Lesson 11 Demo 08

Implementing Mocha with Chai

> **Objective:** To implement Mocha with the Chai library and test code with different styles (assertion, expect, should) for comprehensive validation and verification in a Node.js environment
>
> **Tools Required:** Visual Studio
>
> **Prerequisites:** Knowledge of JavaScript, Node.js
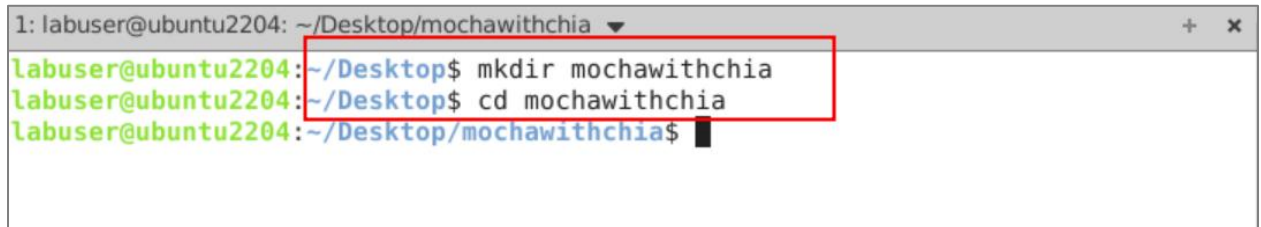
Steps to be followed:

1. Create the project structure, package.json file, install Mocha and Chai third-party module
2. Test the code using assertion style, expect style, and should style

Step 1: Create a project structure and a package.json file, and install the Mocha and Chai third-party modules

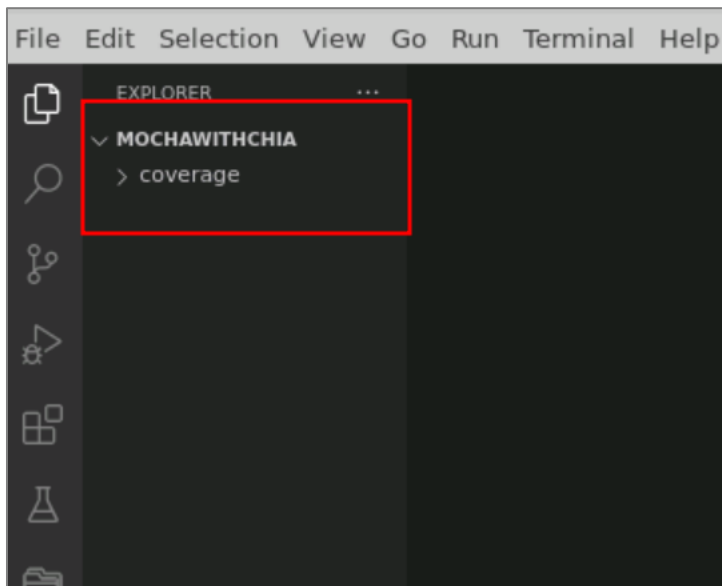1.1 Run the below code to create a working directory to hold the application
    mkdir mochawithchai
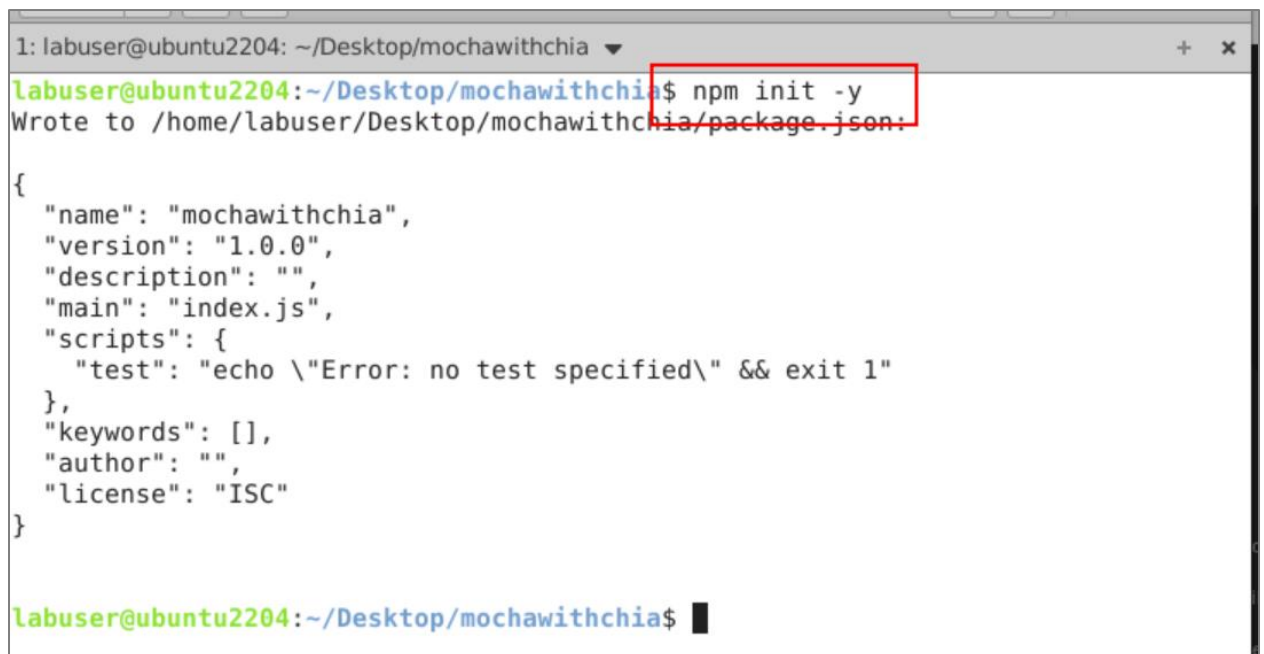   **cd mochawithchai**

1.2 Open this folder in VSCode IDE

1.3 Open the terminal and run the below command to create a **package.json** file for the application
npm init -y

It creates a package.json file with a default option.

You can now view the package.json file.

```
{} package.json ×

{} package.json > ...
  1   {
  2       "name": "nodejstestusingmocha",
  3       "version": "1.0.0",
  4       "description": "",
  5       "main": "index.js",
        ▷ Debug
  6       "scripts": {
  7           "test": "echo \"Error: no test specified\" && exit 1"
  8       },
  9       "author": "",
 10       "license": "ISC"
 11   }
 12   |
```

1.4 Execute **npm install mocha chai -D** command

(-D means testing dependencies required only in development mode.)

```
1: labuser@ubuntu2204: ~/Desktop/mochawithchia ▼                          +  ×
labuser@ubuntu2204:~/Desktop/mochawithchia$ npm install mocha chai -D

added 85 packages, and audited 86 packages in 2s

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

found 0 vulnerabilities
labuser@ubuntu2204:~/Desktop/mochawithchia$
```

Now you can see the package.json file.

```
() package.json ×
{} package.json > ...
  1   {
  2      "name": "mochawithchia",
  3      "version": "1.0.0",
  4      "description": "",
  5      "main": "index.js",
        ▷ Debug
  6      "scripts": {
  7        "test": "echo \"Error: no test specified\" && exit 1"
  8      },
  9      "keywords": [],
 10      "author": "",
 11      "license": "ISC",
 12      "devDependencies": {
 13        "chai": "^4.3.7",
 14        "mocha": "^10.2.0"
 15      }
 16   }
 17
```

Step 2: Test the code using assertion style, expect style, and should style.

2.1 Create chai_assertion_style.js

```
package.json        JS chai_assertion_style.js  ×
s chai_assertion_style.js > ...
  1    let chai = require("chai").assert;
  2
  3    let name ="Raj";
  4    let num = 100;
  5    let result = true;
  6    let array_num = [10,20,30,40,50,60]
  7    function fun() {
  8
  9    }
 10    chai.isTrue(result);
 11    chai.isArray(array_num);
 12    chai.typeOf(name,"string");
 13    chai.typeOf(num,"number");
 14    chai.isFunction(fun);
 15    chai.equal(name,"Raj");
 16    chai.lengthOf(name,"3");
 17    chai.include(array_num,10)
```

Run this file using the below command:
mocha chai_assertion_style.js


```
1: labuser@ubuntu2204: ~/Desktop/mochawithchia ▼                    +  ×
labuser@ubuntu2204:~/Desktop/mochawithchia$ mocha chai_assertion_style.js


  0 passing (1ms)

labuser@ubuntu2204:~/Desktop/mochawithchia$
```

2.2 Create chai_expect_style.js


```
{} package.json      JS chai_assertion_style.js      JS chai_expect_style.js  ×

JS chai_expect_style.js > ...
  1    let chai = require("chai").expect;
  2    let name="Ajay";
  3    let num=100;
  4    let emp  = {id:100,name:"Ramesh",age:21};
  5
  6    chai(name).to.be.a("string");
  7    chai(num).to.be.a("number");
  8    chai(name).to.be.equal("Ajay");
  9    chai(name).to.be.have.length("4");
 10    chai(emp).to.be.have.property("id");
 11    chai(emp).to.be.have.property("age").to.be.equal(21);
 12    |
```

Now run this file


```
labuser@ubuntu2204:~/Desktop/mochawithchia$ mocha chai_expect_style.js


  0 passing (1ms)

labuser@ubuntu2204:~/Desktop/mochawithchia$ █
```

2.3 Create chai_expect_should.js

```
{} package.json      JS chai_assertion_style.js      JS chai_expect_style.js      JS chai_should_style.js ×

JS chai_should_style.js > ...
  1   var chai = require("chai").should();
  2   var name = "Ramesh";
  3   var age =21;
  4
  5   name.should.be.a("string");
  6   age.should.be.a("number");
  7   name.should.be.equal("Ramesh");
```

Now run this file

```
labuser@ubuntu2204:~/Desktop/mochawithchia$ mocha chai_should_style.js


  0 passing (1ms)

labuser@ubuntu2204:~/Desktop/mochawithchia$ ▮
```

By following these steps, you have successfully installed Mocha with the Chai library and tested code using various styles (assertion, expect, should), ensuring diverse and robust validation in a Node.js environment.