BTI325 Assignment 3

Due: Sunday Oct 31, 2021 @ 11:59 PM

Objective:

Build upon the foundation established in Assignment 2 by providing new routes / views to support adding new employees and uploading images.

NOTE: If you are unable to start this assignment because Assignment 2 was incomplete - email me for a clean version of the Assignment 2 files to start from.

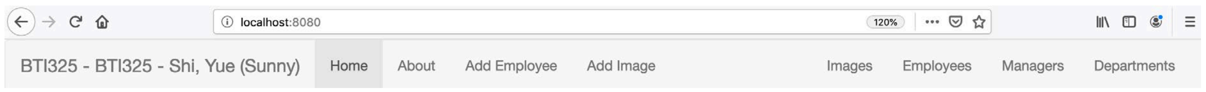
Specification:

For this assignment, we will be enhancing the functionality of Assignment 2 to include new routes & logic to handle file uploads and add employees. We will also add new routes & functionality to execute more focused queries for data (ie: fetch an employee by id, all employees by a department or manager number, etc)

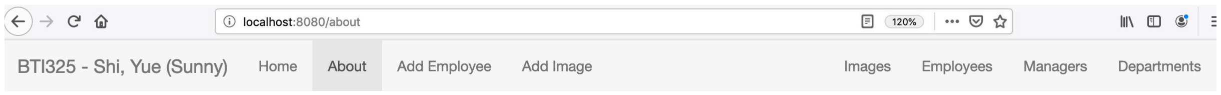
Part 1: Adding / Updating Static (.html) Files & Directories

Step 1: Modifying home.html & about.html (refer to the following screenshots)

- Open the home.html file from within the "views" folder
- Add the following two entries to the **<ul class="nav navbar-nav">** element:
  - <li><a href="/employees/add">Add Employee</a></li>
  - <li><a href="/images/add">Add Image</a></li>
- Add the following entry as the **first child** element of the **<ul class="nav navbar-nav navbar-right">** element
  - <li><a href="/images">Images</a></li>
- Your "Home" page should now have a menu bar that looks like the following:



- Update your "About" page with the same changes. When complete, it should look like the following:

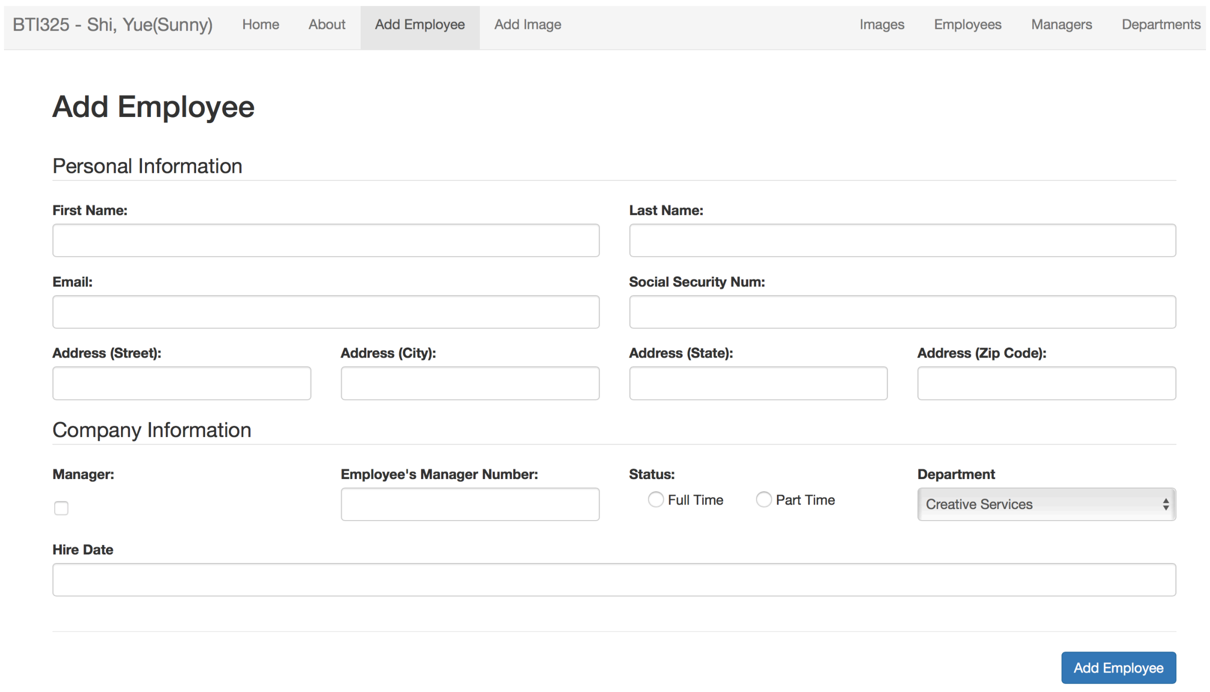


Step 2: Adding new routes in server.js to support the new views

- Inside your server.js file add the following routes (HINT: do not forget __dirname & path.join):
  - GET /employees/add
    - This route simply sends the file "/views/addEmployee.html ". (see Step 3)
  - GET /images/add
    - This route simply sends the file "/views/addImage.html. (see Step 4)

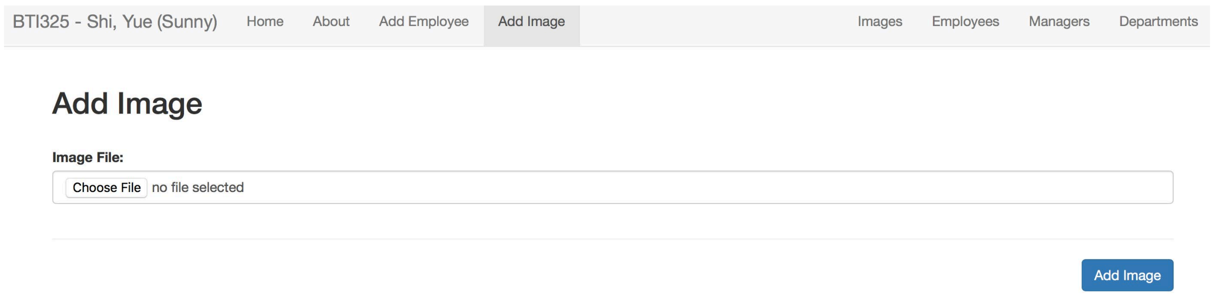
Step 3: Adding new file 1: addEmployee.html

- Create a new file in your "views" directory called "addEmployee.html" and open it for editing
- use the following sample html (https://seneca-my.sharepoint.com/:u:/g/personal/sunny_shi_senecacollege_ca/EZU2zKKPzbFGky0XGz8wpeIBkc6JJ-VvaOWiwxo1bmO57A?e=EnbmqY) to reconstruct the "Add Employee" form. Change my name after <span class="navbar-brand" href="#"> with yours.
- Ensure that the "Add Employee" item in the **<ul class="nav navbar-nav"> …</ul>** element is the **only** <li> with the class "active" (this will make sure the correct navigation element is "highlighted")



Step 4: Adding new file 2: addImage.html

- Create a new file in your "views" directory called "addImage.html" and open it for editing
- use the following sample html (https://seneca-my.sharepoint.com/:u:/g/personal/sunny_shi_senecacollege_ca/ESMmGXMybv9KgR-9RHjIFsgB5FVY0raNPN1i9vEa5KgSSw?e=zcktST) to reconstruct the "Add Image" form. Change my name after <span class="navbar-brand" href="#"> with your name.



Step 5: Adding a home for the uploaded Images

- Create a new folder in your "public" folder called "images"
- Within the newly created "images" folder, create an "uploaded" folder

Part 2: Adding Routes / Middleware to Support Image Uploads

Step 1: Adding multer

- Use npm to install the "multer" module
- Inside your server.js file "require" the "multer" module as "multer"
- Define a "storage" variable using "multer.diskStorage" with the following options (HINT: see "Step 5: (server) Setup…" in the week 5 course notes for additional information)
    - **destination** "./public/images/uploaded"
    - **filename** function (req, file, cb) {
      cb(null, Date.now() + path.extname(file.originalname));
      }
- Define an "upload" variable as **multer({ storage: storage });**

Step 2: Adding the "Post" route

- Add the following route:
  - POST /images/add
    - This route uses the middleware: **upload.single("imageFile")**
    - When accessed, this route will redirect to "/images" (defined below)

Step 3: Adding "Get" route / using the "fs" module

- Before we can add the below route, we must include the **"fs" module** in our **server.js** file (previously only in our data-service.js module)
- Next, Add the following route:
  - GET /images
    - This route will return a JSON formatted string (res.json()) consisting of a single "images" property, which contains the contents of the "./public/images/uploaded" directory as an array, ie { "images": ["1518109363742.jpg", "1518109363743.jpg"] }.
    - **HINT:** You can make use of the **fs.readdir** method. Refer examples: https://code-maven.com/list-content-of-directory-with-nodejs.

Step 4: Verify your Solution

At this point, you should now be able to upload images using the "/images/add" route and see the full file listing on the "/images" route in the format: { "images": ["1518109363742.jpg", "1518109363743.jpg"] } .

Part 3: Adding Routes / Middleware to Support Adding Employees

Step 1: Adding body-parser

- Use npm to install the "body-parser" module
- Inside your server.js file "require" the "body-parser" module as "bodyParser"
- Add the bodyParser.urlencoded({ extended: true }) middleware (using app.use())

Step 2: Adding "Post" route

- Add the following route:
  - POST /employees/add
    - This route makes a call to the (promise-driven) addEmployee(employeeData) function from your data-service.js module (function to be defined below). It will provide **req.body** as the parameter, ie "data.addEmployee(req.body)".

        - When the addEmployee function resolves successfully, redirect to the "/employees" route. Here we can verify that the new employee was added

Step 3: Adding "addEmployee" function within data-service.js

- Create the function "addEmployee(employeeData)" within data-service.js according to the following specification: (**HINT**: do not forget to add it to module.exports or exports)
    - Like all functions within data-service.js, this function must return a Promise.
    - The parameter (employeeData) is the object of newly added employee, which is from user's input of the addEmployee form.
    - If **employeeData.isManager** is undefined, explicitly set it to **false**, otherwise set it to **true** (this gets around the issue of the checkbox not sending "false" if it's unchecked).
    - Explicitly set the **employeeNum** property of **employeeData** to be the **length of the "employees"** array **plus one (1)**. This will have the effect of setting the first new employee number to 281, and so on.
    - **Push** the updated **employeeData** object onto the **"employees"** array and **resolve** the promise.

Step 4: Verify your Solution

At this point, you should now be able to add new employees using the "/employees/add" route and see the full employee listing on the "/employees" route.

Part 4: Adding New Routes to query "Employees"

Step 1: Update the "/employees" route

- In addition to providing all of the employees, this route must now also support the following optional filters (via the query string)
    - /employees?status=***value***
        - return a JSON string consisting of all employees where ***value*** could be either "Full Time" or "Part Time" - this can be accomplished by calling the **getEmployeesByStatus(status)** function of your data-service (defined below)
    - /employees?department=***value***
        - return a JSON string consisting of all employees where ***value*** could be one of 1, 2, 3, … 7 (there are currently 7 departments in the dataset) " - this can be accomplished by calling the **getEmployeesByDepartment(department)** function of your data-service (defined below)

- /employees?manager=***value***
    - return a JSON string consisting of all employees where ***value*** could be one of 1, 2, 3, … 30 (there are currently 30 managers in the dataset) " - this can be accomplished by calling the **getEmployeesByManager(manager)** function of your data-service (defined below)
- /employees
    - return a JSON string consisting of all employees without any filter (existing functionality)

Step 2: Add the "/employee/value" route

- Note: the route is in singular format "employee", which will respond with one single employee. The previous route was "employees" (plural), which returns multiple results.
- This route will return a JSON formatted string containing the employee whose **employeeNum** matches the ***value***. For example, once the assignment is complete, **localhost:8080/employee/6** would return the manager: **Cassy Tremain -** - this can be accomplished by calling the **getEmployeeByNum(num)** function of your data-service (defined below).
- **Hint**: we are sending request by passing data through parameters.

Part 5: Updating "data-service.js" to support the new "Employee" routes

Note: All of the below functions must return a **promise** (continuing with the pattern from the rest of the data-service.js module)

Step 1: Add the getEmployeesByStatus(status) Function

- This function will provide an array of "employee" objects whose **status** property matches the ***status*** parameter (ie: if ***status*** is "Full Time" then the array will consist of only "Full Time" employees) using the **resolve** method of the returned promise.
- If for some reason, the length of the array is 0 (no results returned), this function must invoke the **reject** method and pass a meaningful message, ie: "no results returned".

Step 2: Add the getEmployeesByDepartment(department) Function

- This function will provide an array of "employee" objects whose **department** property matches the ***department*** parameter (ie: if ***department*** is 5 then the array will consist of only employees who belong to department 5) using the **resolve** method of the returned promise.
- If for some reason, the length of the array is 0 (no results returned), this function must invoke the **reject** method and pass a meaningful message, ie: "no results returned".

Step 3: Add the getEmployeesByManager(manager) Function

- This function will provide an array of "employee" objects whose **employeeManagerNum** property matches the **manager** parameter (ie: if ***manager*** is 14 then the array will consist of only employees who are managed by employee 14) using the **resolve** method of the returned promise.
- If for some reason, the length of the array is 0 (no results returned), this function must invoke the **reject** method and pass a meaningful message, ie: "no results returned".

Step 3: Add the getEmployeeByNum(num) Function

- This function will provide a single of "employee" object whose **employeeNum** property matches the ***num*** parameter (ie: if ***num*** is 261 then the "employee" object returned will be "Glenine Focke") using the **resolve** method of the returned promise.
- If for some reason, the length of the array is 0 (no results returned), this function must invoke the **reject** method and pass a meaningful message, ie: "no results returned".

Part 6: Pushing to Heroku

Once you are satisfied with your application, deploy it to Heroku:

- Ensure that you have checked in your latest code using **git** (from within Visual Studio Code)
- Open the integrated terminal in Visual Studio Code
- Log in to your Heroku account using the command **heroku login**
- Create a new app on Heroku using the command **heroku create**
- Push your code to Heroku using the command **git push heroku master**
- **IMPORTANT NOTE:** Since we are using an "**unverified" free** account on Heroku, we are limited to only **5 apps**, so if you have been experimenting on Heroku and have created 5 apps already, you can delete one (or verify your account with a credit card). Once you have received a grade for the previous assignment, it is safe to delete this app (login to the Heroku website, click on your app and then click the **Delete app…** button under "**Settings**").

Assignment Submission:

- Before you submit, consider updating **site.css** to provide additional style to the pages in your app. Black, White and Gray is boring, so why not add some cool colors and fonts (maybe something from Google Fonts)? This is your app for the semester, you should personalize it!

- Next, Add the following declaration at the top of your **server.js** file:

```
/*****************************************************************************
***
*  BTI325 – Assignment 3
*  I declare that this assignment is my own work in accordance with Seneca  Academic Policy.
No part
*  of this assignment has been copied manually or electronically from any other source
*  (including 3rd party web sites) or distributed to other students.
*
*  Name: ______________________ Student ID: ______________ Date: ________________
*
*  Online (Heroku) Link: ________________________________________________________
*
*****************************************************************************
**/
```

- Submit the **Heroku link (URL)** as **text** to Blackboard -> Assignments ->A3, **AND** the following:
- Compress (.zip) your bti325-app folder and submit the **.zip** file **(NOT RAR** or other compression format) to Blackboard -> Assignments ->A3.

Important Note:

- Late submission will be penalized with 10% of this assignment marks for each school day up to 5 school days, after which it will receive 0 marks.