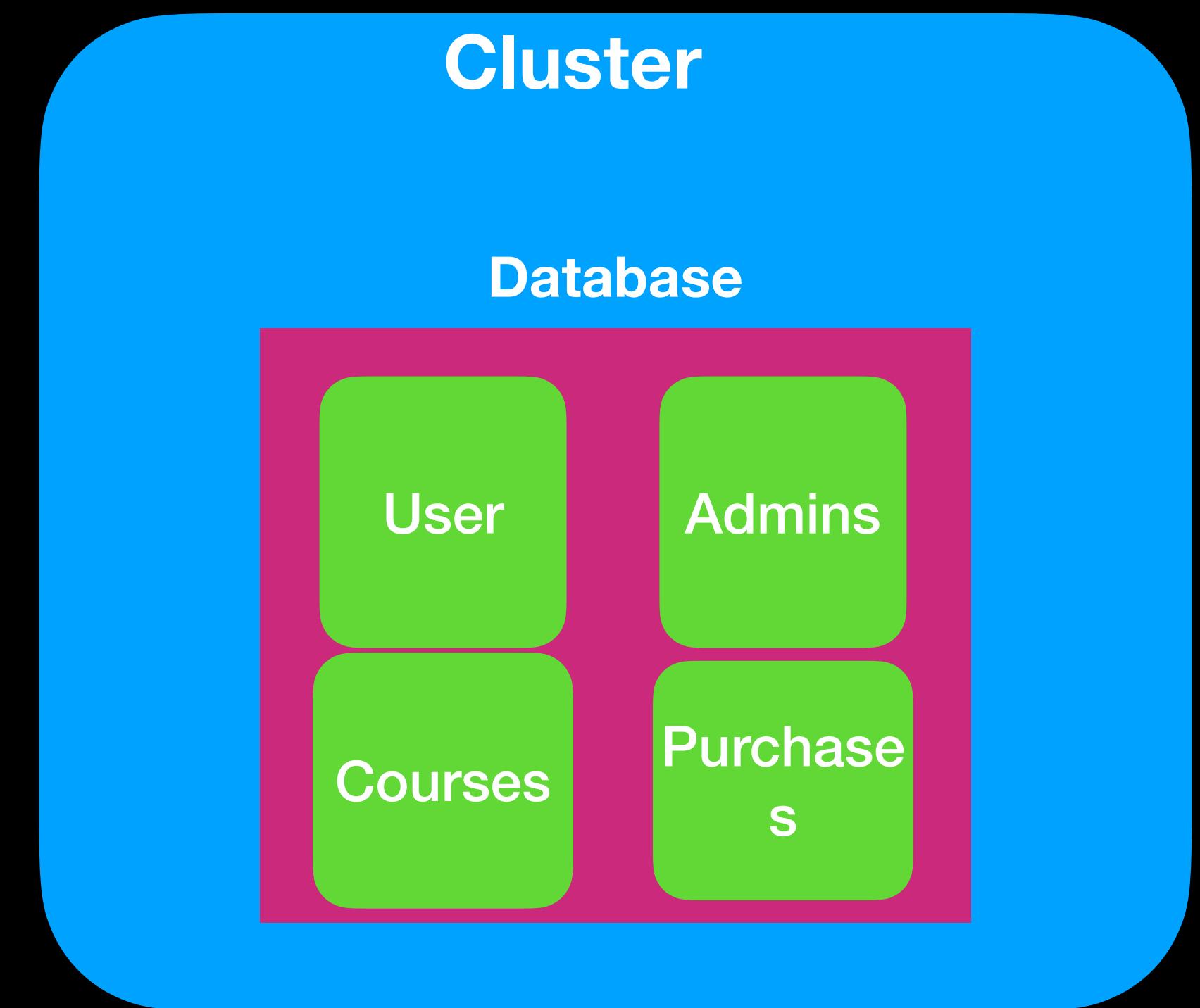
What would this mean for a simple course app

Admins			
Id	Email	Password	Name
1	admin@gmail.com	123123	Raman
2	admin2@gmail.com	123123	Kirat



What is a database

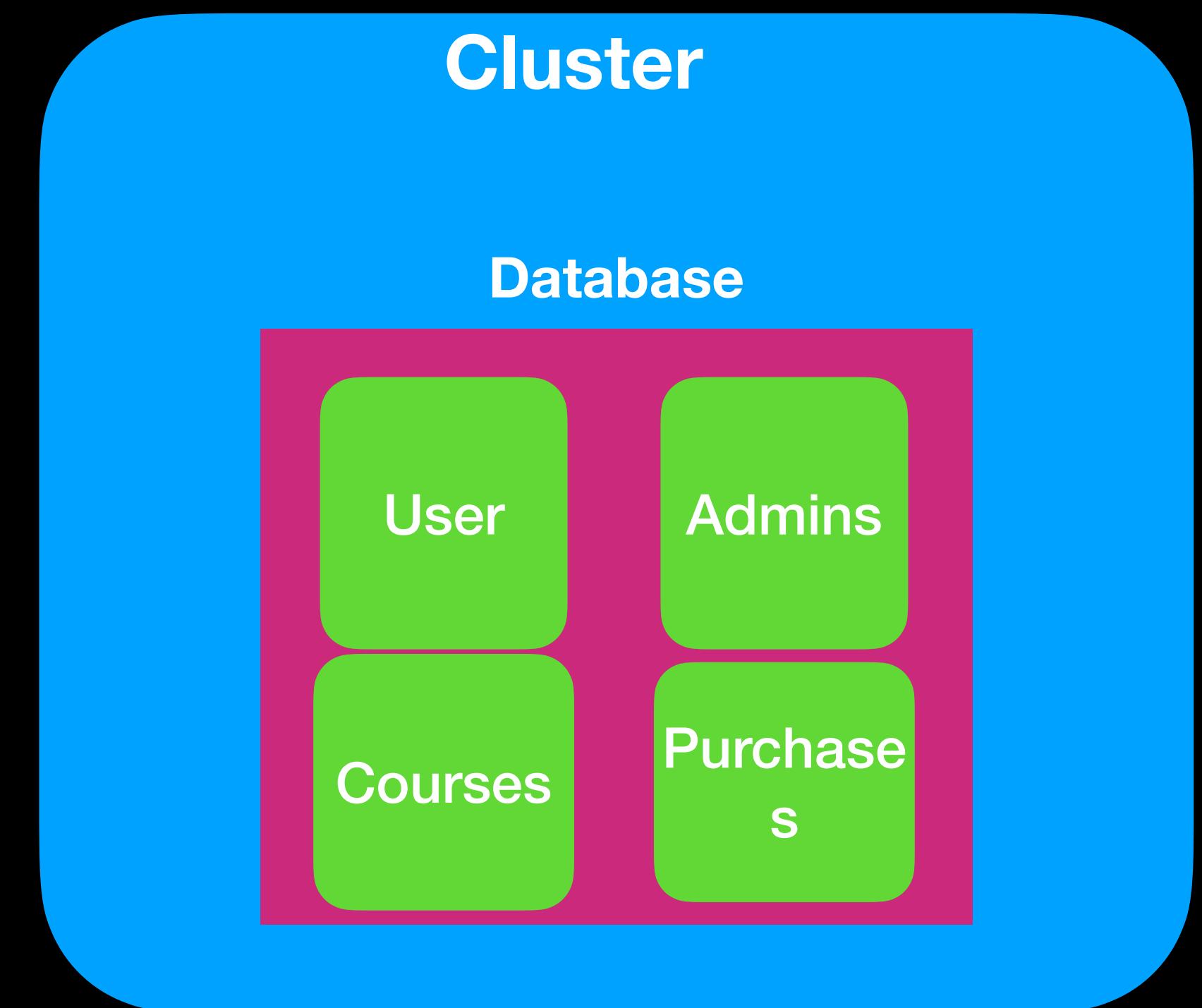
Courses			
id	Title	Description	Price
1.	Full stack	Learn Full stack	5000
2.	Web3	Learn Web3.	3999



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');  
    });  
});
```