

Lesson 11 Demo 04

Implementing Assertion Libraries

Objective: To check a Node.js program using an assertion library for thorough code validation and testing

Tools Required: Visual Studio

Prerequisites: Knowledge of JavaScript and Node.js

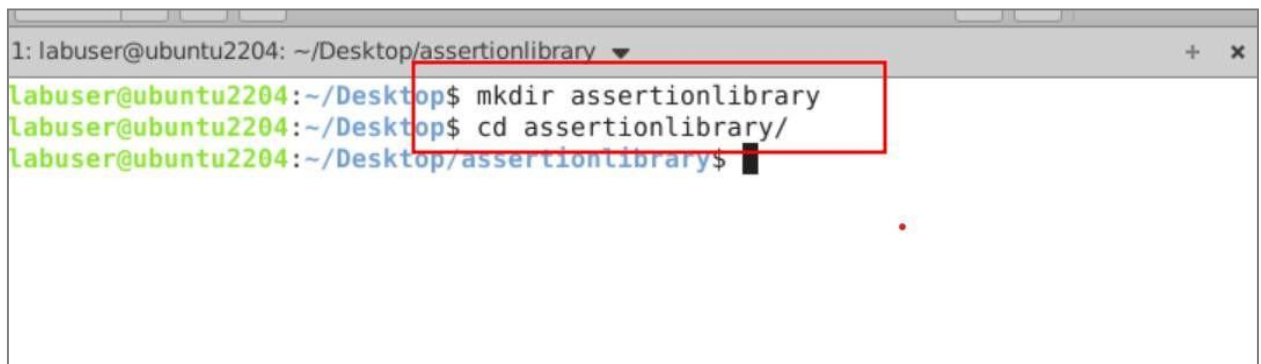
Steps to be followed:

1. Create the project structure and package.json file, and install the Mocha module
2. Create and test the code in the same file with a different assertion library

Step 1: Create the project structure and package.json file, and install the Mocha module

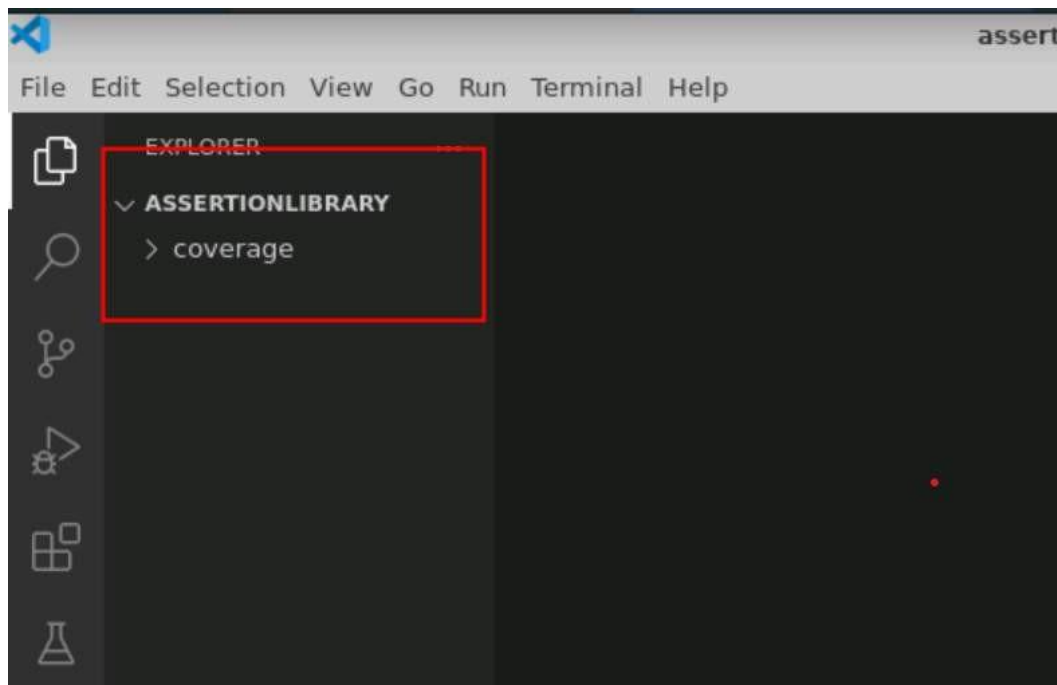
- 1.1 Run the following code to create a directory to hold the application and make it the working directory:

```
mkdir assertionlibrary  
cd assertionlibrary
```



```
1: labuser@ubuntu2204: ~/Desktop/assertionlibrary ▼  
labuser@ubuntu2204:~/Desktop$ mkdir assertionlibrary  
labuser@ubuntu2204:~/Desktop$ cd assertionlibrary/  
labuser@ubuntu2204:~/Desktop/assertionlibrary$
```

1.2 Open this folder in VS Code IDE as shown below:



1.3 Open the terminal and run the following command to create a **package.json** file for the application:

npm init -y

```
1: labuser@ubuntu2204: ~/Desktop/assertionlibrary
labuser@ubuntu2204:~/Desktop$ mkdir assertionlibrary
labuser@ubuntu2204:~/Desktop$ cd assertionlibrary/
labuser@ubuntu2204:~/Desktop/assertionlibrary$ npm init -y
Wrote to /home/labuser/Desktop/assertionlibrary/package.json:

{
  "name": "assertionlibrary",
  "version": "1.0.0",
  "description": "",
  "main": "index.js",
  "scripts": {
    "test": "echo \"Error: no test specified\" && exit 1"
  },
  "keywords": [],
  "author": "",
  "license": "ISC"
}

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

It creates a package.json file with the default option and you can view the package.json file.

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

1.4 Install Mocha using the following command:

npm install mocha -D

```
1: labuser@ubuntu2204: ~/Desktop/DeleteMultipleCallUsingDone
labuser@ubuntu2204:~/Desktop/DeleteMultipleCallUsingDone$ npm install mocha -D

up to date, audited 78 packages in 825ms

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

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

Step 2: Create and test the code in the same file with a different assertion library

2.1 Create `appTest.js`

```
1: labuser@ubuntu2204: ~/Desktop/assertionlibrary ▼
labuser@ubuntu2204:~/Desktop$ mkdir assertionlibrary
labuser@ubuntu2204:~/Desktop$ cd assertionlibrary/
labuser@ubuntu2204:~/Desktop/assertionlibrary$ npm init -y
Wrote to /home/labuser/Desktop/assertionlibrary/package.json:

{
  "name": "assertionlibrary",
  "version": "1.0.0",
  "description": "",
  "main": "index.js",
  "scripts": {
    "test": "echo \"Error: no test specified\" && exit 1"
  },
  "keywords": [],
  "author": "",
  "license": "ISC"
}

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

Run the application.

```
labuser@ubuntu2204:~/Desktop/assertionlibrary$ mocha appTest.js

0 passing (1ms)

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

Now, check each test to see if it fails.

2.2 Make Equal test to fail

```

$ appTest.js x
js appTest.js > [0] b
1  const assert = require("assert").strict;
2
3  let a =10;
4  let b =20;
5  let num=[10,20,30,40];
6  let msg=null;
7  try{
8      assert.equal(a,b);
9      assert.deepStrictEqual(num,[10,20,30,40]);
10     assert.match("we are learning node js",/node/)
11     assert.ok(true,"This is true value");
12 }catch(error){
13     console.log(error)
14 }
15

```

Now, run mocha

```

0 passing (1ms)

labuser@ubuntu2204:~/Desktop/assertionlibrary$ mocha appTest.js
AssertionError [ERR_ASSERTION]: Expected values to be strictly equal:
10 !== 20

    at Object.<anonymous> (/home/labuser/Desktop/assertionlibrary/appTest.js:8:1
2)
    at Module._compile (node:internal/modules/cjs/loader:1159:14)
    at Module._extensions..js (node:internal/modules/cjs/loader:1213:10)
    at Module.load (node:internal/modules/cjs/loader:1037:32)
    at Module._load (node:internal/modules/cjs/loader:878:12)
    at ModuleWrap.<anonymous> (node:internal/modules/esm/translators:169:29)
    at ModuleJob.run (node:internal/modules/esm/module_job:193:25)
    at async Promise.all (index 0)
    at async ESMLoader.import (node:internal/modules/esm/loader:530:24)
    at async importModuleDynamicallyWrapper (node:internal/vm/module:438:15)
    at async ...

```

2.3 Perform Deep Equal testing

```

js appTest.js x
js appTest.js > ...
1  const assert = require("assert").strict;
2
3  let a =10;
4  let b =10;
5  let num=[10,20,30,40];
6  let msg=null;
7  try{
8      assert.equal(a,b);
9      assert.deepStrictEqual(num,[10,20,30,40,50]);
10     assert.match("we are learning node js",/node/)
11     assert.ok(true,"This is true value");
12 }catch(error){
13     console.log(error)
14 }
15

```

```

labuser@ubuntu2204:~/Desktop/assertionlibrary$ mocha appTest.js
AssertionError [ERR_ASSERTION]: Expected values to be strictly deep-equal:
+ actual - expected
  [
    10,
    20,
    30,
    40,
    - 50
  ]
    at Object.<anonymous> (/home/labuser/Desktop/assertionlibrary/appTest.js:9:1
2)
    at Module._compile (node:internal/modules/cjs/loader:1159:14)
    at Module._extensions..js (node:internal/modules/cjs/loader:1213:10)
    at Module.load (node:internal/modules/cjs/loader:1037:32)
    at Module._load (node:internal/modules/cjs/loader:878:12)
    at ModuleWrap.<anonymous> (node:internal/modules/esm/translators:169:29)
    at ModuleJob.run (node:internal/modules/esm/module_job:193:25)
    at async Promise.all (index 0)
    at async ESMLoader.import (node:internal/modules/esm/loader:530:24)
    at async importModuleDynamicallyWrapper (node:internal/vm/module:438:15)

```


2.4 Perform Math testing

```

s appTest.js X
js appTest.js > ...
1  const assert = require("assert").strict;
2
3  let a =10;
4  let b =10;
5  let num=[10,20,30,40];
6  let msg=null;
7  try{
8      assert.equal(a,b);
9      assert.deepStrictEqual(num,[10,20,30,40]);
10     assert.match("we are learning node js",/python/)
11     assert.ok(true,"This is true value");
12 }catch(error){
13     console.log(error)
14 }
15

```

```

labuser@ubuntu2204:~/Desktop/assertionlibrary$ mocha appTest.js
AssertionError [ERR_ASSERTION]: The input did not match the regular expression /
python/. Input:
'we are learning node js'
    at Object.<anonymous> (/home/labuser/Desktop/assertionlibrary/appTest.js:10:
12)
    at Module._compile (node:internal/modules/cjs/loader:1159:14)
    at Module._extensions..js (node:internal/modules/cjs/loader:1213:10)
    at Module.load (node:internal/modules/cjs/loader:1037:32)
    at Module._load (node:internal/modules/cjs/loader:878:12)
    at ModuleWrap.<anonymous> (node:internal/modules/esm/translators:169:29)
    at ModuleJob.run (node:internal/modules/esm/module_job:193:25)
    at async Promise.all (index 0)
    at async ESMLoader.import (node:internal/modules/esm/loader:530:24)
    at async importModuleDynamicallyWrapper (node:internal/vm/module:438:15)
    at async formattedImport (/usr/lib/node_modules/mocha/lib/nodejs/esm-utis.js:9:14)
    at async exports.requireOrImport (/usr/lib/node_modules/mocha/lib/nodejs/esm-utis.js:42:28)
    at async exports.loadFilesAsync (/usr/lib/node_modules/mocha/lib/nodejs/esm-utis.js:100:20)
    at async singleRun (/usr/lib/node_modules/mocha/lib/cli/run-helpers.js:125:3

```

2.5 Perform OK test

```

js appTest.js x
js appTest.js > ...
1  const assert = require("assert").strict;
2
3  let a =10;
4  let b =10;
5  let num=[10,20,30,40];
6  let msq=null;
7  try{
8      assert.equal(a,b);
9      assert.deepStrictEqual(num,[10,20,30,40]);
10     assert.match(/"we are learning node js"/,./node/)
11     assert.ok(false,"This is true value");
12 }catch(error){
13     console.log(error)
14 }
15

```

```

labuser@ubuntu2204:~/Desktop/assertionlibrary$ mocha appTest.js
AssertionError [ERR_ASSERTION]: This is true value
    at Object.<anonymous> (/home/labuser/Desktop/assertionlibrary/appTest.js:11:
12)
    at Module._compile (node:internal/modules/cjs/loader:1159:14)
    at Module._extensions..js (node:internal/modules/cjs/loader:1213:10)
    at Module.load (node:internal/modules/cjs/loader:1037:32)
    at Module._load (node:internal/modules/cjs/loader:878:12)
    at ModuleWrap.<anonymous> (node:internal/modules/esm/translators:169:29)
    at ModuleJob.run (node:internal/modules/esm/module_job:193:25)
    at async Promise.all (index 0)
    at async ESMLoader.import (node:internal/modules/esm/loader:530:24)
    at async importModuleDynamicallyWrapper (node:internal/vm/module:438:15)
    at async formattedImport (/usr/lib/node_modules/mocha/lib/nodejs/esm-utl
s:9:14)
    at async exports.requireOrImport (/usr/lib/node_modules/mocha/lib/nodejs/es
-utls.js:42:28)
    at async exports.loadFilesAsync (/usr/lib/node_modules/mocha/lib/nodejs/esm
utls.js:100:20)
    at async singleRun (/usr/lib/node_modules/mocha/lib/cli/run-helpers.js:125:3
)
    at async exports.handler (/usr/lib/node_modules/mocha/lib/cli/run.js:370:5)

```


After this, change the code in **appTest.js**

```
$ appTest.js x
us appTest.js > ...
1  const assert = require("assert").strict;
2
3  let a =10;
4  let b =10;
5  let num=[10,20,30,40];
6  let msg=null;
7  try{
8      assert.equal(a,b);
9      assert.deepEqual(num,[10,20,30,40]);
10     assert.match("we are learning node js",/node/)
11     assert.ok(true,"This is true value");
12 }catch(error){
13     console.log(error)
14 }
15
```

```
labuser@ubuntu2204:~/Desktop/assertionlibrary$ mocha appTest.js

0 passing (2ms)

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

By following these steps, you have successfully implemented and tested the assertion libraries in a Node.js program to ensure comprehensive code validation and reliability.