

# **ECE 413/513 – Fall 2018**

## **Exam 2**

Monday, October 29, 2018

**Name:** \_\_\_\_\_

No booklets, additional paper, textbooks, or other materials may be referenced during this examination with the exception of one 8.5"x11" sheet of paper (front and back). Your only other resources are a pen/pencil, eraser, and this exam.

Submit answers only in space indicated on each page.

## 1. Multiple Choice Questions (2 points each)

(1.1) Using an XMLHttpRequest object named xhr, which of the following registers an event handler that is called when a server response is received?

- (a) `document.addEventListener("DOMContentLoaded", responseHandler);`
- (b) `xhr.addEventListener("DOMContentLoaded ", responseHandler);`
- (c) `xhr.addEventListener("load", responseHandler);`
- (d) `xhr.addEventListener("success", responseHandler);`
- (e) None of the above

(1.2) Which of the following uses jQuery to add the class “error” to an input element with ID userEmail?

- (a) `$("#input ").addClass("error");`
- (b) `$("#userEmail").addClass("error");`
- (c) `$(".input ").classList.add("error");`
- (d) `$(".userEmail").style.classList.add(("error"));`
- (e) None of the above

(1.3) What status code should be returned for an authentication failure of GET request for a RESTful endpoint?

- (a) 200
- (b) 201
- (c) 400
- (d) 401
- (e) None of the above

(1.4) Using a RESTful interface, what is the appropriate verb for an endpoint that adds points of interests to a map?

- (a) GET
- (b) POST
- (c) READ
- (d) RETRIEVE
- (e) None of the above

(1.5) What does the following statement do?

```
Employee.findOne({annualSalary: {$ge:40000}}).sort({"lastName": -1})
```

- (a) Finds all employees in the database whose salaries are greater than 40000.
- (b) Finds the first employee in the database whose salary is greater than 40000.
- (c) Finds the last employee in the database whose salary is greater than 40000.
- (d) Finds the alphabetically last employee (by last name) whose salary is greater than 40000.
- (e) Nothing

(1.6) `jwt.encode(myObject, secretKey)` does which of the following?

- (a) Encrypts myObject using secretKey as the password.
- (b) Adds a random salt to myObject and encrypts myObject using secretKey as the password.
- (c) Adds a random salt to secretKey and encrypts myObject using the salted password.
- (d) Returns a hash for secretKey and adds the hash to myObject.
- (e) None of the above

**(1.7)** For an Express endpoint, which of the following assigns the variable `zipCode` with the zip code from query string in the URL with the following format?

`http://www.awesome.maps/zip=85721&dist=1.5`

- (a) `zipCode = req.body.zip;`
- (b) `zipCode = req.query.zip;`
- (c) `zipCode = req.zipCode;`
- (d) `zipCode = req.zip;`
- (e) None of the above

**(1.8)** Which of the following determines if the JSON posted to an endpoint contains the property `userEmail`?

- (a) `if( req.hasOwnProperty("userEmail") ) {`
- (b) `if( req.body.userEmail ) {`
- (c) `if( req.headers.hasOwnProperty("userEmail") ) {`
- (d) `if( req.params.userEmail ) {`
- (e) None of the above

**(1.9)** For an express route, which of the following sends a 201 HTTP response code to the client?

- (a) `res.json(201);`
- (b) `res.json(responseJson);`
- (c) `res.status(201).json(responseJson);`
- (d) `res.response(201).json(responseJson);`
- (e) None of the above

**(1.10)** Given the below routes, what will be output to the console by a GET request to the following?

**URL:** `http://www.awesome.maps/poi/85721/1.5`

```
router.get("/poi/:zip/:dist", function(req, res) {
  console.log("A");
});

router.get("/poi/zip/:zip/dist/:dist", function(req, res) {
  console.log("B");
});

router.get("/poi/zip/dist/:zip/:dist ", function(req, res) {
  console.log("C");
});

router.get("/poi/zip/:zip/:dist/dist", function(req, res) {
  console.log("D");
});
```

- (a) A
- (b) B
- (c) C
- (d) D
- (e) None of the above

## 2. Short Answer Questions (2.5 points each)

- (2.1) Write JavaScript code that checks if the local storage contains an item named `authToken`. If the item exists, the code should assign the variable `userAuthToken` with the item, and redirect the client to the `account.html` page.
- (2.2) Write jQuery code that on document load adds a click event listener to a button with the ID `regDevice` that calls the function `asyncRegDevice`.

### 3. Ajax (10 points)

Write an `addRating()` function that initiates an Ajax call to a server with the following details.

1. The API endpoint is located at the URL `http://www.spork.com/addrating`
2. Data should be POSTed to the endpoint using JSON consisting of properties `name`, `zip`, and `rating`.
3. The `addRating()` function will be called from a web page containing three text `<input>` elements with IDs `name`, `zip`, and `rating`, that are used to specify the restaurant name, ZIP code, and user rating.
4. When the server response is received, the function `ratingSuccess()` should be called. **Note: You do NOT need to implement this function.**

#### 4. Authenticated Express Route (15 points)

Given the below Restaurant model and JSON response format, complete the `/avgrating` endpoint to retrieve the average rating for a restaurant identified by the restaurant name and ZIP code.

1. The endpoint should use token-based authentication assuming the authentication token is passed in the request's `x-auth` header.
2. The restaurant name and ZIP code will be provided in the query string using the keys `name` and `zip`.  
Ex: `http://www.spork.com/avgrating?name=In-N-Out&zip=85721`
3. For simplicity, the endpoint can assume the restaurant exists in the database and no database errors will occur.
4. The endpoint should return an appropriate response code.

##### Restaurant Schema:

```
var db = require("../db");

var restaurantSchema = new db.Schema({
  name: String,
  address: String,
  zip: Number,
  avgRating: Number
});

var Restaurant = db.model("Restaurant", restaurantSchema);

module.exports = Restaurant;
```

##### Response (Success):

```
{
  success: true,
  avgRating: 5.0
}
```

##### Response (Failure):

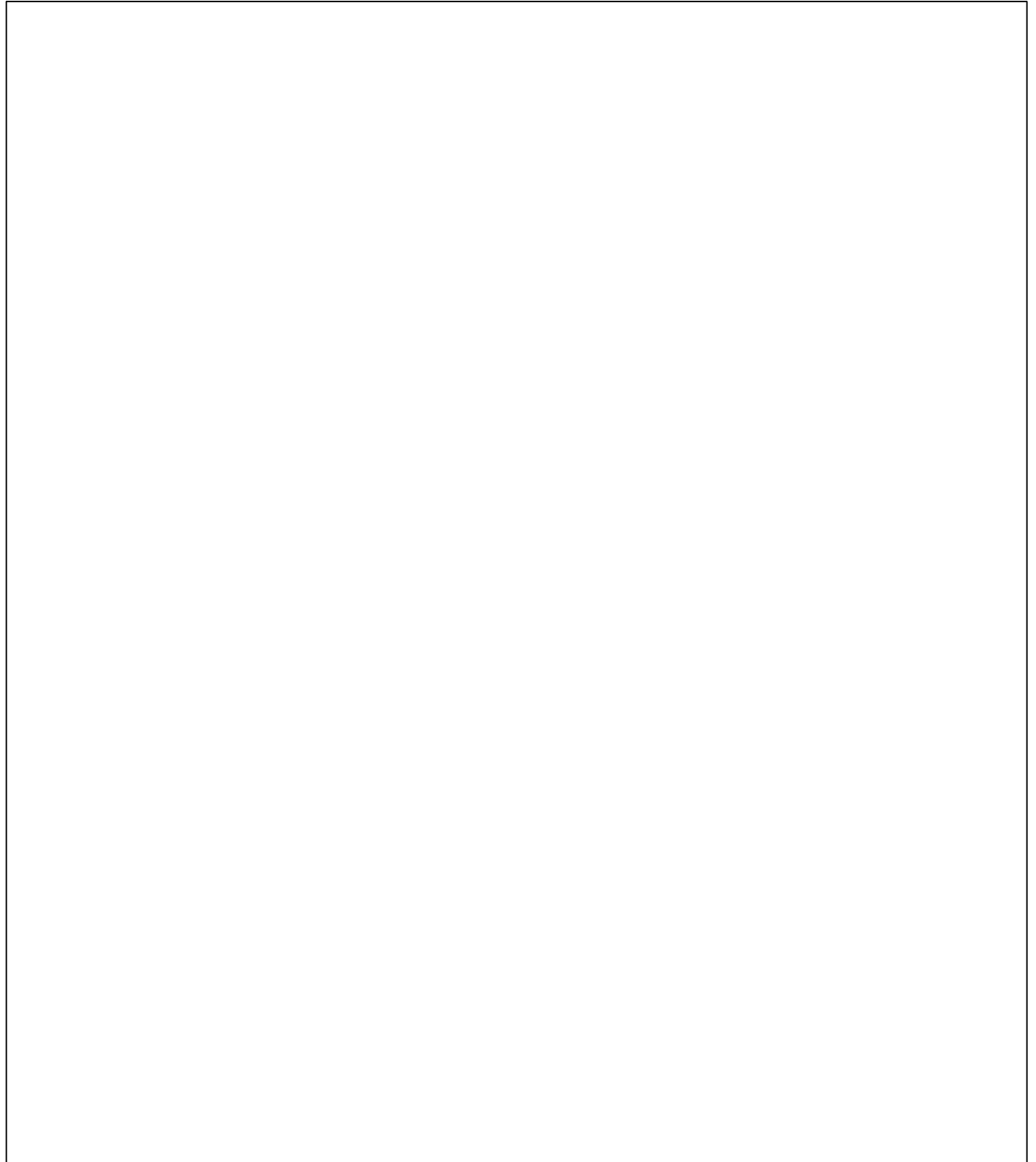
```
{
  success: false,
  avgRating: -1;
}
```

**Write your code in the box on the next page.**

```
var express = require('express');
var router = express.Router();
var Restaurant = require('../models/restaurant');

var secret = fs.readFileSync(__dirname + '/../../jwtkey').toString();

router.get('/avgrating', function(req, res) {
```



```
});
```