



May 30

Q&A

Databases

What we know so far

- We're using SQLite by default
- We can use other databases with Rails very easily
- We are using Postgresql on Heroku

Types of DBs



SQL



NoSQL



RDBMS

relational database management system

SQL

structured query language

CREATE TABLE

```
CREATE TABLE table_name  
(  
column_name1 data_type(size),  
column_name2 data_type(size),  
column_name3 data_type(size),  
...  
);
```

CREATE TABLE

```
CREATE TABLE "articles" ("id" INTEGER  
PRIMARY KEY AUTOINCREMENT NOT NULL,  
"title" varchar(255), "created_at"  
datetime, "updated_at" datetime);
```

SELECT

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

SELECT

```
SELECT id, title from articles;
```

SELECT

```
SELECT * from articles;
```

INSERT

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


INSERT

```
INSERT INTO
```

```
"articles" ("created_at", "title",  
"updated_at") VALUES ("2016-05-24  
18:25:38.638132", "blah blah",  
"2016-05-24 18:25:38.638132");
```

UPDATE

```
UPDATE table_name
```

```
SET
```

```
column1=value1,column2=value2,...
```

```
WHERE some_column=some_value;
```

UPDATE

```
UPDATE articles  
SET title="Aladdin"  
WHERE id=4;
```

DELETE

```
DELETE FROM table_name  
WHERE some_column=some_value;
```

DELETE

```
DELETE FROM articles  
WHERE id = 4;
```

WHERE

```
SELECT column_name, column_name  
FROM table_name  
WHERE column_name operator value;
```

WHERE

```
SELECT *
```

```
FROM articles
```

```
WHERE likes > 10;
```

ORDER BY

```
SELECT column_name, column_name  
FROM table_name  
ORDER BY column_name ASC|DESC,  
column_name ASC|DESC;
```


ORDER BY

```
SELECT *
```

```
FROM articles
```

```
ORDER BY created_at ASC;
```

LIKE

```
SELECT column_name(s)  
FROM table_name  
WHERE column_name LIKE pattern;
```

LIKE

```
SELECT *
```

```
FROM articles
```

```
WHERE title LIKE 'The%';
```

NOT NULL

```
SELECT *
```

```
FROM articles
```

```
WHERE title LIKE 'The%';
```

UNIQUE

```
CREATE TABLE Persons
(
P_Id int NOT NULL,
LastName varchar(255) NOT NULL,
FirstName varchar(255),
Address varchar(255),
Email varchar(255),
City varchar(255),
UNIQUE (P_Id)
)
```

PRIMARY KEY

```
CREATE TABLE "articles" ("id" INTEGER  
PRIMARY KEY AUTOINCREMENT NOT NULL,  
"title" varchar(255), "created_at"  
datetime, "updated_at" datetime);
```

INDEX

```
CREATE INDEX index_name  
ON table_name (column_name)
```

INDEX

```
CREATE INDEX PIndex  
ON Persons (Email)
```


Relationships (Joins)

Inner Join / Simple Join

orders

customers

order_id
customer_id
order_date
price

customer_id
customer_name
country

Returns all rows when there is at least one match in BOTH tables

Inner Join / Simple Join

```
SELECT Orders.OrderID, Customers.CustomerName,  
Orders.OrderDate  
FROM Orders  
INNER JOIN Customers  
ON Orders.CustomerID=Customers.CustomerID;
```

Inner Join Result



resulting data

order_id
customer_name
order_date

Active Record

Creating a table via a model

```
$ rails g model Article title:string
```

```
$ rake db:migrate
```

Migrations

Creating a table via a model

```
class CreateArticles < ActiveRecord::Migration
  def change
    create_table :articles do |t|
      t.string :title

      t.timestamps null: false
    end
  end
end
```


Add a column to a table

```
$ rails g migration add_body_to_articles body:text
```

```
class AddBodyToArticles < ActiveRecord::Migration
  def change
    add_column :articles, :body, :text
  end
end
```

```
$ rake db:migrate
```

Model methods

Model.new

```
Article.new(title: "Web Development")
```

Model.create

```
Article.create(title: "Web Development")
```

Model.all

Article.all

Model.find

```
Article.find(1)
```

Model.first

Article.first

Model.last

Article.last

Model.where

```
Article.where(:title => "Humpty  
Dumpty")
```

Model.where

```
Article.where("title LIKE ?", "b%")
```

Model.save

```
@article = Article.first
```

```
@article.title = 'New title'
```

```
@article.save
```

Creating Seed Data

db/seeds.rb

```
100.times do  
  Article.create!(title: "hello")  
end
```

```
$ rake db:seed
```