

./SRC/PROJECT



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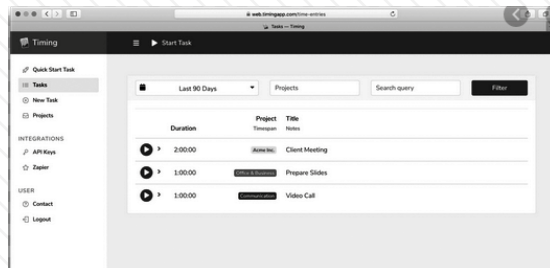
./SRC/PROJECT/ROUTE



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./SRC/PROJECT/ROUTE/SPEC

For what the ... ?



Web Frontend



Server Backend

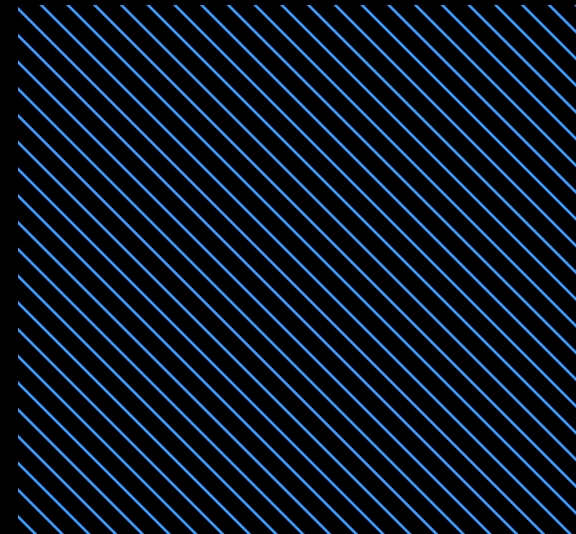


metachron Database



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./SRC/PROJECT/DATABASE



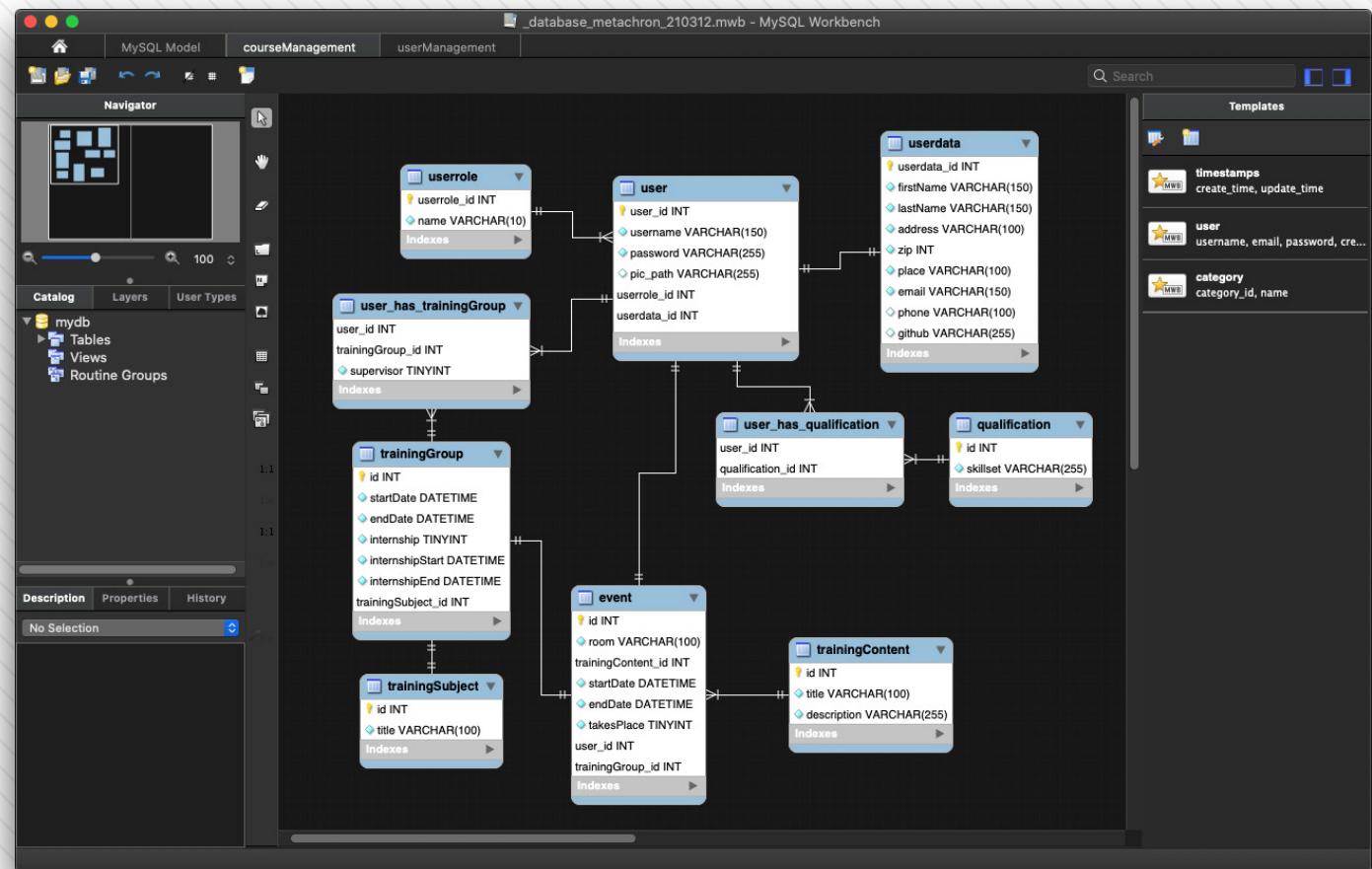


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./SRC/PROJECT/DATABASE

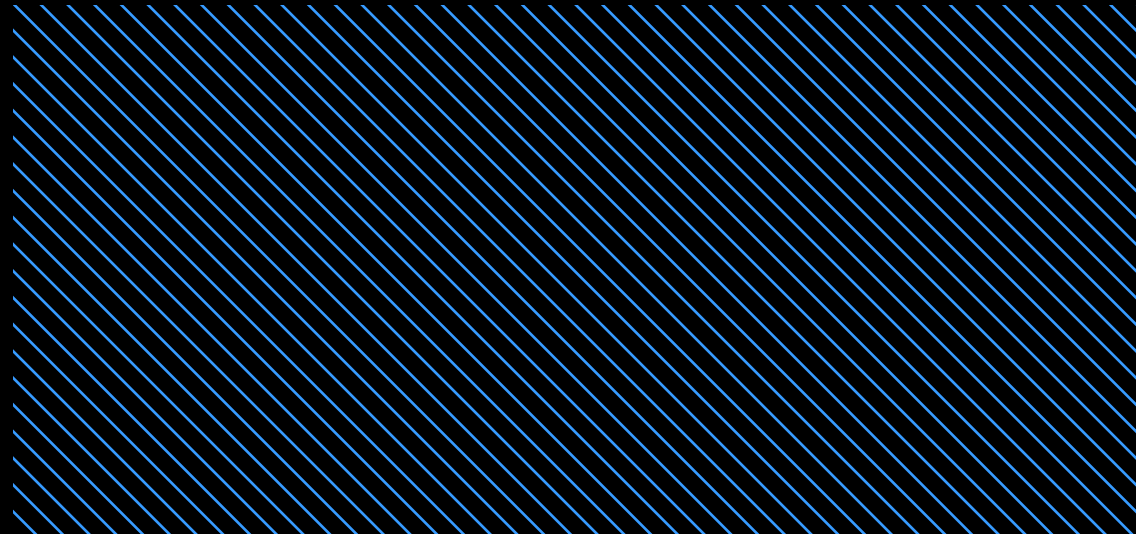
SELECT * FROM?

- MYSQLWORKBENCH
- database design



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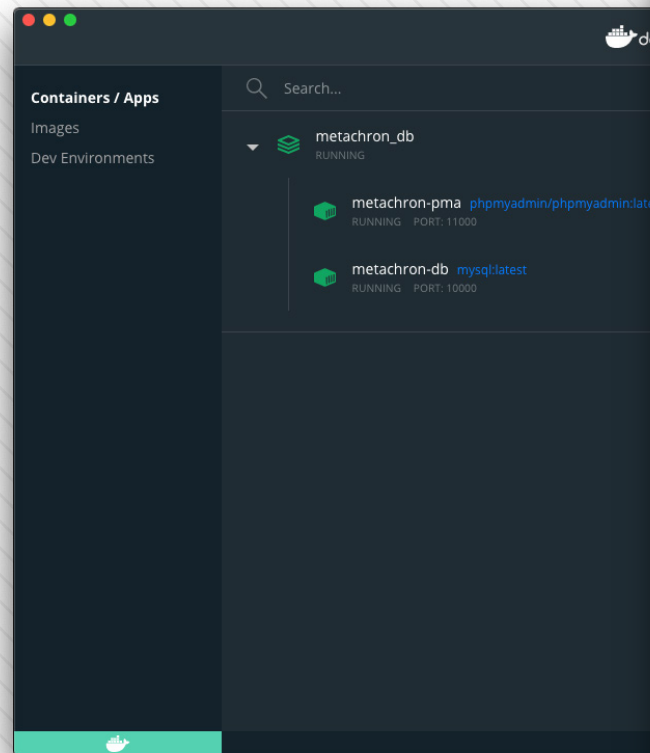
./SRC/PROJECT/DOCKER





CONTAINER != ENOUGH?

- docker desktop
 - setup docker containers
 - pma (port: 11000)
 - db (port: 10000)
- docker-compose.yaml



```
version: "3.7"

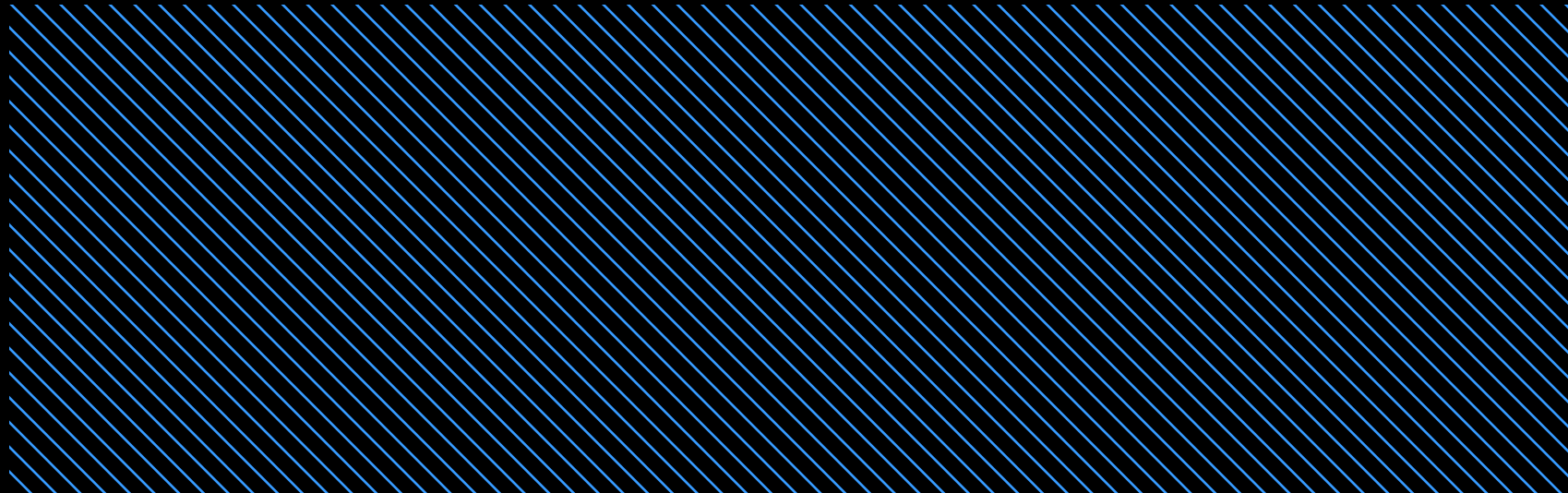
services:
  db:
    container_name: metachron-db
    image: mysql:latest
    restart: always
    environment:
      MYSQL_ROOT_PASSWORD:
      MYSQL_DATABASE: metachron_db
      MYSQL_USER: user
      MYSQL_PASSWORD:
    ports:
      - 10000:3306
    volumes:
      - .data:/var/lib/mysql

  phpmyadmin:
    container_name: metachron-pma
    image: phpmyadmin/phpmyadmin:latest
    restart: always
    depends_on:
      - db
    links:
      - db:db
    environment:
      PMA_HOST: db
      PMA_USER: root
      PMA_PASSWORD:
    ports:
      - 11000:80

volumes:
  data:
```

./SRC/PROJECT

./SRC/PROJECT/CLIENT





CLIENT-APP



- npm
- creating react-app for frontend
- some usefull cli-commands
 - npx create-react-app .
 - npm start
 - npm i react-router-dom
 - npm i react-icons\
 - npm i styled-components
 - npm i react-router-hash-link
 - npm i typewriter-effect
 - npm i axios

```
{
  "name": "client",
  "version": "0.1.0",
  "private": true,
  "dependencies": {
    "@testing-library/jest-dom": "
    "@testing-library/react": "^11
    "@testing-library/user-event":
    "axios": "^0.21.1",
    "react": "^17.0.2",
    "react-dom": "^17.0.2",
    "react-icons": "^4.2.0",
    "react-router-dom": "^5.2.0",
    "react-router-hash-link": "^2.
    "react-scripts": "4.0.3",
    "styled-components": "^5.2.2",
    "typewriter-effect": "^2.17.0"
    "web-vitals": "^1.1.1"
  },
  "scripts": {
    "start": "react-scripts start"
    "build": "react-scripts build"
    "test": "react-scripts test",
    "eject": "react-scripts eject"
  },
  "eslintConfig": {
    "extends": [
      "react-app",
      "react-app/jest"
    ]
  },
  "browserslist": {
    "production": [
      ">0.2%",
      "not dead",
      "not on mini all"
```

```
import React from "react";
import { BrowserRouter as Router } from
"react-router-dom";
import Routes from "../routes/Routes";

import Navigation from
"./components/Navigation/Navigation";

import "../styles/main/main-style.css";

function App() {
  return (
    <div className="App">
      <Router>
        <Navigation />
        <Routes />
      </Router>
    </div>
  );
}

export default App;
```

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./SRC/PROJECT/SERVER



SERVER-APP



- npm
- creating node-app for backend
- some usefull cli-commands
 - npm init .
 - npm i express
 - npm i sequelize
 - npm i mysql2
 - npm i cors
 - npm i dotenv
 - npm nodemon --save-dev

```
{
  "name": "server",
  "version": "1.0.0",
  "description": "metachron",
  "main": "server.js",
  "scripts": {
    "test": "echo \"Error: no test specified\"",
    "start": "nodemon server.js",
    "exit": "exit 1",
    "keywords": [],
    "author": "phil.ziegelbauer",
    "license": "MIT",
    "dependencies": {
      "bcrypt": "^5.0.1",
      "cors": "^2.8.5",
      "dotenv": "^8.2.0",
      "express": "^4.17.1",
      "mysql2": "^2.2.5",
      "sequelize": "^6.6.2",
      "uuid": "^8.3.2"
    },
    "devDependencies": {
      "nodemon": "^2.0.7"
    }
  }
}
```

```
const express = require("express");
const cors = require("cors");

const { sequelize } = require("../models");
require("dotenv").config();

/* port setup */
const port = process.env.SERVER_PORT || 3333;

const app = express();

/* parse automatically everything coming from frontend */
app.use(express.json());
// allow sending data from frontend to backend
const corsOptions = {
  origin: "http://localhost:3000",
  optionSuccessStatus: 200
};

/* allows cross-origin resource sharing */
app.use(cors(corsOptions));
// app.options('*', cors());
// app.use(cors());

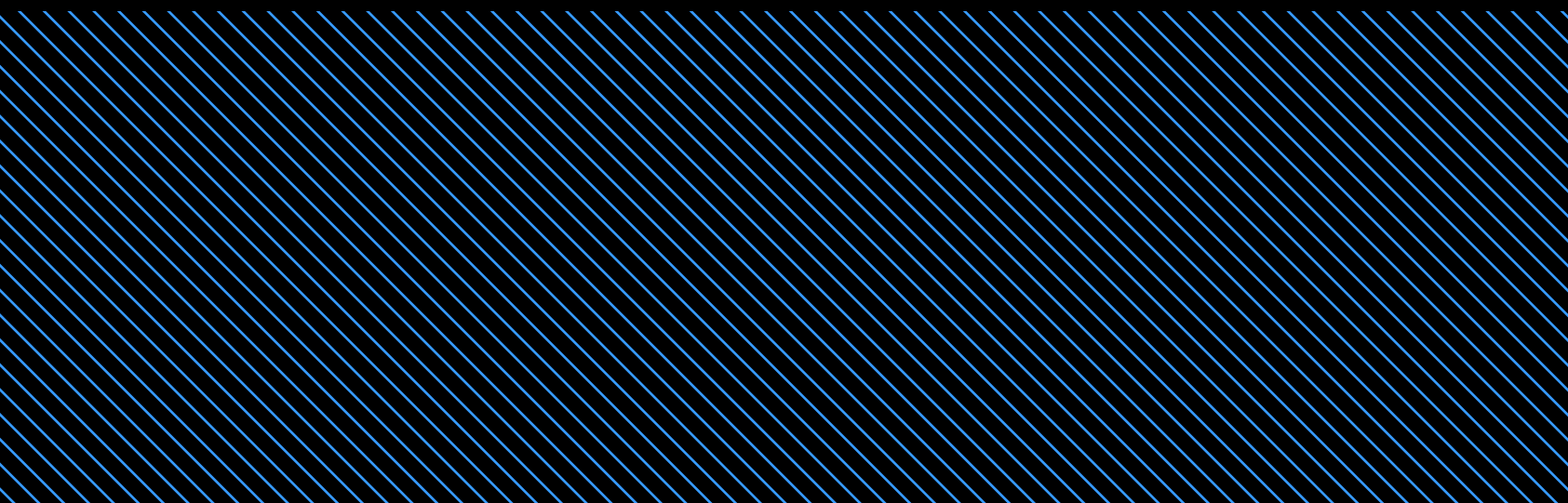
// simple home route
/* define simple home route */
app.get("/", (req, res) => {
  res.json({ message: "express is running" });
});

/* define user routes */
app.use("/", require("../routes/user.routes"));

/* set port, listen for requests */
if (require.main === module) {
  app.listen(port, async () => {
    console.log(`Server started on`);
  });
}
```

./SRC/PROJECT

./SRC/PROJECT/ORM





SEQUELIZE



- some usefull cli-commands

- sequelize db:create
- sequelize model:generate
- sequelize db:drop
- sequelize db:create
- sequelize db:migrate (:undo(:all))
- sequelize seed:generate
- sequelize db:seed:all
- sequelize db:seed --seed name
- sequelize seed:undo (:all)
- sequelize db:migrate:status

```
'use strict';

/* import bcrypt */
const bcrypt = require('bcrypt');

const {
  Model
} = require('sequelize');

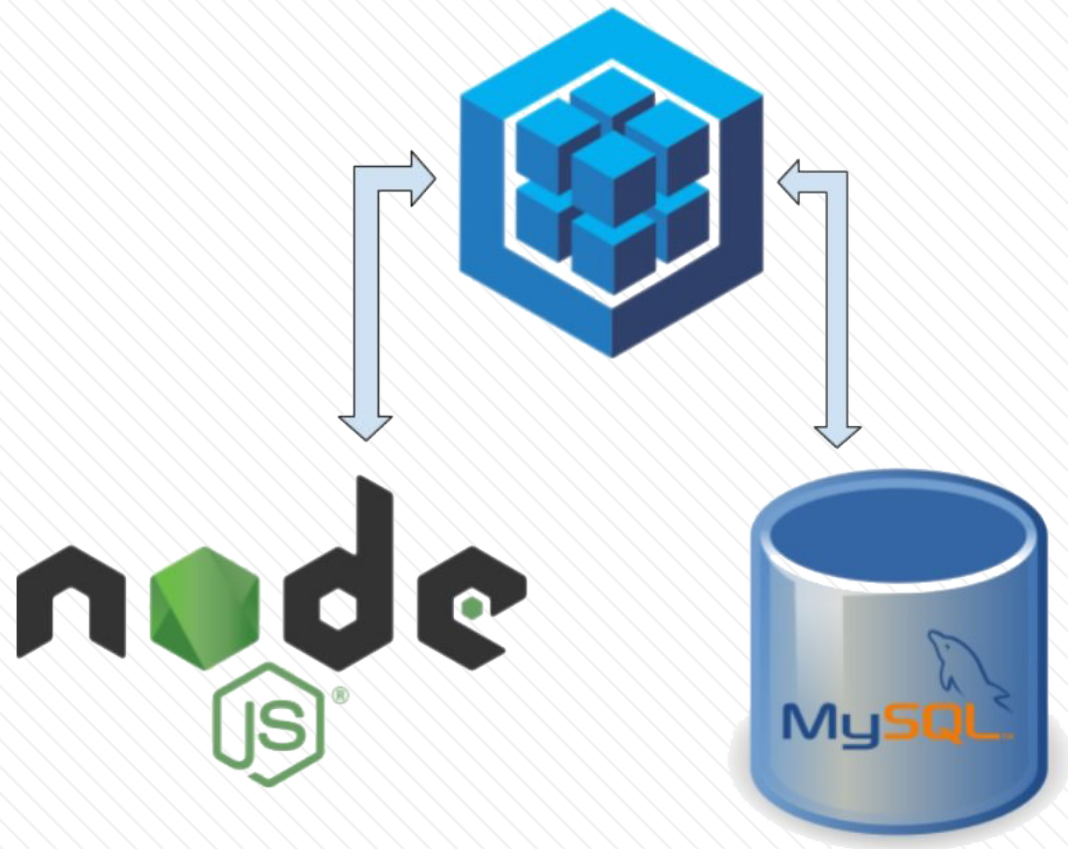
/* export model definition User */
module.exports = (sequelize, DataTypes) => {
  class User extends Model {
    /**
     * Helper method for defining associations.
     * This method is not a part of Sequelize lifecycle.
     * The `models/index` file will call this method.
     */
    static associate({ Userrole, Userdatainfo, Qualification }) {
      // define association here

      this.belongsTo(Userrole, { foreignKey: "userrole_id" });
      this.belongsTo(Userdatainfo, { foreignKey: "userdata_id" });
      this.belongsToMany(TrainingGroup, { through: "training_group_id" });
      this.belongsToMany(Qualification, { through: "qualification_id" });
      this.hasMany(Event, { foreignKey: "trainer_id" });
      this.belongsToMany(Event, { through: "event_id" });
    }
    toJSON() {
      return { ...this.get(), id: undefined };
    }
  }
  User.init({
    id: {
      type: DataTypes.INTEGER,
      autoIncrement: true,
      primaryKey: true,
      allowNull: false
    },
    uuid: {
      type: DataTypes.UUID,
      defaultValue: DataTypes.UUIDV4,
      unique: true,
      allowNull: false
    },
    username: {
      type: DataTypes.STRING,
      unique: true,
      allowNull: false
    },
    password: {
      type: DataTypes.STRING,
      allowNull: false
    },
    pic_path: {
      type: DataTypes.STRING,
      allowNull: false
    },
    userrole_id: {
      type: DataTypes.INTEGER,
      allowNull: false
    },
    userdata_id: {
      type: DataTypes.INTEGER,
      allowNull: false
    },
    createdAt: {
      type: DataTypes.DATE,
      allowNull: false
    }
  }, {
    sequelize,
    modelName: 'User'
  });
};
```



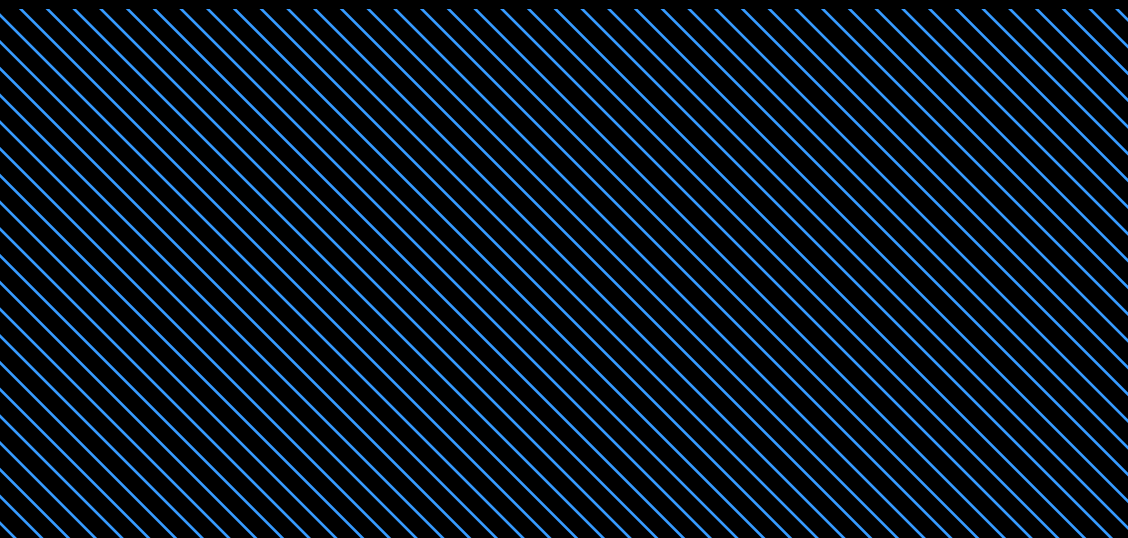
NODEJS-SEQUELIZE-MYSQL

- sequelize is translation layer between nodejs and the db
- define model objects
- define model associations
- no raw query strings (select * from...)
- migrate to db
- possibility to setup seeders
- possibility to nest objects
- single language (js in our case)



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./SRC/PROJECT/BCRYPT





SECURE INFORMATION

node.bcrypt.js

- bcrypt to hash information to db
(for example password)
(in our case saltrounds = 10)

\$2y\$10\$6z7GKa9kpDN7KC3ICW1Hi.ffd0/to7Y/x36WUKNP0IndHdkdR9Ae3K

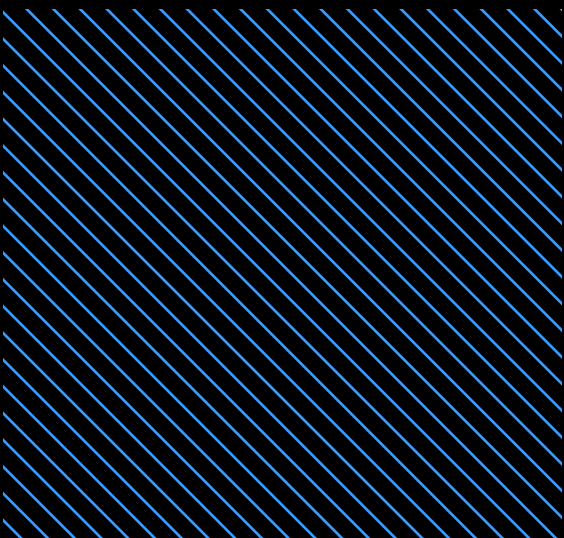
Algorithm options (eg cost) Hashed password

Algorithm

id	uuid	username	password	pic_path
1	273c8a7c-75e1-4693-9902-ba4c84cecb7d	max	\$2b\$10\$L6mO75m4wEhO8DB31TDTeXZdeY4mDmQGJWwOSwUte5...	https://image.shutterstock.com/image-vector/glowin...
2	a3898cf7-e80d-44da-ad99-d822c136f66	frida	\$2b\$10\$fujo8XNQ8YCNzeExCtbfQpTbjGSov5TOyAlTaYU...	https://image.shutterstock.com/image-vector/glowin...

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./SRC/PROJECT/INSOMNIA-API-CLIENT

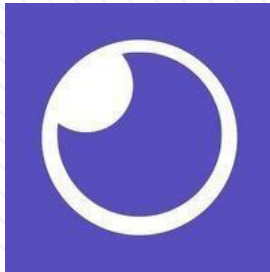




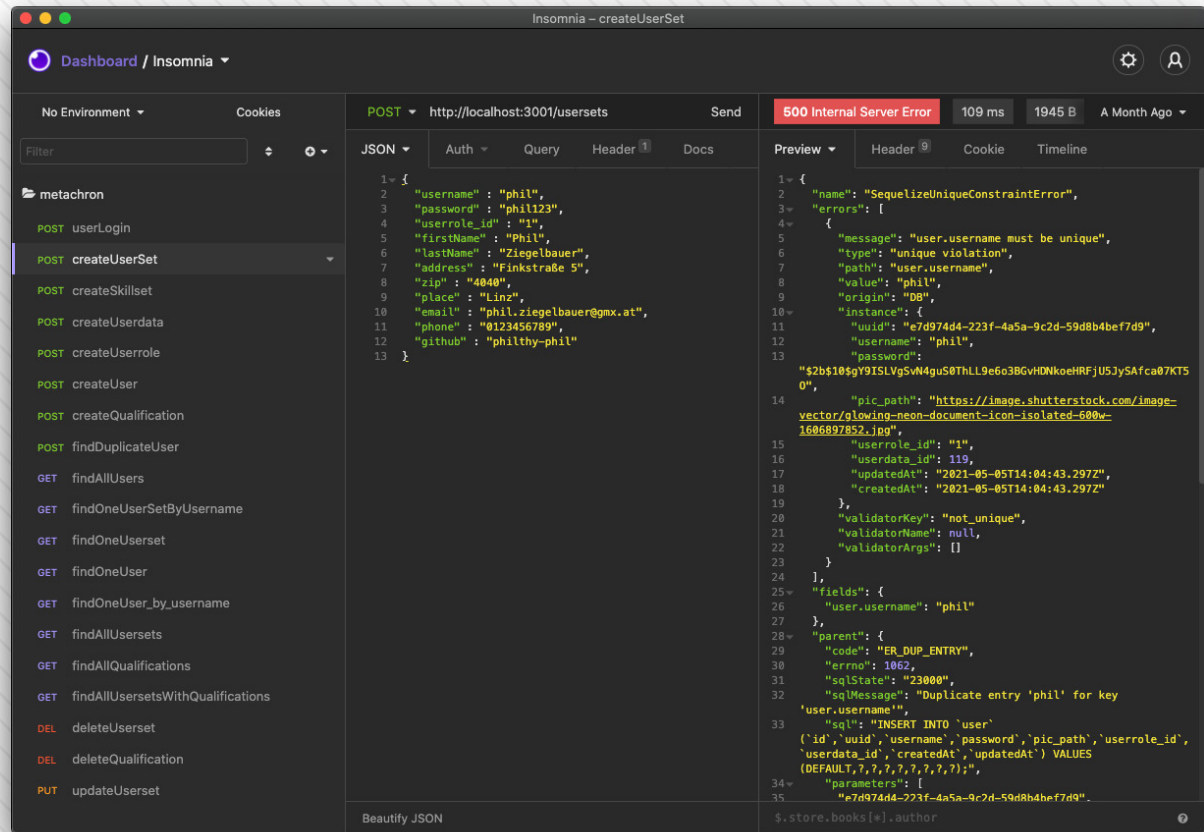
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./SRC/PROJECT/INSOMNIA

SECURE INFORMATION



- insomnia is a api-client
(like postman just for free)
- testing our api routes (backend)
- CRUD routes





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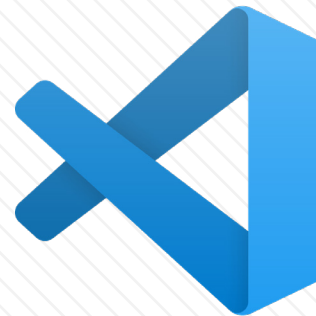
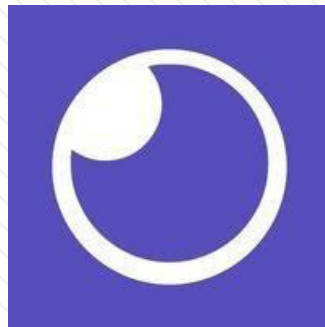
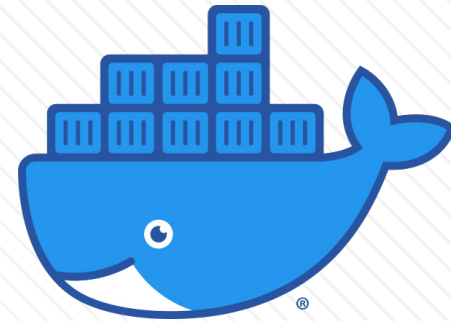
./SRC/PROJECT/APPS



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./SRC/PROJECT/APP/SPEC

What the ... ?





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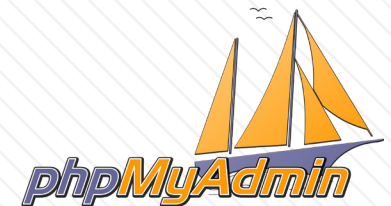
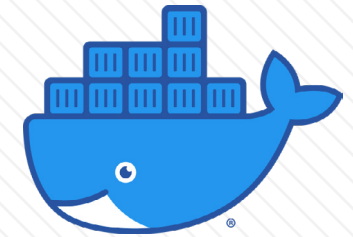
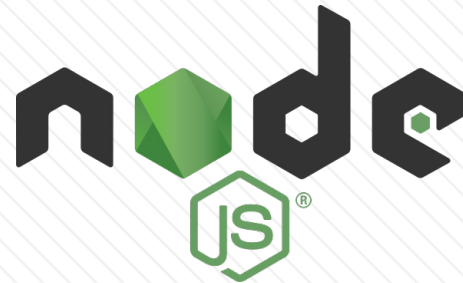
./SRC/PROJECT/TEC



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./SRC/PROJECT/TEC/SPEC

How the ... ?



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./SRC/PROJECT/CODE

