

## Part 1

### Node Installed

```
PROBLEMS    OUTPUT    DEBUG CONSOLE    TERMINAL    PORTS

● jojojustine@MacBookAir CS615_nodejs % node -v
v23.9.0
○ jojojustine@MacBookAir CS615_nodejs % █
```

### Npm Installed

```
PROBLEMS    OUTPUT    DEBUG CONSOLE    TERMINAL    PORTS

● jojojustine@MacBookAir CS615_nodejs % node -v
v23.9.0
○ jojojustine@MacBookAir CS615_nodejs % █
```

**App.js**

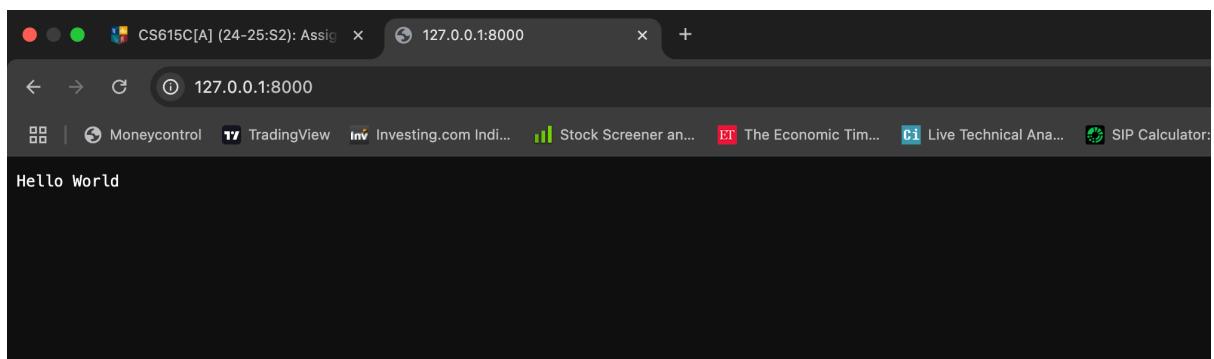
The screenshot shows the Visual Studio Code interface. The Explorer sidebar on the left has a tree view with a single item: 'CS615\_NODEJS' expanded, showing 'app.js'. The main editor area has tabs for 'Welcome' and 'app.js'. The code in 'app.js' is:

```
1 console.log("Hello World!");
```

The terminal at the bottom shows the output of running the script:

```
at Function.executeUserEntryPoint [as runMain] (node:internal/modules/run_main:151:5)
at node:internal/main/run_main_module:33:47
Node.js v23.9.0
● jojojustine@MacBookAir CS615_nodejs % node app.js
Hello World!
○ jojojustine@MacBookAir CS615_nodejs %
```

```
jojojustine@MacBookAir test-node % node hello.js
Server running at http://127.0.0.1:8000/
```



The screenshot shows the Visual Studio Code (VS Code) interface with a dark theme. The left sidebar contains icons for File, Find, Replace, Open, Save, and Terminal. The Explorer sidebar shows a folder named 'CS615\_NODEJS' containing files: 'test-node', '1\_basic.js', and 'app.js'. The main editor area displays the contents of '1\_basic.js':

```
1 setTimeout(function(){
2   console.log('3 seconds have passed');
3 }, 3000);
```

The bottom right corner of the editor shows the status bar with the text 'CS615\_nodejs'. Below the editor, the terminal tab is selected, showing the following command-line session:

```
Node.js v23.9.0
● jojojustine@MacBookAir test-node % cd ..
● jojojustine@MacBookAir CS615_nodejs % node 1_basic.js
3 seconds have passed
○ jojojustine@MacBookAir CS615_nodejs %
```

The screenshot shows the Visual Studio Code (VS Code) interface. The left sidebar has a dark theme with icons for file operations like Open, Save, Find, and Refresh. The Explorer view shows a folder named 'CS615\_NODEJS' containing files: 'test-node', '1\_basic.js', and 'app.js'. The main editor area displays the contents of '1\_basic.js':

```
1 settimeout(function(){
2     console.log('3 seconds have passed');
3 }, 3000);
4 var time = 0;
5 var timer = setInterval(function(){
6     time += 2;
7     console.log(time + ' seconds have passed!')
8 //if (time > 5){ // add this code later
9 //    clearInterval(timer); // (i.e. run code first without the lines
10 //    // } // in blue font to see what happens
11 },
12 2000);
```

The bottom right corner of the editor shows a status bar with the text 'CS615\_nodejs'. Below the editor is a navigation bar with tabs: 'PROBLEMS', 'OUTPUT', 'DEBUG CONSOLE', 'TERMINAL', and 'PORTS'. The 'TERMINAL' tab is active, showing the command-line output from running the script:

```
jojojustine@MacBookAir CS615_nodejs % node 1_basic.js
3 seconds have passed
jojojustine@MacBookAir CS615_nodejs % node 1_basic.js
2 seconds have passed!
3 seconds have passed
4 seconds have passed!
6 seconds have passed!
```

The bottom left of the interface shows the 'OUTLINE' and 'TIMELINE' sections.

The screenshot shows the Visual Studio Code (VS Code) interface. The top bar displays the title "CS615\_nodejs". The left sidebar includes icons for file operations like copy, search, and refresh, along with sections for "EXPLORER", "CS615\_NODEJS" (containing "test-node", "1\_basic.js", and "app.js"), and "TERMINAL" (with "OUTLINE" and "TIMELINE" options). The main area has tabs for "Welcome", "app.js", "1\_basic.js" (which is the active tab), and "hello.js". The code editor contains the following JavaScript code:

```
1  ↵ setTimeout(function(){
2      console.log('3 seconds have passed!');
3  }, 3000);
4  var time = 0;
5  ↵ var timer = setInterval(function(){
6      time += 2;
7      console.log(time + ' seconds have passed!')
8      if (time > 5){ // add this code later
9          clearInterval(timer); // (i.e. run code first without the lines
10         } // in blue font to see what happens)
11     },
12     2000);
```

The terminal at the bottom shows the output of running the script:

```
^C
jojojustine@MacBookAir CS615_nodejs % node 1_basic.js
2 seconds have passed!
3 seconds have passed!
4 seconds have passed!
5 seconds have passed!
```

The status bar at the bottom right indicates "Ln 10, Col 4" and "Space".

The screenshot shows the VS Code interface with the following details:

- EXPLORER** sidebar: Shows a folder named "CS615\_NODEJS" containing files: "test-node", "1\_basic.js", and "app.js".
- EDITOR**: The active tab is "1\_basic.js" which contains the following code:

```
1 setTimeout(function(){
2   console.log('3 seconds have passed');
3 }, 3000);
4 console.log(__dirname);
5 console.log(__filename);
6 var time = 0;
7 var timer = setInterval(function(){
8   time += 2;
9   console.log(time + ' seconds have passed!');
10  if (time > 5){ // add this code later
11    clearInterval(timer); // (i.e. run code first without the lines
12  } // in blue font to see what happens
13 },
14 2000);
```
- TERMINAL**: The terminal shows the output of running the script: "16 seconds have passed!", "18 seconds have passed!", "20 seconds have passed!".
- OUTPUT**: Shows the command "node 1\_basic.js" and its path.
- DEBUG CONSOLE**: Not visible in this screenshot.
- PROBLEMS**: Not visible in this screenshot.
- POR**: Not visible in this screenshot.

The screenshot shows the VS Code interface with the following details:

- EXPLORER** sidebar: Shows a folder named "CS615\_NODEJS" containing files: "test-node", "1\_basic.js", "2\_functions.js", and "app.js".
- EDITOR**: The active tab is "2\_functions.js" which contains the following code:

```
1 function sayHi(){
2   console.log('Hi');
3 }
4 sayHi();
```
- TERMINAL**: The terminal shows the output of running the script: "Hi".
- OUTPUT**: Shows the command "node 2\_functions.js" and its path.
- DEBUG CONSOLE**: Not visible in this screenshot.
- PROBLEMS**: Not visible in this screenshot.
- POR**: Not visible in this screenshot.

The screenshot shows a dark-themed instance of Visual Studio Code (VS Code) with the following interface elements:

- Left Sidebar (Explorer):** Shows a tree view of the project structure under "CS615\_NODEJS". Files listed include "test-node", "1\_basic.js", "2\_functions.js" (which is currently selected), and "app.js".
- Top Bar:** Displays tabs for "Welcome", "app.js", "1\_basic.js", "2\_functions.js" (active), and "hello.js".
- Code Editor:** Contains the content of "2\_functions.js".

```
1 //function sayHi(){
2 //    console.log('Hi');
3 //
4 //    sayHi();
5
6 var sayBye = function(){
7     console.log('Bye');
8 };
9 sayBye();
```
- Bottom Bar:** Includes tabs for "PROBLEMS", "OUTPUT", "DEBUG CONSOLE", "TERMINAL" (active), and "PORTS".
- Terminal:** Displays the output of running Node.js scripts.

```
3 seconds have passed
4 seconds have passed!
6 seconds have passed!
● jojojustine@MacBookAir CS615_nodejs % node 1_basic.js
/Users/jojojustine/Downloads/Study/Semester2/Internetsolutions/git/CS615C/Assignment5/CS615_nodejs
● jojojustine@MacBookAir CS615_nodejs % node 2_functions.js
Hi
● jojojustine@MacBookAir CS615_nodejs % Bye
● jojojustine@MacBookAir CS615_nodejs %
```
- Status Bar:** Shows "In 4 Col 3 Spaces: 4 Ult".

The screenshot shows a dark-themed instance of Visual Studio Code (VS Code) with the following interface elements:

- Explorer View:** On the left, it shows a tree structure for a folder named "CS615\_NODEJS". Inside, there are files: "test-node", "1\_basic.js", "2\_functions.js", and "app.js".
- Editor View:** The main area displays the content of the file "2\_functions.js". The code is as follows:

```
//function sayHi(){
//    console.log('Hi');
//}
//sayHi();

var sayBye = function(){
    console.log('Bye');
};
sayBye();

function callFunction(fun){
    fun();
}
callFunction(sayBye);
```

- Terminal View:** At the bottom, the terminal window shows the output of running Node.js scripts:
- Execution of "1\_basic.js":  
jоjojustine@MacBookAir CS615\_nodejs % node 1\_basic.js  
/Users/jоjojustine/Downloads/Study/Semester2/Internetsolutions/git/CS615C/Assignment5/CS615\_nodejs  
/Users/jоjojustine/Downloads/Study/Semester2/Internetsolutions/git/CS615C/Assignment5/CS615\_nodejs/1\_basic.js  
2 seconds have passed!  
3 seconds have passed  
4 seconds have passed!  
5 seconds have passed!
- Execution of "2\_functions.js":  
jоjojustine@MacBookAir CS615\_nodejs % node 2\_functions.js  
Hi  
jоjojustine@MacBookAir CS615\_nodejs % node 2\_functions.js  
Bye  
jоjojustine@MacBookAir CS615\_nodejs % node 2\_functions.js  
Bye  
Bye

The screenshot shows the VS Code interface with the title bar "CS615\_nodejs". The Explorer sidebar on the left lists files under "CS615\_NODEJS" including "test-node", "JS 1\_basic.js", "JS 2\_functions.js", "JS 3\_math.js", and "JS app.js". The terminal tab is active at the bottom, showing the following command-line session:

```
6 seconds have passed!
● jojojustine@MacBookAir CS615_nodejs % node 2_functions.js
Hi
● jojojustine@MacBookAir CS615_nodejs % node 2_functions.js
Bye
● jojojustine@MacBookAir CS615_nodejs % node 2_functions.js
Bye
Bye
● jojojustine@MacBookAir CS615_nodejs % 3_math.js
zsh: command not found: 3_math.js
● jojojustine@MacBookAir CS615_nodejs % 3_math.js
zsh: command not found: 3_math.js
● jojojustine@MacBookAir CS615_nodejs % node 3_math.js
There are 3 elements in this array.
○ jojojustine@MacBookAir CS615_nodejs %
```

The screenshot shows the VS Code interface with the title bar "CS615\_nodejs". The Explorer sidebar on the left lists files under "CS615\_NODEJS" including "test-node", "JS 1\_basic.js", "JS 2\_functions.js", "JS 3\_math.js", and "JS app.js". The terminal tab is active at the bottom, showing the following command-line session:

```
JS app.js > [e] counter
1 console.log("Hello World!");
2 var counter = require('./3_math.js');
3 console.log(counter(['apple', 'pear', 'cherry']));
4
```

At the bottom of the terminal, an error message is displayed:

```
at require (node:internal/modules/helpers:105:16)
at Object. (</Users/jojojustine/Downloads/Study/Semester2/Internetsolutions/git/CS615C/Assignment5/CS615_nodejs/app.js:2:15)
at Module._compile (node:internal/modules/cjs/loader:1734:14) {
  code: 'MODULE_NOT_FOUND',
  requireStack: [
    '/Users/jojojustine/Downloads/Study/Semester2/Internetsolutions/git/CS615C/Assignment5/CS615_nodejs/app.js'
  ]
}

Node.js v23.9.0
● jojojustine@MacBookAir CS615_nodejs % node app.js
Hello World!
There are 3 elements in this array.
There are 3 elements in this array.
○ jojojustine@MacBookAir CS615_nodejs %
```

The screenshot shows the Visual Studio Code interface with a dark theme. The Explorer sidebar on the left lists files in a folder named 'CS615\_NODEJS' containing 'test-node', '1\_basic.js', '2\_functions.js', '3\_math.js', and 'app.js'. The 'app.js' file is selected and shown in the main editor area. The code in 'app.js' is:

```
1 console.log("Hello World!");
2 var counter = require('./3_math.js');
3 console.log(counter(['apple', 'pear', 'cherry']));
4 var math = require('./3_math');
5 console.log(math.counter(['Shaun','Crystal', 'Ryu']));
6 console.log(math.adder(math.pi, 10));
7
```

The terminal tab at the bottom shows the following output from running the script:

```
There are 3 elements in this array.
There are 3 elements in this array.
● jojojustine@MacBookAir CS615_nodejs % node 3_math.js
There are 3 elements in this array.
● jojojustine@MacBookAir CS615_nodejs % node app.js
Hello World!
There are 3 elements in this array.
There are 3 elements in this array.
● jojojustine@MacBookAir CS615_nodejs % node app.js
Hello World!
There are 3 elements in this array.
There are 3 elements in this array.
There are 3 elements in this array.
The sum of the 2 numbers is 13.1415
○ jojojustine@MacBookAir CS615_nodejs %
```

CS615\_nodejs

EXPLORER JS Welcome JS app.js JS 1\_basic.js JS 2\_functions.js JS 3\_math.js JS hello.js

```
JS app.js > ...
1 console.log("Hello World!");
2 var counter = require('./3_math.js');
3 console.log(counter('apple', 'pear', 'cherry'));
4 var math = require('./3_math');
5 console.log(math.counter('Shaun', 'Crystal', 'Ryu'));
6 console.log(math.adder(math.pi, 10));
7
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
at Module.load (node:internal/modules/cjs/loader:1469:32)
at Function._load (node:internal/modules/cjs/loader:1286:12)
at TracingChannel.traceSync (node:diagnostics_channel:322:14)
at wrapModuleLoad (node:internal/modules/cjs/loader:235:24)
at Function.executeUserEntryPoint [as runMain] (node:internal/modules/run_main:151:5)
at node:internal/main/run_main_module:33:47
```

Node.js v23.9.0  
● jojojustine@MacBookAir CS615\_nodejs % node app.js  
Hello World!

There are 3 elements in this array.  
There are 3 elements in this array.  
There are 3 elements in this array.  
The sum of the 2 numbers is 13.1415

● jojojustine@MacBookAir CS615\_nodejs %

CS615\_nodejs

EXPLORER JS Welcome JS app.js ⓘ readMe.txt JS 4\_fs.js JS 1\_basic.js JS 2\_functions.js JS 3\_math.js JS hello.js

```
JS 4_fs.js > ...
1 var fs = require('fs');
2 //var readMe = fs.readFileSync(...);
3 var readMe = fs.readFileSync('readMe.txt', 'utf8');
4 console.log(readMe);
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
at TracingChannel.traceSync (node:diagnostics_channel:322:14)
at wrapModuleLoad (node:internal/modules/cjs/loader:235:24)
at Function.executeUserEntryPoint [as runMain] (node:internal/modules/run_main:151:5)
at node:internal/main/run_main_module:33:47 {
  error: -2,
  code: 'ENOENT',
  syscall: 'open',
  path: 'readMe.txt'
}
```

Node.js v23.9.0  
● jojojustine@MacBookAir CS615\_nodejs % node 4\_fs.js  
In the distant land of Blorpnponia, Tuesdays were reserved for synchronized llama dancing. The llamas, dressed in neon bow ties and glittery socks, gathered around the Great Jellybean Fountain, where Elder Zog read poetry from a banana peel.

● jojojustine@MacBookAir CS615\_nodejs %

The screenshot shows the VS Code interface with the title bar "CS615\_nodejs". The Explorer sidebar on the left lists files in the "CS615\_NODEJS" folder, including "test-node", "1\_basic.js", "2\_functions.js", "3\_math.js", "4\_fs.js", "app.js", "readMe.txt", and "writeMe.txt". The "writeMe.txt" file is selected and its content is displayed in the main editor area:

```
1 In the distant land of Blorpagonia, Tuesdays were reserved for synchronized llama dancing. The llamas, dressed in neon bow ties and g
```

The terminal at the bottom shows the command "node 4\_fs.js" being run, and the output of the program is displayed:

```
at node:internal/main/run_main_module:33:47 {
  errno: -2,
  code: 'ENOENT',
  syscall: 'open',
  path: 'readMe.txt'
}

Node.js v23.9.0
● jojojustine@MacBookAir CS615_nodejs % node 4_fs.js
In the distant land of Blorpagonia, Tuesdays were reserved for synchronized llama dancing. The llamas, dressed in neon bow ties and glittery socks, gathered arou
nd the Great Jellybean Fountain, where Elder Zog read poetry from a banana peel.
● jojojustine@MacBookAir CS615_nodejs % node 4_fs.js
In the distant land of Blorpagonia, Tuesdays were reserved for synchronized llama dancing. The llamas, dressed in neon bow ties and glittery socks, gathered arou
nd the Great Jellybean Fountain, where Elder Zog read poetry from a banana peel.
○ jojojustine@MacBookAir CS615_nodejs %
```

The screenshot shows the VS Code interface with the title bar "CS615\_nodejs". The Explorer sidebar on the left lists files in the "CS615\_NODEJS" folder, including "test-node", "1\_basic.js", "2\_functions.js", "3\_math.js", "4\_fs.js", "app.js", "readMe.txt", and "writeMe.txt". The "4\_fs.js" file is selected and its content is displayed in the main editor area:

```
1 var fs = require('fs');
2 //var readMe = fs.readFileSync(...);
3 var readMe = fs.readFileSync('readMe.txt', 'utf8');
4 //console.log(readMe);
5 //fs.writeFileSync('writeMe.txt', readMe);
6 fs.readFile('readMe.txt', 'utf8', function(err, data){
7   console.log('File read!');
8 });
9 console.log('After Reading.');

Node.js v23.9.0
● jojojustine@MacBookAir CS615_nodejs % node 4_fs.js
In the distant land of Blorpagonia, Tuesdays were reserved for synchronized llama dancing. The llamas, dressed in neon bow ties and glittery socks, gathered arou
nd the Great Jellybean Fountain, where Elder Zog read poetry from a banana peel.
● jojojustine@MacBookAir CS615_nodejs % node 4_fs.js
In the distant land of Blorpagonia, Tuesdays were reserved for synchronized llama dancing. The llamas, dressed in neon bow ties and glittery socks, gathered arou
nd the Great Jellybean Fountain, where Elder Zog read poetry from a banana peel.
● jojojustine@MacBookAir CS615_nodejs % node 4_fs.js
After Reading.
File read!
○ jojojustine@MacBookAir CS615_nodejs %
```

The terminal at the bottom shows the command "node 4\_fs.js" being run, and the output of the program is displayed:

```
Ln 9, Col 22 Spaces: 4 UTF-8 LF ↴ JavaScript Go Live
```

**Part 2**

The screenshot shows the VS Code interface with the following details:

- Explorer:** Shows files in the CS615\_NODEJS folder, including app.js, 1\_basic.js, 2\_functions.js, 3\_math.js, 4\_fs.js, and writeMe.txt.
- Editor:** The 4\_fs.js file is open, displaying code that reads from and writes to a file named "readMe.txt".
- Terminal:** The terminal window shows the output of running node 4\_fs.js, which includes a story about Blorpagonia and Elder Zog, followed by the command "File written!".

```

1 var fs = require('fs');
2 //var readMe = fs.readFileSync(...);
3 var readMe = fs.readFileSync('readMe.txt', 'utf8');
4 //console.log(readMe);
5 //fs.writeFileSync('writeMe.txt', readMe);
6 //fs.readFile('readMe.txt', 'utf8', function(err, data){
7 //    console.log('File read!');
8 //});
9 //    console.log('After Reading.');
10
11 fs.readFile('readMe.txt', 'utf8', function(err, data){
12     console.log('File read!');
13     fs.writeFile('writeMe.txt', data, function(err, data){
14         console.log('File written!');
15     });
16 });
17
18 console.log('This is some code after the read-write code');

```

## Part 3

The screenshot shows the VS Code interface with the following details:

- Explorer:** Shows files in the CS615\_NODEJS folder, including app.js, 1\_basic.js, 2\_functions.js, 3\_math.js, 4\_fs.js, 5\_httpserver.js, and writeMe.txt.
- Editor:** The 5\_httpserver.js file is open, displaying code that creates an HTTP server listening on port 3000.
- Terminal:** The terminal window shows the output of running node 5\_httpserver.js, which includes the message "Listening to port 3000 ...".

```

1 var http = require('http');
2 var server = http.createServer();
3 server.listen(3000, '127.0.0.1');
4 console.log('Listening to port 3000 ...');

```

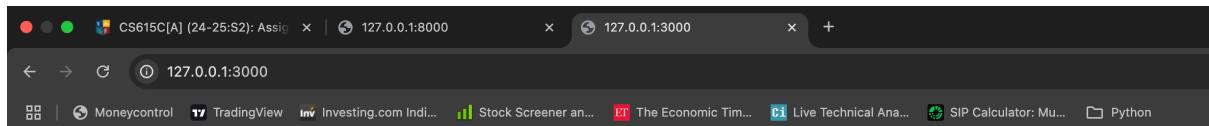
The screenshot shows the Visual Studio Code interface. The Explorer sidebar on the left lists files in a folder named 'CS615\_NODEJS'. The code editor tab bar includes 'app.js', 'readMe.txt', '4\_fs.js', '5\_httpserver.js' (which is currently active), 'writeMe.txt', '1\_basic.js', '2\_functions.js', '3\_math.js', and 'hello.j'. The main code editor window displays the content of '5\_httpserver.js'. Below the editor is the Terminal tab bar, which shows a history of command-line interactions. The bottom status bar indicates the current file is '5\_httpserver.js'.

```
var http = require('http');
//var server = http.createServer();
var server = http.createServer(function(req, res){
  console.log('Request was made: ' + req.url);
  res.writeHead(200, {'Content-Type': 'text/html'});
  res.end('Hello students!\n');
});
server.listen(3000, '127.0.0.1');
console.log('Listening to port 3000 ...');
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
jjojojustine@MacBookAir CS615_nodejs % node 4_fs.js
After Reading.
File read!
jjojojustine@MacBookAir CS615_nodejs % node 4_fs.js
This is some code after the read-write code
File written!
jjojojustine@MacBookAir CS615_nodejs % node 5_httpserver.js
Listening to port 3000 ...
^C
jjojojustine@MacBookAir CS615_nodejs % node 5_httpserver.js
Listening to port 3000 ...
Request was made: /
Request was made: /favicon.ico
```

Ln 7, Col 8 Spaces: 4 UTF-8 LF () JavaScript ⚡ Go Live



Hello students!

VS Code interface showing the 6\_streams.js file open in the editor. The terminal below shows the application listening on port 3000 and responding to requests for /favicon.ico.

```

1 var http = require('http');
2 var fs = require('fs');
3 var myReadStream = fs.createReadStream(__dirname + '/readMe.txt',
4   'utf8');
5 var myWriteStream = fs.createWriteStream(__dirname +
6   '/writeMe.txt');
7 myReadStream.on('data', function(chunk){
8   console.log('new chunk received:' + chunk);
9   myWriteStream.write(chunk);
10 });

```

TERMINAL OUTPUT:

```

jojojustine@MacBookAir CS615_nodejs % node 5_httpserver.js
Listening to port 3000 ...
^C
jojojustine@MacBookAir CS615_nodejs % node 5_httpserver.js
Listening to port 3000 ...
Request was made: /
Request was made: /favicon.ico
^C
jojojustine@MacBookAir CS615_nodejs % node 6_streams.js
new chunk received:In the distant land of Blorpagonia, Tuesdays were reserved for synchronized llama dancing. The llamas, dressed in neon bow ties and glittery socks, gathered around the Great Jellybean Fountain, where Elder Zog read poetry from a banana peel.
jojojustine@MacBookAir CS615_nodejs % node 6_streams.js
new chunk received:In the distant land of Blorpagonia, Tuesdays were reserved for synchronized llama dancing. The llamas, dressed in neon bow ties and glittery socks, gathered around the Great Jellybean Fountain, where Elder Zog read poetry from a banana peel.
jojojustine@MacBookAir CS615_nodejs %

```

VS Code interface showing the 6\_pipeServer.js file open in the editor. The terminal below shows the application listening on port 3000 and responding to multiple requests for /favicon.ico.

```

JS app.js      i readMe.txt    JS 4_fs.js      JS 5_httpserver.js    JS 6_streams.js    JS 6_pipeServer.js x  E writeMe.txt    JS 1_basic.js
JS 6_pipeServer.js > (o) server > (o) http.createServer() callback
1 var http = require('http');
2 var fs = require('fs');
3 var server = http.createServer(function(req, res){
4   const __dirname = require('path'). dirname(module);
5   res. (local var) myReadStream: fs.ReadStream (\');
6   var myReadStream = fs.createReadStream(__dirname +
7     '/readMe.txt', 'utf8');
8   myReadStream.pipe(res);
9 });
10 server.listen(3000, '127.0.0.1');
11 console.log('Listening to port 3000...');

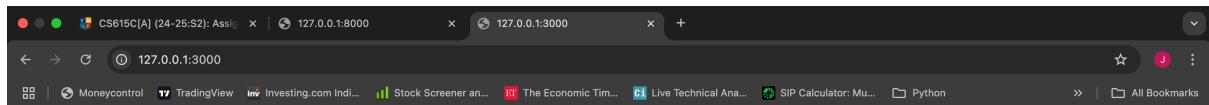

```

TERMINAL OUTPUT:

```

Request was made: /favicon.ico
^C
jojojustine@MacBookAir CS615_nodejs % node 6_pipeServer.js
Listening to port 3000...
Request was made: /favicon.ico
Request was made: /favicon.ico

```



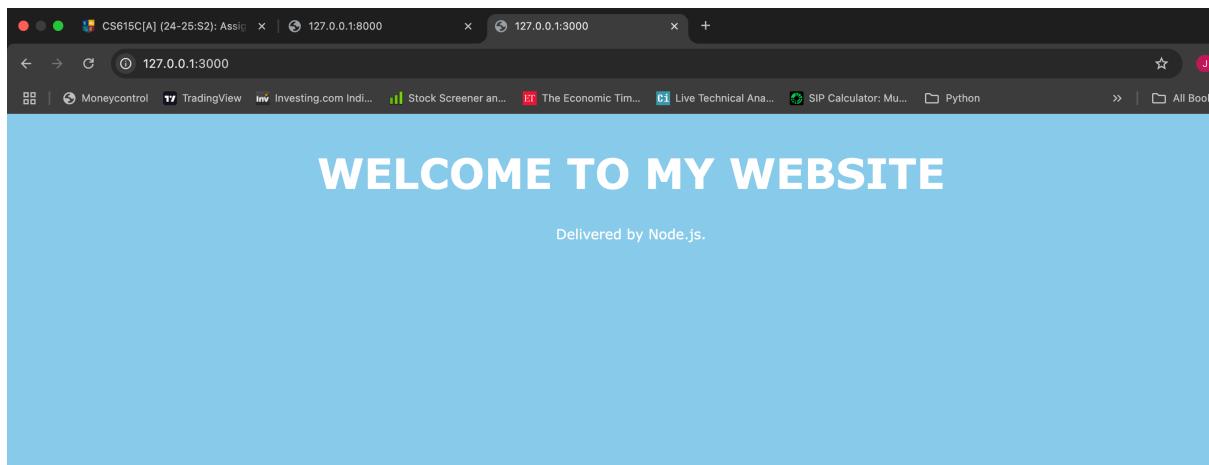
In the distant land of Blorpagonia, Tuesdays were reserved for synchronized llama dancing. The llamas, dressed in neon bow ties and glittery socks, gathered around the Great Jellybean Fountain, where Elder Zog read poetry from a banana peel.

```
<html>
  <head>
    <style>
      body {background: skyblue; font-family: verdana; color: #ffff; padding: 30px;}
      h1 {font-size: 48px; text-transform: uppercase; text-align: center;}
      p {font-size: 16px; text-align: center;}
    </style>
  </head>
  <body>
    <h1>Welcome to my Website</h1>
    <p>Delivered by Node.js.</p>
  </body>
</html>
```

```
var http = require('http');
var fs = require('fs');
var server = http.createServer(function(req, res){
  console.log('request was made: ' + req.url);
  res.writeHead(200, {'Content-Type': 'text/html'});
  var myReadStream = fs.createReadStream(__dirname + '/index.html', 'utf8');
  myReadStream.pipe(res);
});
server.listen(3000, '127.0.0.1');
console.log('Listening to port 3000...');
```

The terminal output shows requests being handled:

```
Request was made: /
Request was made: /favicon.ico
^C
Listening to port 3000...
request was made: /
request was made: /favicon.ico
request was made: /
request was made: /favicon.ico
^C
Listening to port 3000...
request was made: /
request was made: /favicon.ico
```

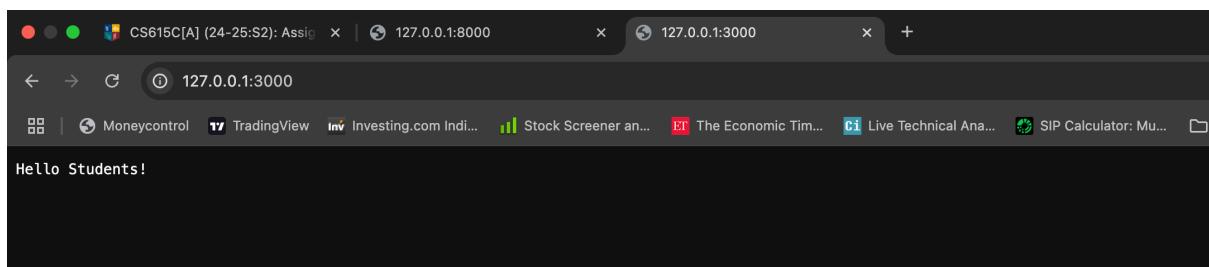
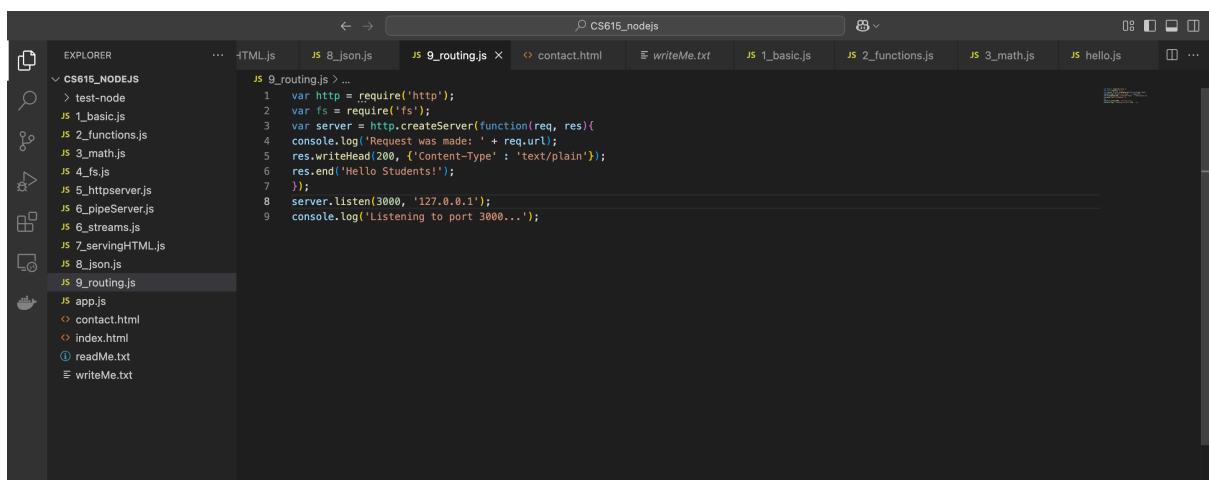
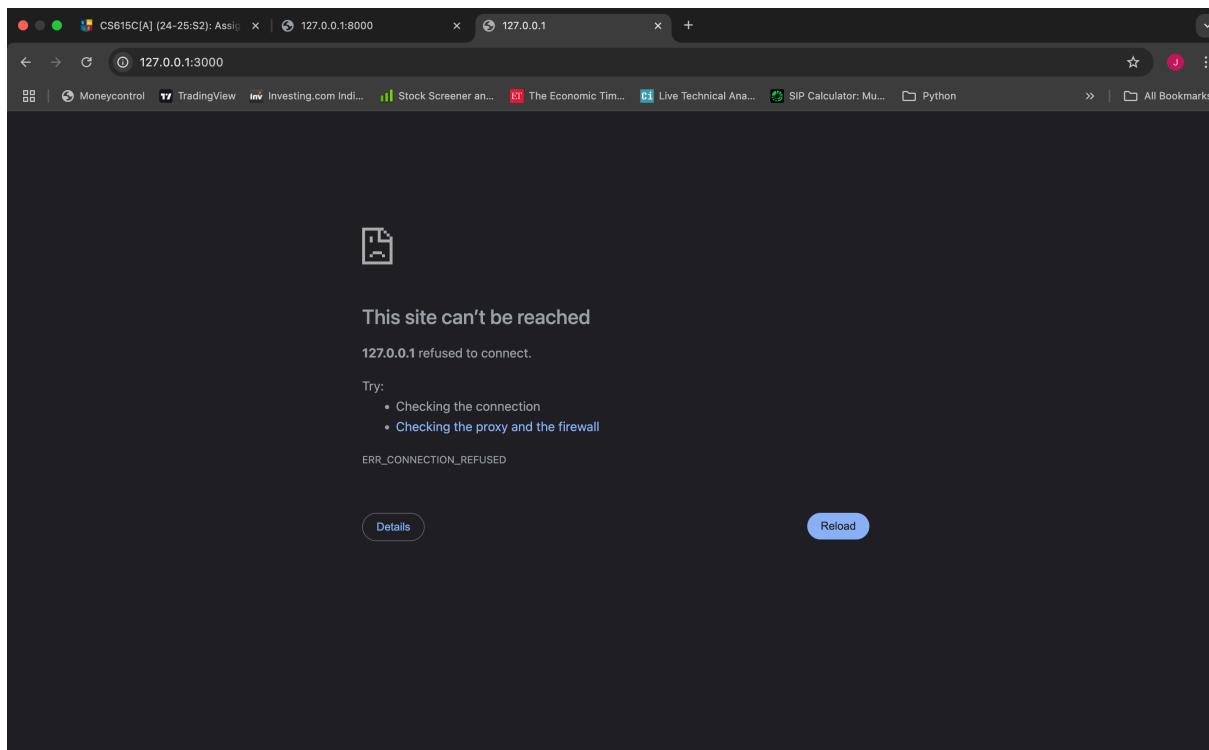


## Part 4

A screenshot of the Visual Studio Code (VS Code) interface. The left sidebar shows a file tree with files like "readMe.txt", "1\_basic.js", "2\_functions.js", "3\_math.js", "4\_fs.js", "5\_httpserver.js", "6\_pipeServer.js", "6\_streams.js", "7\_servingHTML.js", "8\_json.js", "app.js", "index.html", and "writeMe.txt". The main editor area displays the "8\_json.js" file with the following code:

```
var http = require('http');
var fs = require('fs');
var server = http.createServer(function(req, res){
  console.log('request was made: ' + req.url);
  res.writeHead(200, {'Content-Type' : 'application/json'});
  myObject = {
    name: 'Paul',
    job: 'student',
    age: 25
  };
  // res.end(myObj); // does not work
  res.end(JSON.stringify(myObj));
});
server.listen(3000, '127.0.0.1');
console.log('Listening to port 3000...');
```

The bottom right terminal tab shows the output of running the script: "Listening to port 3000..." and "request was made: /". The status bar at the bottom indicates "Ln 15, Col 42 Spaces: 4 UTF-8 LF {} JavaScript ⚡ Go Live ⚡".



The screenshot displays a Node.js development environment with the following components:

- Explorer:** Shows files in the project directory `CS615_NODEJS`, including `HTML.js`, `8_json.js`, `9_routing.js` (selected), `contact.html`, `writeMe.txt`, `1_basic.js`, `2_functions.js`, `3_math.js`, `4_fs.js`, `5_httpserver.js`, `6_pipeServer.js`, `6_streams.js`, `7_servingHTML.js`, `8_json.js`, and `9_routing.js`.
- Terminal:** Shows the Node.js version (`v23.9.0`) and the command to run the application (`node 9_routing.js`). The output shows the server listening on port 3000 and logging requests for `/` and `/favicon.ico`.
- Browser:** A screenshot of a web browser window showing the URL `127.0.0.1:3000`. The page displays the heading **WELCOME TO MY WEBSITE** and the footer **Delivered by Node.js.**

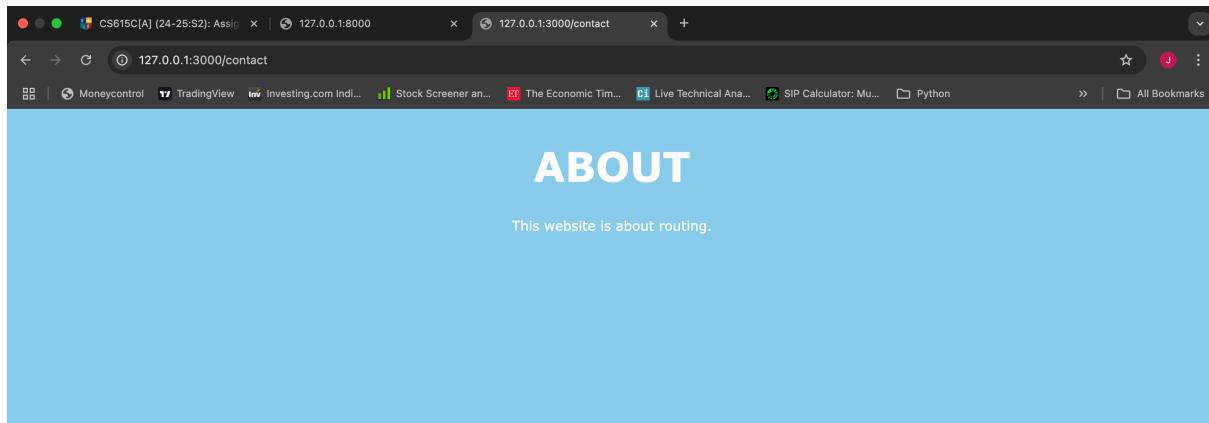
```
9_routing.js > [x] server > [x] http.createServer() callback
1 var http = require('http');
2 var fs = require('fs');
3 var server = http.createServer(function(req, res){
4   console.log('Request was made: ' + req.url);
5   if (req.url === '/home' || req.url === '/') {
6     res.writeHead(200, {'Content-Type': 'text/html'});
7     fs.createReadStream(__dirname + '/index.html').pipe(res);
8   }
9   //res.writeHead(200, {'Content-Type': 'text/plain'});
10  //res.end('Hello Students!');
11 });
12 server.listen(3000, '127.0.0.1');
13 console.log('Listening to port 3000...');

Node.js v23.9.0
jojojustine@MacBookAir CS615_nodejs % node 9_routing.js
Listening to port 3000...
Request was made: /
Request was made: /favicon.ico
jojojustine@MacBookAir CS615_nodejs % node 9_routing.js
Listening to port 3000...
Request was made: /
Request was made: /favicon.ico

Ln 10, Col 3  Spaces: 4  UTF-8  LF  { } JavaScript  Go
```

```
var http = require('http');
var fs = require('fs');

var server = http.createServer(function(req, res){
    console.log('Request was made: ' + req.url);
    if (req.url === '/home' || req.url === '/') {
        res.writeHead(200, {'Content-Type': 'text/html'});
        fs.createReadStream(__dirname + '/index.html').pipe(res);
    } else if (req.url === '/contact') {
        res.writeHead(200, {'Content-Type': 'text/html'});
        fs.createReadStream(__dirname + '/contact.html').pipe(res);
    }
});
server.listen(3000, '127.0.0.1');
console.log('Listening to port 3000...');
```

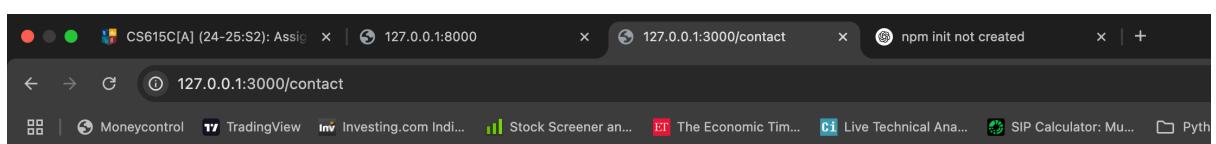


The screenshot shows the VS Code interface with the following details:

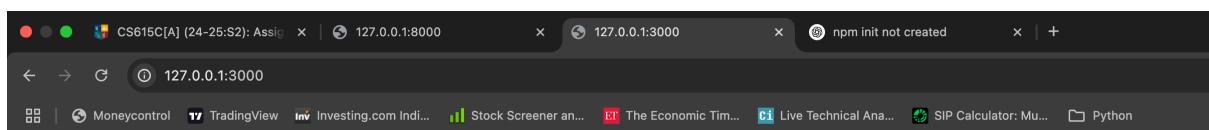
- EXPLORER** sidebar: Shows the project structure under "CS615\_NODEJS". The "app.js" file is selected.
- CODE EDITOR**: The active tab is "app.js" which contains the following code:

```
expressApp > JS app.js > ...
1 var express = require('express');
2 var app = express();
3 //
4 //
5 // We will handle requests here
6 app.listen(3000);
7 app.get('/', function(req, res){
8     res.send('This is the homepage.');
9 });
10 app.get('/contact', function(req, res){
11     res.send('This is the contact page.');
12 });
13 app.get('/profile/:id', function(req, res){
14     res.send('You requested to see profile with the id of ' +
15     req.params.id);
16 });
```
- TERMINAL**: Shows the command line output:

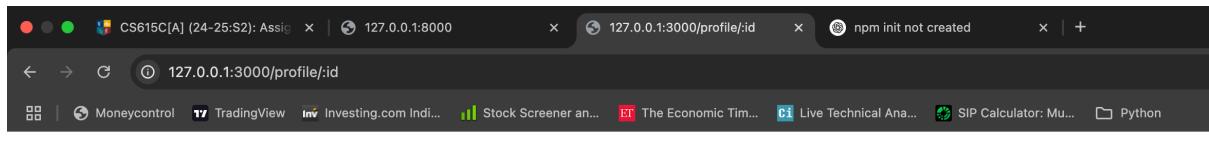
```
Is this OK? (yes) yes
● jojojustined@MacBookAir expressApp % npm install express --save
added 69 packages, and audited 70 packages in 2s
14 packages are looking for funding
  run `npm fund` for details
found 0 vulnerabilities
○ jojojustined@MacBookAir expressApp % node app.js
```



This is the contact page.



This is the homepage.



You requested to see profile with the id of :id