Employee REST API

Environment set up

Open a terminal and navigate to project folder to run the following

1. Install all the npm modules from package.json
    a. npm i
2. Set up environment variable
    a. Set port to 3000
        i. Set PORT=3000
    b. Set separate debuggers for levels debug and error in the app
        i. Set DEBUG=app:*
    c. Set NODE_ENV to development to look into the Morgan enabled cross cutting logging. Set it to production if you don't wish to see the logging.
        i. Set NODE_ENV=development

Project info: http://localhost:3000/readme.pdf

1. Git hub project location for
    a. nodejs backend
        i. https://github.com/smukherjee16/nodejs
    b. Standalone frontend
        i. https://github.com/smukherjee16/nodejs/tree/master/employee
2. Project file
    a. Index.js – main file with all the employees endpoint implementations
    b. validations/validations.js – validations rules for request params
    c. tests/index.test.js – unit tests for mostly validations
    d. routes/emp.js – Tried to set up a route for the employee's endpoints but running into issues. So left the implementations in index.js for now.
    e. Routes/home.js – this is a basic root endpoint route set up that works
    f. Employee/ - All the front end files for the stand alone ui.
        i. References:
            1. https://www.tutorialrepublic.com/codelab.php?topic=bootstrap&file=crud-data-table-for-database-with-modal-form
            2. https://github.com/uxsolutions/bootstrap-datepicker

Technologies/Tools

Tools: Visual Studio Code, Postman

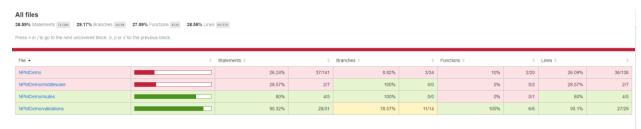**Technologies**: Node.js, HTML, JavaScript, CSS, RESTful Webservices

Testing Stats and Code Coverage

Run tests: npm test

```
C:\NodeJs>npm test

> npmdemo@1.0.0 test C:\NodeJs
> jest --watchAll --verbose --coverage
  app:debug Morgan enabled for cross cutting logging in dev environment... +0ms
  app:debug Listening on port 3000... +57ms
 PASS  tests/index.test.js
  √ absolute
  testValidRole
    √ Valid roles test: TRUE (4ms)
    √ Invalid role test: INVALID FALSE
  testCanAddRole
    √ Only one ceo test: Add CEO: FALSE (1ms)
    √ Only one ceo test: Add MANAGER: TRUE
  testHireDateFormat
    √ Valid Hire Date format: YYYY-MM-DD: TRUE (2ms)
    √ Invalid Hire Date format: YYYY-Mon-DD: FALSE
  testHireDateInPast
    √ Valid Hire Date in past: 2016-03-20: TRUE (1ms)
    √ Invalid Hire Date in pfutureast: 2026-03-20: FALSE
  findEmployeeById
    √ Valid id: TRUE (1ms)
    √ Valid id: TRUE (1ms)


--------------------|----------|----------|----------|----------|-------------------|
File                | % Stmts  | % Branch | % Funcs  | % Lines  | Uncovered Line #s |
--------------------|----------|----------|----------|----------|-------------------|
All files           |   39.67  |   29.17  |   27.59  |   39.66  |                   |
 NodeJs             |   27.66  |    8.82  |      10  |   27.54  |                   |
  index.js          |   27.66  |    8.82  |      10  |   27.54  |... 39,340,341,342 |
 NodeJs/middleware  |   28.57  |     100  |       0  |   28.57  |                   |
  auth.js           |      25  |     100  |       0  |      25  |             2,3,4 |
  logger.js         |   33.33  |     100  |       0  |   33.33  |               2,3 |
 NodeJs/routes      |      80  |     100  |       0  |      80  |                   |
  home.js           |      80  |     100  |       0  |      80  |                 7 |
 NodeJs/validations |   90.32  |   78.57  |     100  |    93.1  |                   |
  validations.js    |   90.32  |   78.57  |     100  |    93.1  |             51,52 |
--------------------|----------|----------|----------|----------|-------------------|
Test Suites: 1 passed, 1 total
Tests:       11 passed, 11 total
Snapshots:   0 total
Time:        3.267s
Ran all test suites.

Watch Usage
 › Press f to run only failed tests.
 › Press o to only run tests related to changed files.
 › Press p to filter by a filename regex pattern.
 › Press t to filter by a test name regex pattern.
 › Press q to quit watch mode.
 › Press Enter to trigger a test run.
```

Code Coverage

All files

38.59% Statements 71/184   **29.17%** Branches 14/48   **27.59%** Functions 8/29   **38.55%** Lines 69/179

Press *n* or *j* to go to the next uncovered block, *b*, *p* or *k* for the previous block.

File ▲		Statements ⇕		Branches ⇕		Functions ⇕		Lines ⇕	
NPMDemo		26.24%	37/141	8.82%	3/34	10%	2/20	26.09%	36/138
NPMDemo/middleware		28.57%	2/7	100%	0/0	0%	0/2	28.57%	2/7
NPMDemo/routes		80%	4/5	100%	0/0	0%	0/1	80%	4/5
NPMDemo/validations		90.32%	28/31	78.57%	11/14	100%	6/6	93.1%	27/29

Employee Endpoints

Navigate to project folder in Terminal and run nodemon index.js

```
Task: Get all employee
Endpoint: http://localhost:3000/api/employees
Http Method: GET
Responses:
Success: 200
```


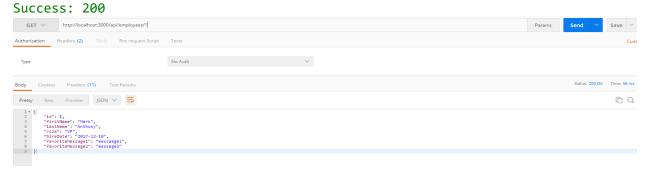| Id	First Name	Last Name	Role	Hire Date	Message 1	Message 2
1	Mark	Anthony	VP	2017-12-10	messaege1	message2
2	Dave	Barton	MANAGER	2017-10-10	messaege11	message22

```
Task: Get employee by id
Endpoint: http://localhost:3000/api/employees/:id
Http Method: GET
Responses:
Id not found: 404
Success: 200
```

Task: Add new employee
Endpoint: http://localhost:3000/api/employees
Http Method: POST
Responses:
Validation failure: 400
Success: 201

BAD REQUEST and ERROR HANDLING

```
Create a new record using a randomly generated value as the unique identifier
(i.e. _id field).  Validate that the following fields are included in the
POST body and have the right type/format as posted below:
    - firstName (String)
    - lastName (String)
    - hireDate (YYYY-MM-DD format must be in the past)
    - role (String) - must be one of the following (case-insensitive):
        - CEO (can only be one of these)
        - VP
        - MANAGER
        - LACKEY
```

Following validations are done for both POST and PUT

Invalid Role:

First Name/Last Name empty:


```
POST ∨    http://localhost:3000/api/employees                    Params    Send ∨    Save ∨

Authorization    Headers (2)    Body ●    Pre-request Script    Tests                                Code

○ form-data    ○ x-www-form-urlencoded    ● raw    ○ binary    JSON (application/json) ∨

1 ▾ {
2       "firstName": "",
3       "lastName": "Mukherjee",
4       "role": "VP",
5       "hireDate": "2017-10-10"
6   }
```

```
Body    Cookies    Headers (11)    Test Results                    Status: 400 Bad Request    Time: 60 ms

Pretty    Raw    Preview    HTML ∨

i 1    "firstName" is not allowed to be empty
```

Invalid date format:


```
POST ∨    http://localhost:3000/api/employees                    Params    Send ∨    Save ∨

Authorization    Headers (2)    Body ●    Pre-request Script    Tests                                Code

○ form-data    ○ x-www-form-urlencoded    ● raw    ○ binary    JSON (application/json) ∨

1 ▾ {
2       "firstName": "Test",
3       "lastName": "USER",
4       "role": "VP",
5       "hireDate": "2017-JUL-10"
6   }
```

```
Body    Cookies    Headers (11)    Test Results                    Status: 400 Bad Request    Time: 59 ms

Pretty    Raw    Preview    HTML ∨

i 1    BAD REQUEST: Date format is incorrect. Expected format is YYYY-MM-DD
```

Only one CEO:


```
POST ∨    http://localhost:3000/api/employees                    Params    Send ∨    Save ∨

Authorization    Headers (2)    Body ●    Pre-request Script    Tests                                Code

○ form-data    ○ x-www-form-urlencoded    ● raw    ○ binary    JSON (application/json) ∨

1 ▾ {
2       "firstName": "Test",
3       "lastName": "USER",
4       "role": "CEO",
5       "hireDate": "2017-08-10"
6   }
```

```
Body    Cookies    Headers (11)    Test Results                    Status: 400 Bad Request    Time: 60 ms

Pretty    Raw    Preview    HTML ∨

i 1    BAD REQUEST: Can't have more than one employee as the CEO
```

Task: Update employee by Path Param: id
Endpoint: http://localhost:3000/api/employees/:id
Http Method: PUT
Responses:
Id not found: 404
Validation failure: 400
Success: 200

Invalid Id:

Only one CEO:

Task: Delete employee by Path Param: id
Endpoint: http://localhost:3000/api/employees/:id
Http Method: DELETE
Responses:
Id not found: 404
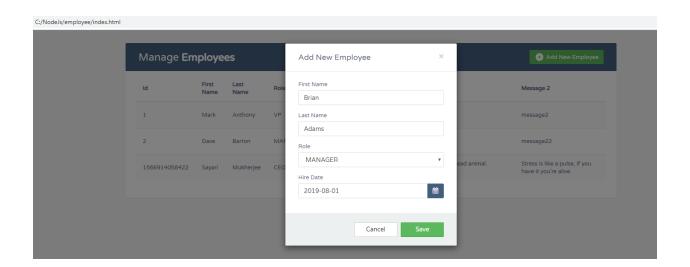Success: 204

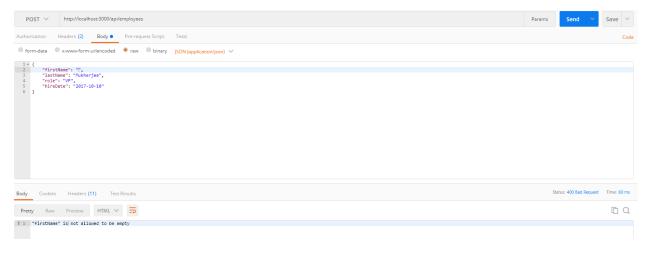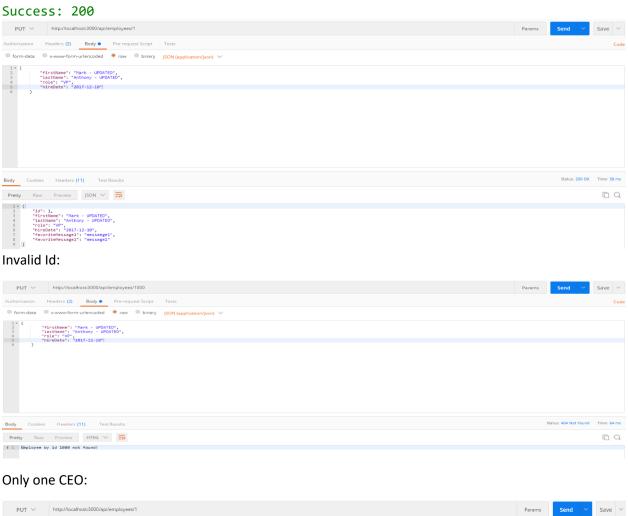| DELETE ∨	http://localhost:3000/api/employees/1566914354897		Params	Send ∨	Save ∨

Authorization   Headers (2)   Body ●   Pre-request Script   Tests   Code

Type   No Auth ∨

Body   Cookies   Headers (9)   Test Results   Status: 204 No Content   Time: 68 ms

Pretty   Raw   Preview   Text ∨   ⇥

1 |

GET ∨	http://localhost:3000/api/employees/1566914354897		Params	Send ∨	Save ∨

Authorization   Headers (2)   Body   Pre-request Script   Tests   Code

Type   No Auth ∨

Body   Cookies   Headers (11)   Test Results   Status: 404 Not Found   Time: 62 ms

Pretty   Raw   Preview   HTML ∨   ⇥

i 1   Employee by id 1566914354897 not found!

Invalid Id:

DELETE ∨	http://localhost:3000/api/employees/1000		Params	Send ∨	Save ∨

Authorization   Headers (2)   Body ●   Pre-request Script   Tests   Code

Type   No Auth ∨

Body   Cookies   Headers (11)   Test Results   Status: 404 Not Found   Time: 59 ms

Pretty   Raw   Preview   HTML ∨   ⇥

i 1   Employee by id 1000 not found!