

CIS 343 – Structure of Programming Languages

Winter 2019, Programming Assignment #4

Game of Life in JavaScript

Due Date: Monday, March 11, 2019

Instructions

1. Download and install `node.js` from `nodejs.org`. You can skip this step if you plan to use EOS machines as Node.js is already installed on these machines.
2. Create a folder called “Project4” for this assignment.
3. Copy/download `GameOfLife.js`, `GameOfLife.test.js`, and `*.gol` files to this folder.
4. Change to Project4 folder. Run the following command which will create “`package.json`” file in this folder. You need not do anything.

```
$ npm init -y
```

5. We need to install “`readline-sync`” package inside the Project4 folder. This package is required for the JavaScript program to read from the console. Issue the following command from inside the Project4 folder:

```
$ npm install --save readline-sync
```

After the above command runs successfully, you will notice “`package-lock.json`” file and “`node_modules`” folder. You need not do anything.

6. To run unit tests in the `GameOfLife.test.js` file, we need to install the Jest (<https://jestjs.io/en/>) framework. Issue the following command from inside the Project4 folder:

```
$ npm install --save-dev jest
```

Successful completion of the above command will modify the contents of “`package-lock.json`” file and “`node_modules`” folder. You need not do anything.

7. Edit the file `package.json` file and change the scripts section in the file to look like the following:

```
"scripts": {  
  "test": "jest --coverage"  
}
```

8. Complete the assignment by coding the “TO DO” sections in `GameOfLife.js` file. Also, add the following line after the definition of the `GameOfLife` class:

```
module.exports = GameOfLife;
```

9. You can run `GameOfLife.js` file using the following command:

```
$ node GameOfLife.js blinker.gol
```

10. If you want to run the unit tests in the `GameOfLife.test.js` file to check your implementation, do the following:

- Temporarily comment the following line at the end of the `GameOfLife.js` file: `main()`
- Run the unit tests with the following command:

```
$ npm run test
```

11. After all the unit tests pass, upload the finished `GameOfLife.js` file on Blackboard by midnight on the due date.

12. The submission time on Blackboard will be used as the official submission date/time.

13. Make sure your program runs on EOS machines before submitting it on Blackboard. I will test your program on EOS when grading.

14. **Late penalty (10% per day) applies after Monday, March 11th.**

Useful Resources for Learning JavaScript:

1. <https://javascript.info/> (Part I)
2. <https://developer.mozilla.org/en-US/docs/Web/JavaScript>
3. <https://www.w3schools.com/js/>