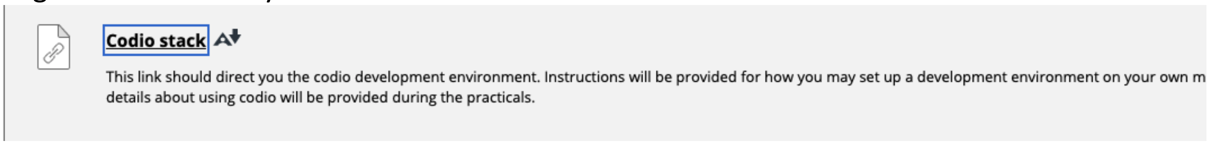
CA4 Instructions

The following instructions are intended to help you get started with the sample code for the assessment with node js and codio. Your one-page report should be submitted as a pdf via the CA4 assessment link in my-aberdeen. There is no need to submit your web application, it will be tested and marked via codio and marks will be released on my aberdeen 3 weeks after submission.

Please follow the instructions below to get you started with using node js with codio:

1) Log into codio via my Aberdeen

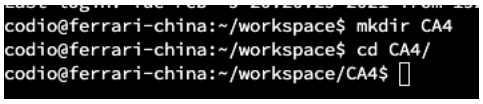


Codio stack

This link should direct you the codio development environment. Instructions will be provided for how you may set up a development environment on your own m
details about using codio will be provided during the practicals.

2) Within codio create a new folder named CA4 and navigate into that directory as shown below:

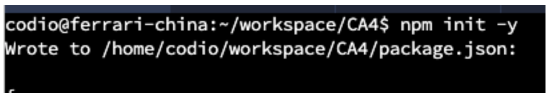
```
mkdir ca4

cd ca4
```



```
codio@ferrari-china:~/workspace$ mkdir CA4
codio@ferrari-china:~/workspace$ cd CA4/
codio@ferrari-china:~/workspace/CA4$ 
```

3) Within the CA4 folder enter the following command:

```
npm init -y
```

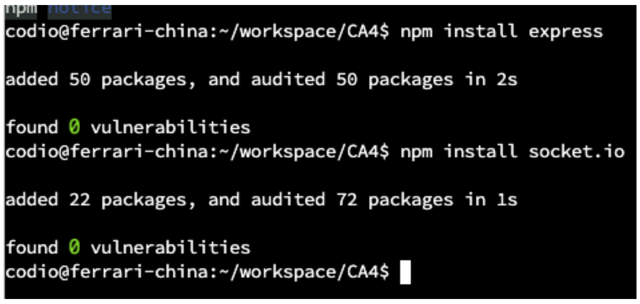


```
codio@ferrari-china:~/workspace/CA4$ npm init -y
Wrote to /home/codio/workspace/CA4/package.json:
```

This runs the node package manager and set up an empty project for you. We will now use NPM to install some additional node JS packages / modules which we will require for the chat application. Enter each of the following commands (one at a time i.e. press enter after each, don’t try to run them all at once)

```
npm install express --save
```

```
npm install socket.io --save
```

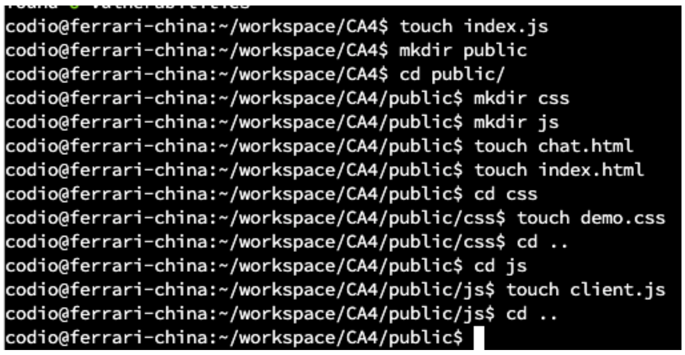


```
codio@ferrari-china:~/workspace/CA4$ npm install express

added 50 packages, and audited 50 packages in 2s

found 0 vulnerabilities
codio@ferrari-china:~/workspace/CA4$ npm install socket.io

added 22 packages, and audited 72 packages in 1s

found 0 vulnerabilities
codio@ferrari-china:~/workspace/CA4$
```

We have just installed the packages we require to develop the chat application.

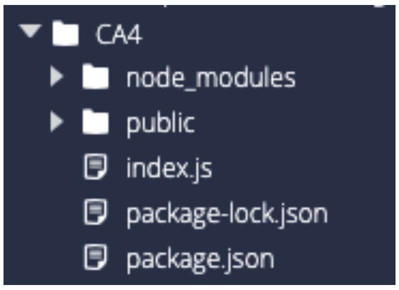
4) Now we will set up a few more things. Enter each of the following commands, one by one as before:

```
touch index.js
mkdir public
cd public
mkdir css
mkdir js
touch index.html
touch chat.html
cd css
touch demo.css
cd ..
cd js
touch client.js
cd ..
```



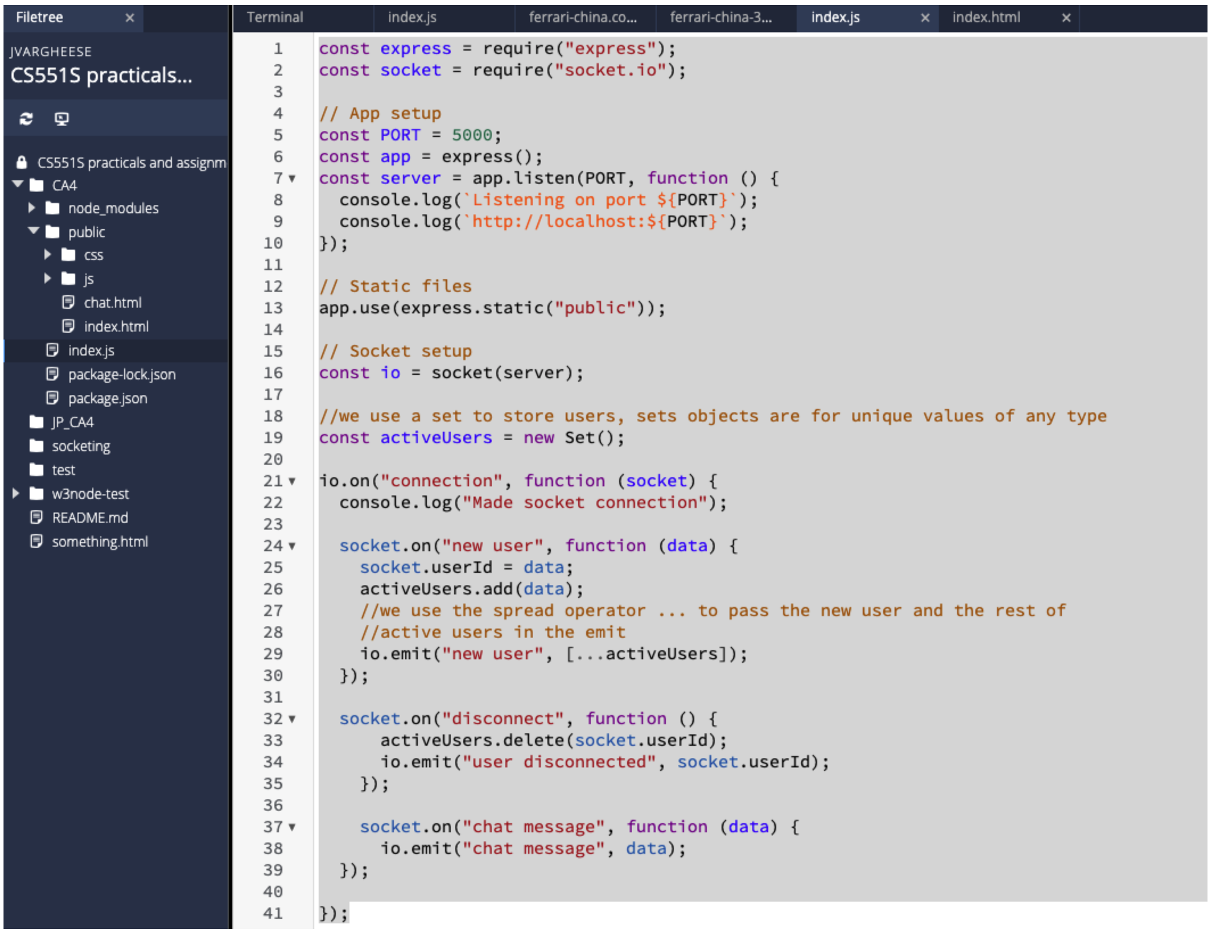
```
codio@ferrari-china:~/workspace/CA4$ touch index.js
codio@ferrari-china:~/workspace/CA4$ mkdir public
codio@ferrari-china:~/workspace/CA4$ cd public/
codio@ferrari-china:~/workspace/CA4/public$ mkdir css
codio@ferrari-china:~/workspace/CA4/public$ mkdir js
codio@ferrari-china:~/workspace/CA4/public$ touch chat.html
codio@ferrari-china:~/workspace/CA4/public$ touch index.html
codio@ferrari-china:~/workspace/CA4/public$ cd css
codio@ferrari-china:~/workspace/CA4/public/css$ touch demo.css
codio@ferrari-china:~/workspace/CA4/public/css$ cd ..
codio@ferrari-china:~/workspace/CA4/public$ cd js
codio@ferrari-china:~/workspace/CA4/public/js$ touch client.js
codio@ferrari-china:~/workspace/CA4/public/js$ cd ..
codio@ferrari-china:~/workspace/CA4/public$
```

We have just created the necessary files and folders for the assessment and returned to the main folder we started off in. We can use the codio navigation pane now to access these files and enter the demo code for the chat application.



5) Now we will enter the demo code for the application. Open the index.js file by selecting it in the navigation pane as shown above.

   Enter the code for the index.js file you downloaded from my aberdeen into the index.js file you created in codio.

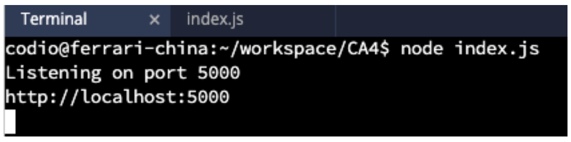


```
const express = require("express");
const socket = require("socket.io");

// App setup
const PORT = 5000;
const app = express();
const server = app.listen(PORT, function () {
  console.log(`Listening on port ${PORT}`);
  console.log(`http://localhost:${PORT}`);
});

// Static files
app.use(express.static("public"));

// Socket setup
const io = socket(server);

//we use a set to store users, sets objects are for unique values of any type
const activeUsers = new Set();

io.on("connection", function (socket) {
  console.log("Made socket connection");

  socket.on("new user", function (data) {
    socket.userId = data;
    activeUsers.add(data);
    //we use the spread operator ... to pass the new user and the rest of
    //active users in the emit
    io.emit("new user", [...activeUsers]);
  });

  socket.on("disconnect", function () {
      activeUsers.delete(socket.userId);
      io.emit("user disconnected", socket.userId);
    });

    socket.on("chat message", function (data) {
      io.emit("chat message", data);
  });

});
```

Do the same for each of the files you created in step 4 using the files you have downloaded from my-aberdeen.

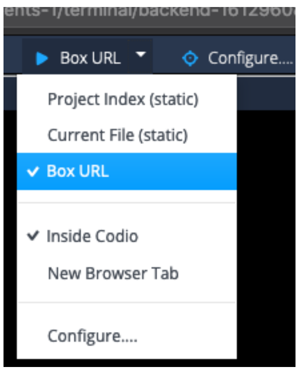
6) Now it's time to test the application: return to the terminal and enter the following command:

node index.js

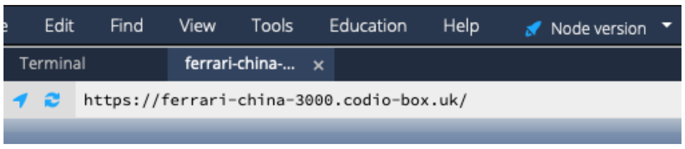


```
codio@ferrari-china:~/workspace/CA4$ node index.js
Listening on port 5000
http://localhost:5000
```

Find the domain name for your codio box as shown below:

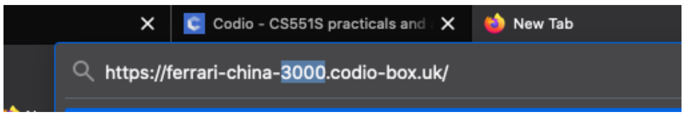


The internal browser in codio opens with the domain name we need:



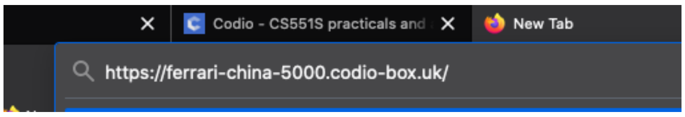
```
https://ferrari-china-3000.codio-box.uk/
```

Open a new tab in your browser. Copy and paste the URL for your codio box into the new tab, but change the port number to 5000 i.e. above where it shows -3000, this needs to be changed to -5000, see below:

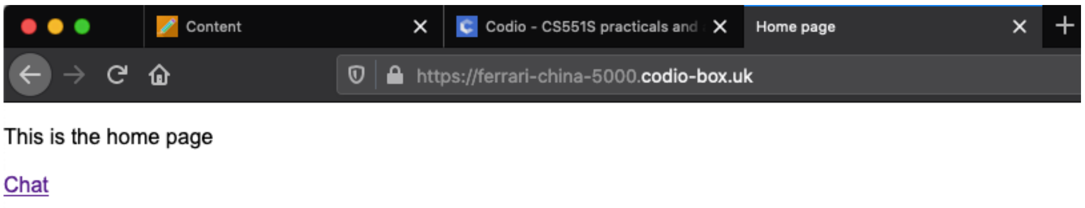


```
https://ferrari-china-3000.codio-box.uk/
```

Change the above to what is shown below, note the name of your codio domain URL may be different but the format is similar:


Codio - CS551S practicals and
New Tab
https://ferrari-china-5000.codio-box.uk/

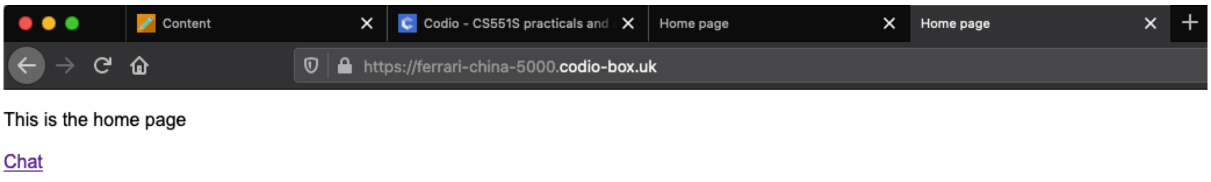
Opening the codio box domain URL with the port changed to 5000 brings us to the index page of our application:


Content
Codio - CS551S practicals and
Home page
https://ferrari-china-5000.codio-box.uk

This is the home page

Chat

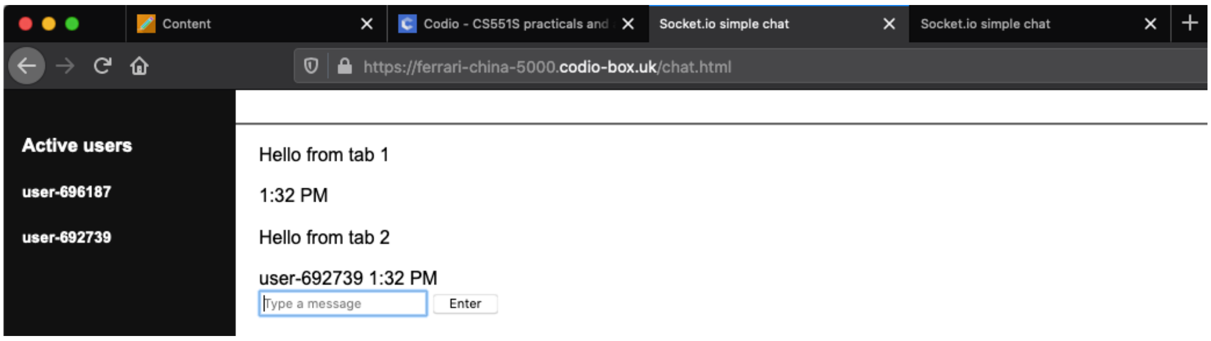
Open another tab with the same URL, so we have two running in the browser and can check the chat application is working as required:


Content
Codio - CS551S practicals and
Home page
Home page
https://ferrari-china-5000.codio-box.uk

This is the home page

Chat

In each tab select the chat link which should bring up the chat application. Try sending messages from one tab to the other. You should see these displayed in both windows:


Content
Codio - CS551S practicals and
Socket.io simple chat
Socket.io simple chat
https://ferrari-china-5000.codio-box.uk/chat.html
Type a message
Enter

Active users

user-696187

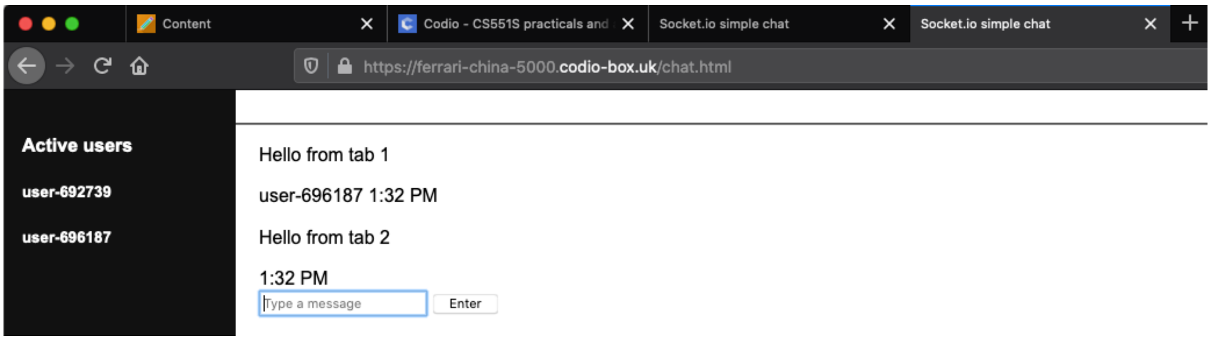
user-692739

Hello from tab 1

1:32 PM

Hello from tab 2

user-692739 1:32 PM


Content
Codio - CS551S practicals and
Socket.io simple chat
Socket.io simple chat
https://ferrari-china-5000.codio-box.uk/chat.html
Type a message
Enter

Active users

user-692739

user-696187

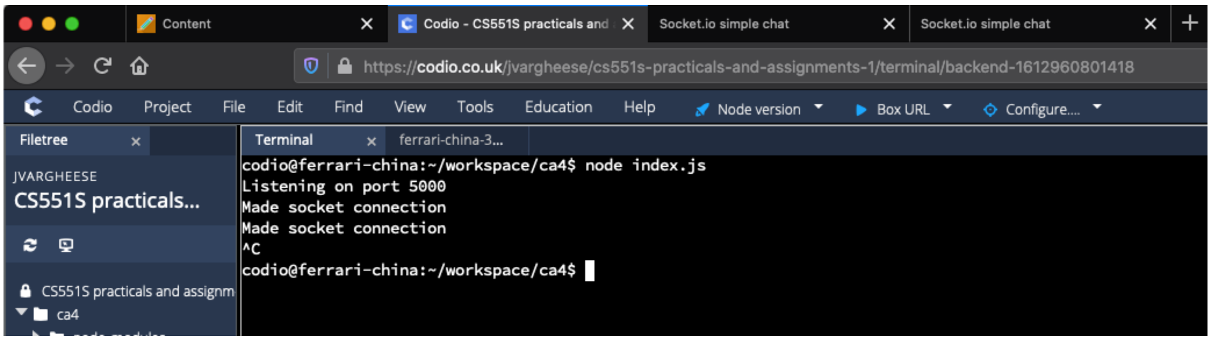
Hello from tab 1

user-696187 1:32 PM

Hello from tab 2

1:32 PM

To stop node js, return the the terminal and enter [control] + [c]



```
codio@ferrari-china:~/workspace/ca4$ node index.js
Listening on port 5000
Made socket connection
Made socket connection
^C
codio@ferrari-china:~/workspace/ca4$
```

When you make changes, remember to stop the server and restart to view any updates you make.