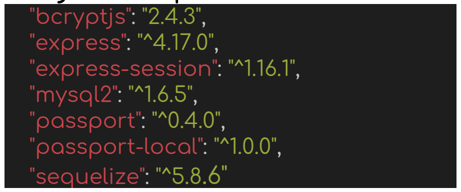
Reverse Engineering Authentication Homework

File Name: package.json

High Level Purpose of File: This file is used to give information to npm that allows it to identify the project as well as handle the project's dependencies.

	Functionality	Example Part (if applicable)
Dependencies FOR this File: (Inputs):	None	
Dependencies ON this File (Outputs):	None	

Parts of the File:	• Bycryptjs for a secured way of storing passwords & creating hashes
	• Express is middleware that serves static files
	• Express-session will create a session id in a cookie and saves it server side that you can store data in mySQL or mongo.
	• Mysql12 allows to use mysql database
	• Passport is authentication middleware for node.js and provides different strategies for authenticating a user
	• Passport-local same as passport just locally
	• Sequelize lets you use manage the sql database
		Project dependencies:
		
		`"bcryptjs": "2.4.3",`
		`"express": "^4.17.0",`
		`"express-session": "^1.16.1",`
		`"mysql2": "^1.6.5",`
		`"passport": "^0.4.0",`
		`"passport-local": "^1.0.0",`
		`"sequelize": "^5.8.6"`

File Name: config.config.json

High Level Purpose of File: credentials for development, test and production databases to connect to your mysql database.

File Name: config.passport.js

High Level Purpose of File: Allows & checks the user to sign in using email and password.

	Functionality	Example Part (if applicable)
Dependencies FOR this File: (Inputs):	Requires passport module & passport-local module Requires models folder	`var passport = require("passport");` `var LocalStrategy = require ("passport-local").Strategy;` `var db = require ("../models");`
Outputs:	Module export is passport	`module.exports = passport;`
Parts of the File:	Passport will use local strategy for login email for username User will sign in with email	`passport.use(new LocalStrategy(` `{` `usernameField: "email"` `},`
	User will enter email and password, If the email (or user) is not recognized, it returns incorrect email error to the user.	`function(email, password, done) {` `db.User.findOne({` `where: {` `email: email` `}` `}).then(function(dbUser) {` `if (!dbUser) {` `return done(null, false, {` `message: "Incorrect email."` `});` `}`
	If the email is recognized, but the password is not recognized, then it returns incorrect password to the user. Otherwise, it returns the user	`else if (!dbUser.validPassword(password)) {` `return done(null, false, {` `message: "Incorrect password."` `});` `}` `return done(null, dbUser);` `});` `}` `));`
	Sets the cookie id in the users browser	`passport.serializeUser(function(user, cb) {` `cb(null, user);` `});`
	Removes the cookie id from the users browser	`passport.deserializeUser(function(obj, cb) {` `cb(null, obj);` `});`

File Name: config.middleware.isAuthenticated.js

High Level Purpose of File: Middleware that restricts users to only navigate if signed in, restricts routes.

	Functionality	Example Part (if applicable)
Parts of the File:	Lets user continue	`module.exports = function(req, res, next) {` `if (req.user) {` `return next();` `}`
	Redirects if not logged in	`return res.redirect("/");` `};`

File Name: model.user.js

High Level Purpose of File: Creates the user model for SQL database

	Functionality	Example Part (if applicable)
Dependencies FOR this File: (Inputs):	Requires bcrypt for password hashing	`var bcrypt = require("bcryptjs");`
Outputs:	Structure of the database for mySQL	
Parts of the File:	Creates a new user model with sequelize It has a user table that has email as a column Email is required to be in the proper @ format and not null	`module.exports = function(sequelize, DataTypes) {` `var User = sequelize.define("User", {` `email: {` `type: DataTypes.STRING,` `allowNull: false,` `unique: true,` `validate: {` `isEmail: true` `}` `},`
	Password is another column, the password can't be null	`password: {` `type: DataTypes.STRING,` `allowNull: false` `}` `});`
	This is a method that looks at the hashed password in the database and compares to the password just input	`User.prototype.validPassword = function(password) {` `return bcrypt.compareSync(password, this.password);` `};`
	Then before the user can created it will automatically hash the password	`User.addHook("beforeCreate", function(user) {` `user.password = bcrypt.hashSync(user.password, bcrypt.genSaltSync(10), null);` `});` `return User;`

		`};`

File Name: model.index.js

High Level Purpose of File: Sign into mySQL and import table

	Functionality	Example Part (if applicable)

Dependencies FOR this File: (Inputs):	Require npm packages fs, path, sequelize, config & it will be using the environment variables
	
	Names basename = to that path for ease of the file
	Names env to point to the environment, related to the config folder – using development here
	Names db as an empty object
		`var fs        = require('fs');`
		`var path      = require('path');`
		`var Sequelize = require('sequelize');`
		`var basename  = path.basename(module.filename);`
		`var env       = process.env.NODE_ENV || 'development';`
		`var config    = require(__dirname + '/../config/config.json')[env];`
		`var db        = {};`

Outputs:	Exports as the database	`module.exports = db;`

Parts of the File:	Signs the user into mySQL using the config items	`if (config.use_env_variable) {`
		`  var sequelize = new Sequelize(process.env[config.use_env_variable]);`
		`} else {`
		`  var sequelize = new Sequelize(config.database, config.username, config.password, config);`
		`}`

	The fs. readdirSyncmethod is used to synchronously read the contents of a given directory. The method returns an array with all the file names or objects in the directory	`fs`
		`  .readdirSync(__dirname)`
		`  .filter(function(file) {`
		`    return (file.indexOf('.') !== 0) && (file !== basename) && (file.slice(-3) === '.js');`
		`  })`

	For each file take the new variable created called model and import the database model	`  .forEach(function(file) {`
		`    var model = sequelize['import'](path.join(__dirname, file));`
		`    db[model.name] = model;`
		`  });`

	If the database model has associated foreign keys across tables, allow them connected	`Object.keys(db).forEach(function(modelName) {`
		`  if (db[modelName].associate) {`
		`    db[modelName].associate(db);`
		`  }`
		`});`
		`db.sequelize = sequelize;`
		`db.Sequelize = Sequelize;`

File Name: public.login.html

High Level Purpose of File: Login page for the front end

	Functionality	Example Part (if applicable)
Dependencies FOR this File: (Inputs):	Requires bootstrap and the style.cc files Requires scripts for jquery and for the login.js file.	`<link rel="stylesheet" href="https://maxcdn.bootstrapcdn.com/bootswatch/3.3.7/lumen/bootstrap.min.css">` `<link href="stylesheets/style.css" rel="stylesheet">` `<script src="https://cdnjs.cloudflare.com/ajax/libs/jquery/3.2.1/jquery.min.js"></script>` `<script type="text/javascript" src="js/login.js"></script>`
Outputs:		
Parts of the File:	Creates a nav bar at the top	`<nav class="navbar navbar-default">` `<div class="container-fluid">` `<div class="navbar-header">` `</div>` `</div>` `</nav>`
	Creates a container that has 1 row 2 columns It has a form group that has email address It has another form group that's password It has a button that has submit to log in It has a sign up link that reroutes to signup.html	`<div class="container">` `<div class="row">` `<div class="col-md-6 col-md-offset-3">` `<h2>Login Form</h2>` `<form class="login">` `<div class="form-group">` `<label for="exampleInputEmail1">Email address</label>` `<input type="email" class="form-control" id="email-input" placeholder="Email">` `</div>` `<div class="form-group">` `<label for="exampleInputPassword1">Password</label>` `<input type="password" class="form-control" id="password-input" placeholder="Password">` `</div>` `<button type="submit" class="btn btn-default">Login</button>` `</form>` `<br />` `<p>Or sign up <a href="/">here</a></p>` `</div>` `</div>` `</div>`

File Name: public.signup.html

High Level Purpose of File: Signup page for the front end

	Functionality	Example Part (if applicable)
Dependencies FOR this File: (Inputs):	Requires bootstrap and the style.cc files Requires scripts for jquery and for the signup.js file.	`<link rel="stylesheet" href="https://maxcdn.bootstrapcdn.com/bootswatch/3.3.7/lumen/bootstrap.min.css">` `<link href="stylesheets/style.css" rel="stylesheet">` `<script src="https://cdnjs.cloudflare.com/ajax/libs/jquery/3.2.1/jquery.min.js"></script>` `<script type="text/javascript" src="js/signup.js"></script>`
Outputs:		
Parts of the File:	Creates a nav bar at the top	`<nav class="navbar navbar-default">` `<div class="container-fluid">` `<div class="navbar-header">` `</div>` `</div>` `</nav>`
	Creates a container that has 1 row 2 columns It has a form group that has email address It has another form group that's password It has a button that has submit to sign up It has a login link that reroutes to login.html	`<div class="container">` `<div class="row">` `<div class="col-md-6 col-md-offset-3">` `<h2>Sign Up Form</h2>` `<form class="signup">` `<div class="form-group">` `<label for="exampleInputEmail1">Email address</label>` `<input type="email" class="form-control" id="email-input" placeholder="Email">` `</div>` `<div class="form-group">` `<label for="exampleInputPassword1">Password</label>` `<input type="password" class="form-control" id="password-input" placeholder="Password">` `</div>` `<div style="display: none" id="alert" class="alert alert-danger" role="alert">` `<span class="glyphicon glyphicon-exclamation-sign" aria-hidden="true"></span>` `<span class="sr-only">Error:</span> <span class="msg"></span>` `</div>`

		`<button type="submit" class="btn btn-default">Sign Up</butto` `n>` `</form>` `<br />` `<p>Or log in <a href="/login">here</a></p>` `</div>` `</div>` `</div>`

File Name: public.members.html
High Level Purpose of File: Signup page for the front end

	Functionality	Example Part (if applicable)
Dependencies FOR this File: (Inputs):	Requires bootstrap and the style.cc files Requires scripts for jquery and for the members.js file.	`<link rel="stylesheet" href="https://maxcdn.bootstrapcdn.com/boo` `tswatch/3.3.7/lumen/bootstrap.min.css">` `<link href="stylesheets/style.css" rel="stylesheet">` `<script src="https://cdnjs.cloudflare.com/ajax/libs/jquery/3.2.1/jq` `uery.min.js"></script>` `<script type="text/javascript" src="js/members.js"></script>`
Outputs:		
Parts of the File:	Creates a nav bar at the top with logout button	`<nav class="navbar navbar-default">` `<div class="container-fluid">` `<div class="navbar-header">` `<a class="navbar-brand" href="/logout">` `Logout` `</a>` `</div>` `</div>` `</nav>`
	Creates a container with 1 row, 2 columns where class = member-name will be placed in here from the members.js file and populate	`<div class="container">` `<div class="row">` `<div class="col-md-6 col-md-offset-3">` `<h2>Welcome <span class="member-name"></span></h2>` `</div>` `</div>` `</div>`

File Name: public.stylesheets.style.css

High Level Purpose of File: Style for all front end pages

	Functionality	Example Part (if applicable)
Dependencies FOR this File: (Inputs):	none	

Outputs:	Uses bootstrap sign up and log in form styling.	`form.signup,`
		`form.login {`
		`  margin-top: 50px;`
		`}`

Parts of the File:	none	

File Name: public.js.login.js

High Level Purpose of File: Javascript file that supports the login page

	Functionality	Example Part (if applicable)
Dependencies FOR this File: (Inputs):	login.html Api-routes.js	
Outputs:		

Parts of the File:	Gets references for the forms and the inputs	`$(document).ready(function() {`
		`  var loginForm = $("form.login");`
		`  var emailInput = $("input#email-input");`
		`  var passwordInput = $("input#password-input");`

	On login, take the email and password and make sure that its not empty	`loginForm.on("submit", function(event) {`
		`    event.preventDefault();`
		`    var userData = {`
		`      email: emailInput.val().trim(),`
		`      password: passwordInput.val().trim()`
		`    };`
		
		`    if (!userData.email || !userData.password) {`
		`      return;`
		`    }`

	If we do have the login info then we run the function loginUser and clear the form	`loginUser(userData.email, userData.password);`
		`emailInput.val("");`
		`passwordInput.val("");`
		`});`

	The loginUser runs a post api that then redirects them to the member page if successful or logs an error if not successful.	`function loginUser(email, password) {`
		`  $.post("/api/login", {`
		`    email: email,`
		`    password: password`
		`  })`
		`    .then(function() {`
		`      window.location.replace("/members");`
		`    })`
		`    .catch(function(err) {`
		`      console.log(err);`
		`    });`
		`  }`
		`});`

File Name: public.js.signup.js

High Level Purpose of File: Javascript file that supports the signup page

	Functionality	Example Part (if applicable)
Dependencies FOR this File: (Inputs):	Signup.html Api-routes.js	
Outputs:		

Parts of the File:	Gets references for the forms and the inputs	`$(document).ready(function() {`
		`  var signUpForm = $("form.signup");`
		`  var emailInput = $("input#email-input");`
		`  var passwordInput = $("input#password-input");`

	On sign up, take the email and password and make sure that its not empty	`signUpForm.on("submit", function(event) {`
		`  event.preventDefault();`
		`  var userData = {`
		`    email: emailInput.val().trim(),`
		`    password: passwordInput.val().trim()`
		`  };`
		
		`  if (!userData.email || !userData.password) {`
		`    return;`
		`  }`

	If we do have the email and password, then run the signUpUser function	`signUpUser(userData.email, userData.password);`
		`emailInput.val("");`
		`passwordInput.val("");`

		`});`

	The signUpUser runs a post api that then redirects them to the member page if successful or logs an error if not successful.	`function signUpUser(email, password) {`
		`  $.post("/api/signup", {`
		`    email: email,`
		`    password: password`
		`  })`
		`    .then(function(data) {`
		`      window.location.replace("/members");`
		`    })`
		`    .catch(handleLoginErr);`
		`}`

	If there is an error then create an alert that says 500 error.	`function handleLoginErr(err) {`
		`  $("#alert .msg").text(err.responseJSON);`
		`  $("#alert").fadeIn(500);`
		`}`
		`});`

File Name: public.js.member.js
High Level Purpose of File: Javascript file that supports the member page

	Functionality	Example Part (if applicable)
Dependencies FOR this File: (Inputs):	members.html Api-routes.js	
Outputs:		

Parts of the File:	Runs a get route to see which user is signed in and updates the html on the member.html page	`$(document).ready(function() {`
		`  $.get("/api/user_data").then(function(data) {`
		`    $(".member-name").text(data.email);`
		`  });`
		`});`

File Name: routes.api-routes.js
High Level Purpose of File: Javascript file that has all the api routes within it

	Functionality	Example Part (if applicable)

Dependencies FOR this File: (Inputs):	Requires model folder and the passport
	Middleware passport.authenticate
		`var db = require("../models");`
		`var passport = require("../config/passport");`

Outputs:		

Parts of the File:	If the user has valid credentials per the passport.autheticate local strategy, then pass them to the members page, otherwise send error	`module.exports = function(app) {`
		`  app.post("/api/login", passport.authenticate("local"), function(req, res) {`
		`    res.json(req.user);`
		`  });`

	Route for signing up a user, if user is successful then it goes to the login, otherwise it sends error	`  app.post("/api/signup", function(req, res) {`
		`    db.User.create({`
		`      email: req.body.email,`
		`      password: req.body.password`
		`    })`
		`      .then(function() {`
		`        res.redirect(307, "/api/login");`
		`      })`
		`      .catch(function(err) {`
		`        res.status(401).json(err);`
		`      });`
		`  });`

	Route for logging out the user	`  app.get("/logout", function(req, res) {`
		`    req.logout();`
		`    res.redirect("/");`
		`  });`

	Route for getting user data, that if the user isn't logged in, its blank otherwise send back the email and id	`  app.get("/api/user_data", function(req, res) {`
		`    if (!req.user) {`
		`      res.json({});`
		`    } else {`
		`      res.json({`
		`        email: req.user.email,`
		`        id: req.user.id`
		`      });`
		`    }`
		`  });`
		`};`

File Name: routes.html-routes.js

High Level Purpose of File: Javascript file that has all the html routes within it

	Functionality	Example Part (if applicable)

Dependencies FOR this File: (Inputs):	Requires path and middleware isAuthenticated	`var path = require("path");`
		`var isAuthenticated = require("../config/middleware/isAuthenticated");`

	Each of the javascript files for each html (login, signup & members.js) all call this file	
Outputs:		

Parts of the File:	Send the user to sign up if they don't have a login, if they do then send to member page	module.exports = function(app) {
		  app.get("/", function(req, res) {
		    if (req.user) {
		      res.redirect("/members");
		    }
		    res.sendFile(path.join(__dirname, "../public/signup.html"));
		  });

	Send the user to sign up if they don't have a login, if they do then send to member page	app.get("/login", function(req, res) {
		    if (req.user) {
		      res.redirect("/members");
		    }
		    res.sendFile(path.join(__dirname, "../public/login.html"));
		  });

	If the member doesn't have a log in and tries to access the member page, it sends them to signup	app.get("/members", isAuthenticated, function(req, res) {
		    res.sendFile(path.join(__dirname, "../public/members.html"));
		  });

File Name: server.js

High Level Purpose of File: File that run post npm install node server.js – main file for all the components.

	Functionality	Example Part (if applicable)

Dependencies FOR this File: (Inputs):	Requires npm packages express & express-session
	
	Requires passport that we configured before
	
	Sets up the port and requires the models folder
		var express = require("express");
		var session = require("express-session");
		var passport = require("./config/passport");
		
		var PORT = process.env.PORT || 8080;
		var db = require("./models");

Outputs:		

Parts of the File:	Create express app and configure the middleware	var app = express();
		app.use(express.urlencoded({ extended: true }));
		app.use(express.json());
		app.use(express.static("public"));

	Use sessions to keep track of users logged in status	`app.use(session({ secret: "keyboard cat", resave: true, saveUninitialized: true })); app.use(passport.initialize()); app.use(passport.session());`
	Required routes needed	`require("./routes/html-routes.js")(app); require("./routes/api-routes.js")(app);`
	Syncing the database and console logging the success when it works	`db.sequelize.sync().then(function() { app.listen(PORT, function() { console.log("==> 🌎  Listening on port %s. Visit http://localhost:%s/ in your browser.", PORT, PORT); }); });`

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