Integration with MongoDB & Relational Databases

Node.js Accelerator – Jan’23

Agenda

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Node.js Accelerator

Jan’2022

Mongoose

Nice to have: Udemy MongoDB course

Optional reading suggested from our Slack channel:

- Basics: https://university.mongodb.com/on_demand/M001/about
- Aggregation framework used in udemy course: https://university.mongodb.com/on_demand/M121/about
- Data modeling: https://university.mongodb.com/on_demand/M320/about

Running with Docker

```
version: '3'
services:
 mongo:
   image: mongo
   restart: unless-stopped
   ports:
     - '27017:27017'
   volumes:
     - .docker-data/mongo:/data/rest-api
```

Mongo Atlas

You can also run a cloud free tier with Mongo Atlas

Schema | Models

Defining the schema and the model allow you to manage all the CRUD required operations

You can set the types, if it is required and if should be hidden by default when using the Model

You can also define relationship with different Schemas

```
import {Document, Schema, model} from 'mongoose';

export interface IUser extends Document {
  username: string;
  email: string;
  password?: string;
}

const userSchema = new Schema<IUser>( definition: {
  username: {type: String, required: true},
  email: {type: String, required: true},
  password: {type: String, required: true, select: false},
});

userSchema.index( fields: {email: 1});

export default model( name: 'User', userSchema)
```

With the Schema and Model set, you can easily manage the CRUD configuration. Let’s see on the code

```
session.startTransaction();        // for starting a new transaction
await session.commitTransaction(); // for committing all operations
await session.abortTransaction();  // for rollback the operations
```

TypeORM

Relational databases are a good choice for structured data and it’s quite common to find companies that uses Postgres/Mysql (or others) instead of non relational databases such as MongoDB

TypeORM is one of the libraries that offers an abstract approach to the engineer to facilitate the database integration in NodeJS

Installing with:

- **npm install typeorm**
- **npm install reflect-metadata --save**
- **npm install pg (or any other that you want to use such as MySQL)**

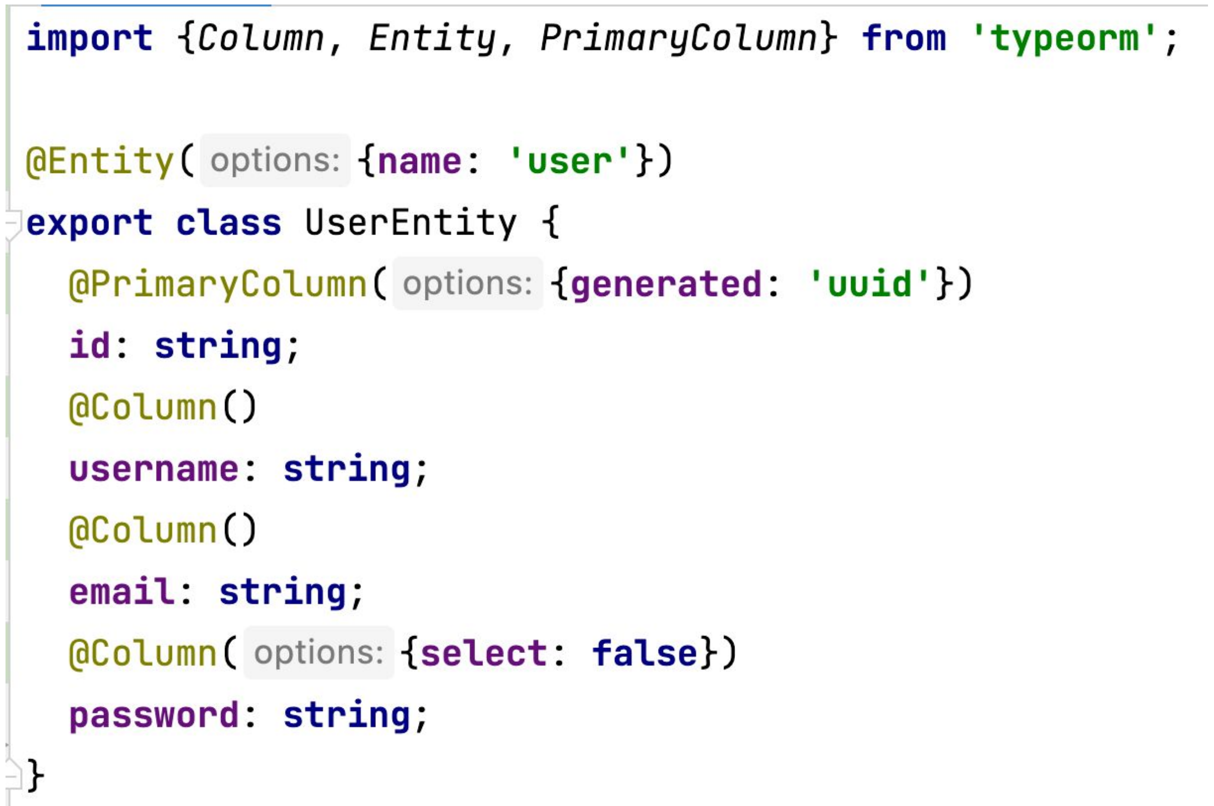
Postgres with Docker

Add a postgres service in the docker compose:

```
  db:
    image: postgres
    restart: always
    ports:
      - "5433:5432"
    environment:
      POSTGRES_PASSWORD: myPass!23
      POSTGRES_USER: user
      POSTGRES_DB: db
```

Entities

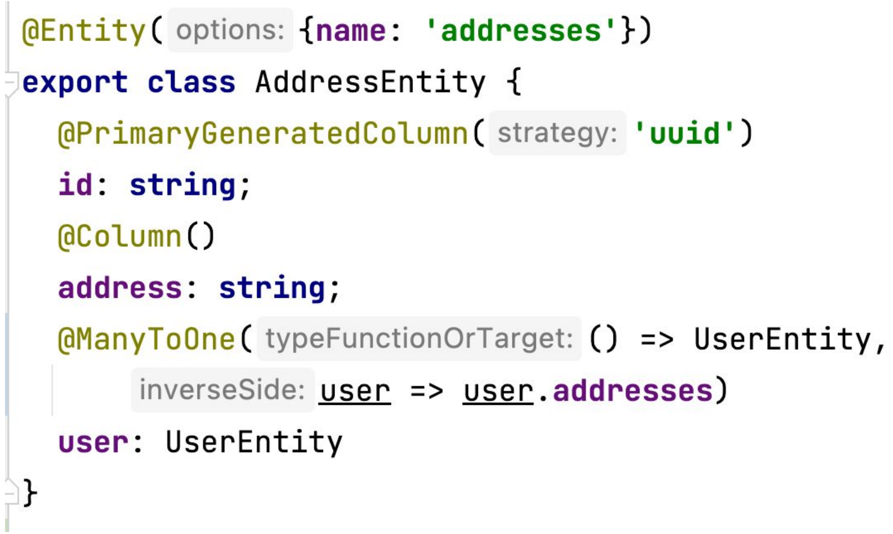
In TypeORM the entities are loaded with Decorators. You start your entities like the following:



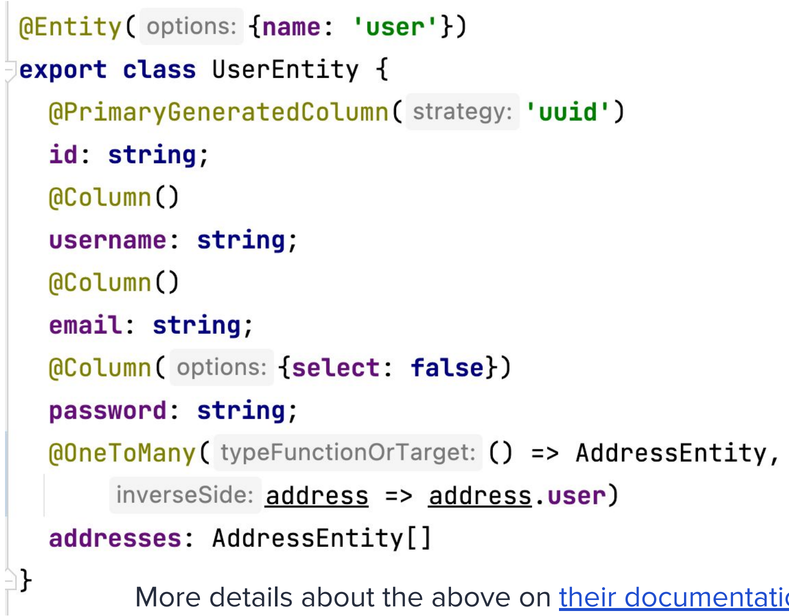
```
import {Column, Entity, PrimaryColumn} from 'typeorm';

@Entity( options: {name: 'user'})
export class UserEntity {
  @PrimaryColumn( options: {generated: 'uuid'})
  id: string;
  @Column()
  username: string;
  @Column()
  email: string;
  @Column( options: {select: false})
  password: string;
}
```

If we would be using Postgres for our incremental project, the addresses should be set as



```
@Entity( options: {name: 'addresses'})
export class AddressEntity {
  @PrimaryGeneratedColumn( strategy: 'uuid')
  id: string;
  @Column()
  address: string;
  @ManyToOne( typeFunctionOrTarget: () => UserEntity,
      inverseSide: user => user.addresses)
  user: UserEntity
}
```



```
@Entity( options: {name: 'user'})
export class UserEntity {
  @PrimaryGeneratedColumn( strategy: 'uuid')
  id: string;
  @Column()
  username: string;
  @Column()
  email: string;
  @Column( options: {select: false})
  password: string;
  @OneToMany( typeFunctionOrTarget: () => AddressEntity,
      inverseSide: address => address.user)
  addresses: AddressEntity[]
}
```

More details about the above on their documentation

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ACTION ITEMS

Week 3

Action Items

1. We strongly recommend you to explore below module through Udemy this week and learn about Node.js essentials

Module	Topic	Description	Udemy Link	
Self-paced learning on Udemy	ExpressJS	Learn to build API using ExpressJS, handling HTTP Requests, routing, Templating engines like Pug, handlebars	Click here	5 Hrs 6 min
Project	Incremental Project	Read the Project Requirement Part1 and Part2 Documents		

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