

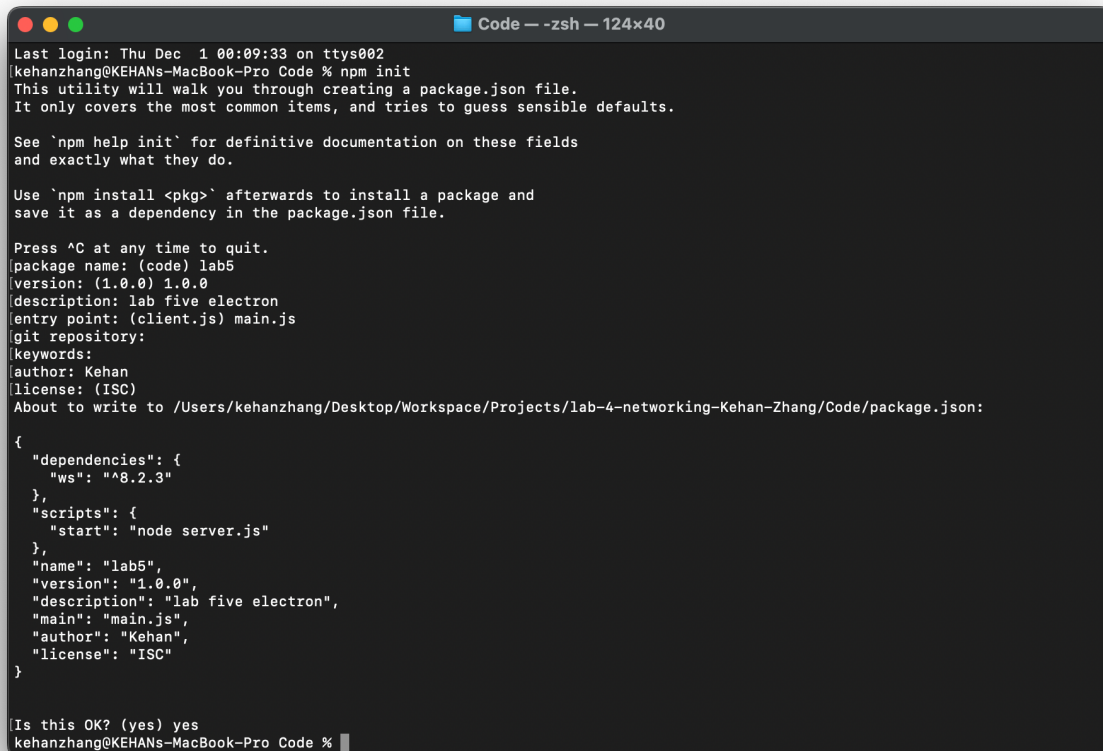
Lab Five

1. Install npm and Node

```
[kehanzhang@KEHANS-MacBook-Pro ~ % npm -v
8.19.2
[kehanzhang@KEHANS-MacBook-Pro ~ % node -v
v18.11.0
```

2. Initialize npm project

set main.js as entry point

A screenshot of a terminal window titled "Code - zsh - 124x40". The terminal shows the output of the 'npm init' command. It prompts for package name, version, description, entry point, git repository, keywords, author, and license. The user provides the following information: package name: (code) lab5, version: (1.0.0) 1.0.0, description: lab five electron, entry point: (client.js) main.js, git repository: (empty), keywords: (empty), author: Kehan, license: (ISC). The terminal then shows the generated package.json file and asks for confirmation to write it to the specified path. The user confirms with 'yes'.

```
Last login: Thu Dec 1 00:09:33 on ttys002
[kehanzhang@KEHANS-MacBook-Pro Code % npm init
This utility will walk you through creating a package.json file.
It only covers the most common items, and tries to guess sensible defaults.

See `npm help init` for definitive documentation on these fields
and exactly what they do.

Use `npm install <pkg>` afterwards to install a package and
save it as a dependency in the package.json file.

Press ^C at any time to quit.
package name: (code) lab5
version: (1.0.0) 1.0.0
description: lab five electron
entry point: (client.js) main.js
git repository:
keywords:
author: Kehan
license: (ISC)
About to write to /Users/kehanzhang/Desktop/Workspace/Projects/lab-4-networking-Kehan-Zhang/Code/package.json:

{
  "dependencies": {
    "ws": "^8.2.3"
  },
  "scripts": {
    "start": "node server.js"
  },
  "name": "lab5",
  "version": "1.0.0",
  "description": "lab five electron",
  "main": "main.js",
  "author": "Kehan",
  "license": "ISC"
}

[Is this OK? (yes) yes
kehanzhang@KEHANS-MacBook-Pro Code %
```

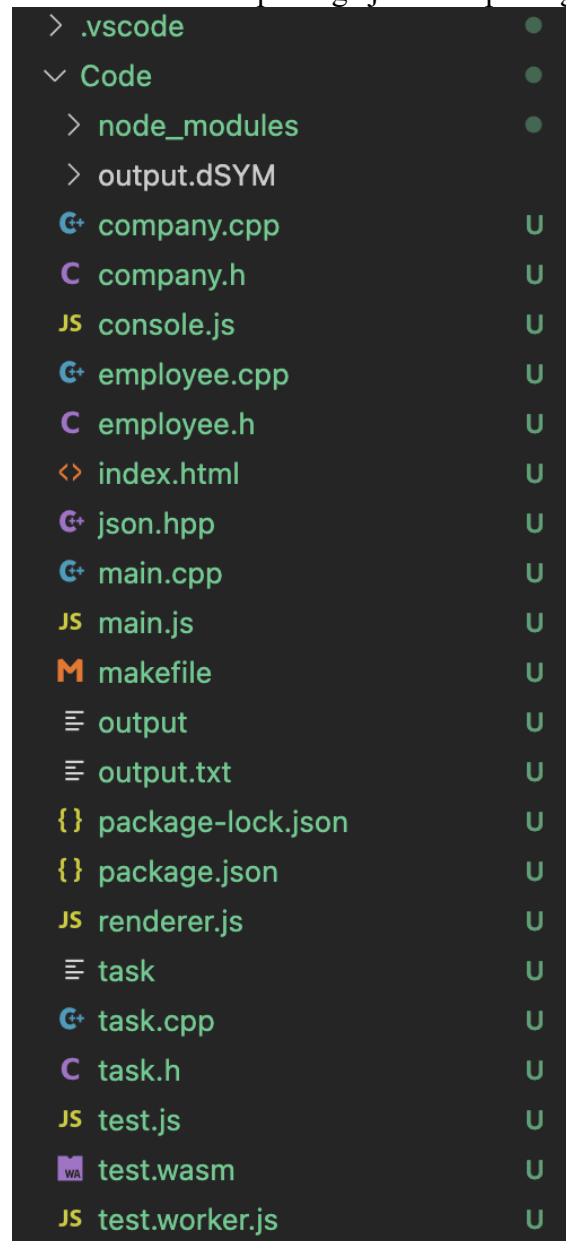
3. Install Electron into app's devDependencies

```
[kehanzhang@KEHANS-MacBook-Pro Code % npm install electron --save-dev
added 72 packages, and audited 73 packages in 17s

17 packages are looking for funding
  run `npm fund` for details

found 0 vulnerabilities
```

Then we will have package.json and package-lock.json and node_modules in our project



4. Add electron . to the start command in the scripts field of package.json

```
"scripts": {  
  "start": "electron .",  
  "test": "echo \"Error: no test specified\" && exit 1"  
},
```

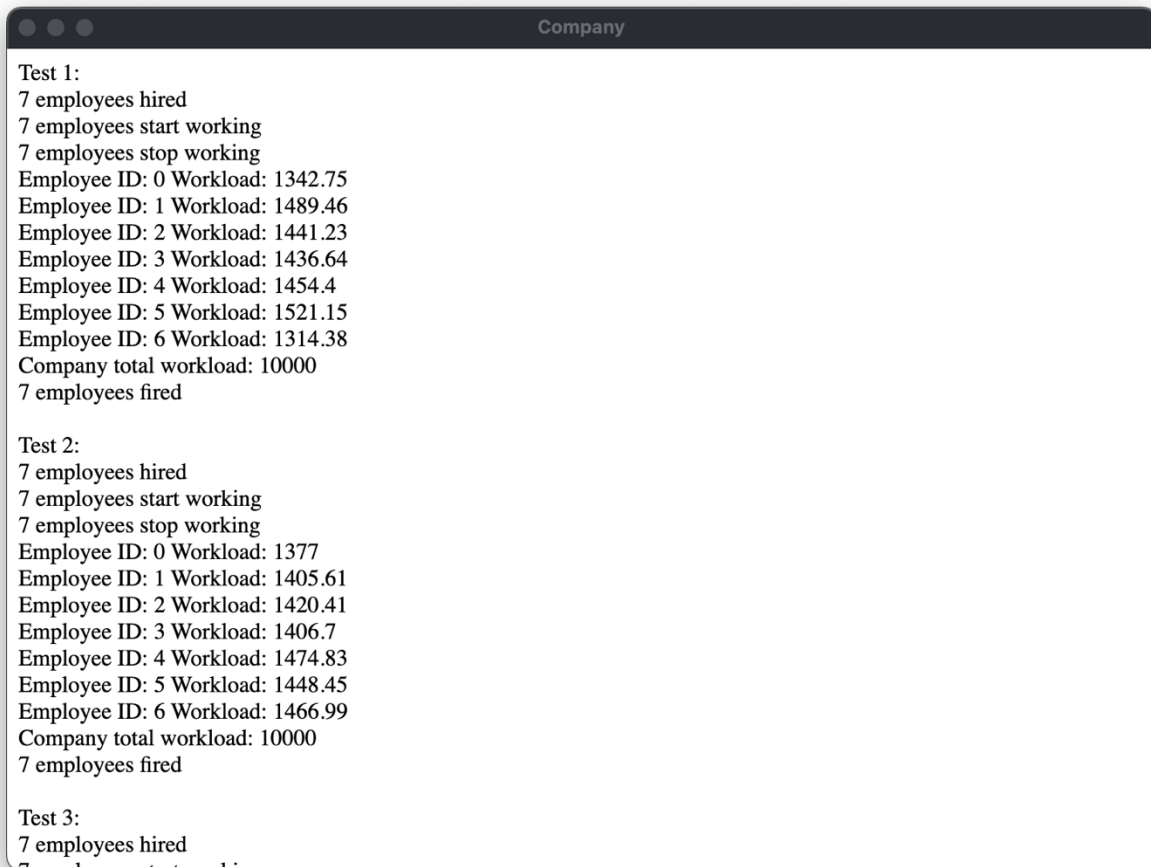
5. Create main.js, renderer.js, index.html

reference: <https://www.electronjs.org/docs/latest/tutorial/tutorial-first-app>

Then include test.js which is transpiled from cpp file.

6. Run electron app

use 'npm run start', 7 employees will complete 10000 tasks in total together. App will print each employee's work report(workload of each employee).



Running 10 times and show runtime of each run.

Time Analysis

1 : 3.102

2 : 3.567

3 : 3.367

4 : 3.466

5 : 3.403

6 : 3.408

7 : 3.454

8 : 3.468

9 : 3.458

10 : 3.568

7. Add new feature: Notification

When app is open, a notification will be pushed.

