

## IT-314 Software Engineering



### Group: 27 College Programming Club

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## Unit Testing Jest:

We have used the jest framework for unit testing in node js. The testing is being performed in node js as the project is being implemented in node js.

### 1) isValidEmail

#### Function to check the validation of email

```
// function to check email is valid
function isValidEmail(email) {
  if (
    email.substr(-13, 13) !== '@daiict.ac.in' ||
    email[1] !== '0' ||
    email[0] !== '2' ||
    !(email[4] === '0' || email[4] === '1' || email[4] === '2') ||
    !(
      email[5] === '0' ||
      email[5] === '1' ||
      email[5] === '2' ||
      email[5] === '3'
    ) ||
    email[6] >= '6'
  ) {
    return false;
  }

  return true;
}
```

#### Test case for the email validator

```
test('Email is valid for registration', () => {
  expect(isValidEmail('202001265@daiict.ac.in')).toBe(true);
  expect(isValidEmail('202001276@daiict.ac.in')).toBe(true);
  expect(isValidEmail('202001426@daiict.ac.in')).toBe(true);
  expect(isValidEmail('202001267@daiict.ac.in')).toBe(true);
  expect(isValidEmail('202001241@daiict.ac.in')).toBe(true);
  expect(isValidEmail('202001139@daiict.ac.in')).toBe(true);
});
```

```

    expect(isValidEmail('202001254@daiict.ac.in')).toBe(true);
    expect(isValidEmail('202001266@daiict.ac.in')).toBe(true);
  });

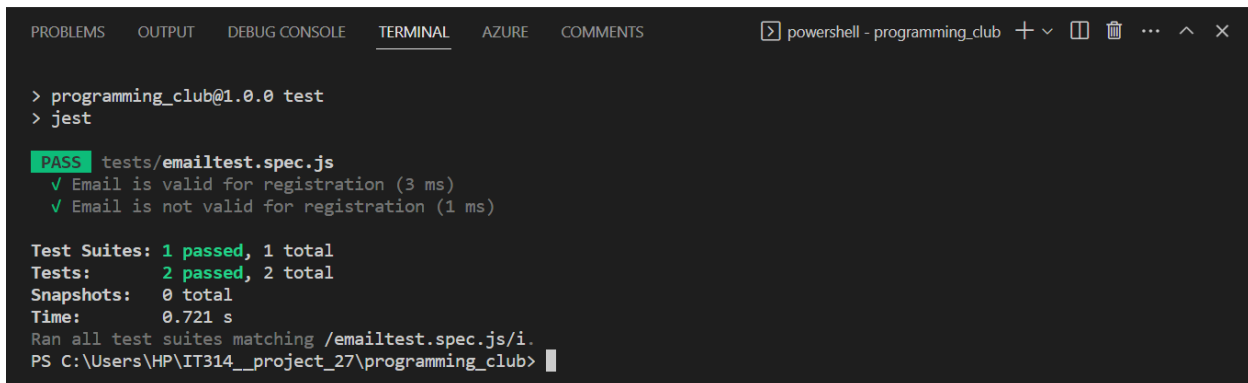
test('Email is not valid for registration', () => {
  expect(isValidEmail('202001265@gmail.com')).toBe(false);
  expect(isValidEmail('20200@daiict.ac.in')).toBe(false);
  expect(isValidEmail('20200426@daiict.ac.in')).toBe(false);
  expect(isValidEmail('198001267@daiict.ac.in')).toBe(false);
  expect(isValidEmail('002001241@daiict.ac.in')).toBe(false);
  expect(isValidEmail('102001139@daiict.ac.in')).toBe(false);
  expect(isValidEmail('202001254@daiict.in')).toBe(false);
  expect(isValidEmail('202001266@gmail.ac.in')).toBe(false);
});

```

The test suite consists of two test units:

- The first is for valid email which returns true when the email is a valid syntax.
- The second is for invalid email which returns true when the email is an invalid syntax.

## Result



The screenshot shows a terminal window with the following content:

```

PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  AZURE  COMMENTS
> programming_club@1.0.0 test
> jest

PASS tests/emailtest.spec.js
  ✓ Email is valid for registration (3 ms)
  ✓ Email is not valid for registration (1 ms)

Test Suites: 1 passed, 1 total
Tests:       2 passed, 2 total
Snapshots:   0 total
Time:        0.721 s
Ran all test suites matching /emailtest.spec.js/i.
PS C:\Users\HP\IT314__project_27\programming_club>

```

We can observe that both the test cases gets passed successfully

## 2) GET welcome page URL and POST event registration

### Test case

```
const request = require('supertest');

const baseUrl = 'https://programming-club-daiict.up.railway.app';

describe('GET /', () => {
  test('should return status 200 for welcome page', async () => {
    const res = await request(baseUrl).get('/');
    expect(res.status).toEqual(200);
  });
});

describe('POST /', () => {
  test('should return status 302 for event registration successfully and refresh page', async () => {
    const req = {
      body: {
        event_id: '643bb200689344b247c114c2',
        user_id: '643d00e982ae64d1eeb5b2ad',
      },
    };
    const res = await request(baseUrl).post('/event');
    expect(res.status).toEqual(302);
  });
});
```

The test suite consists of two unit tests:

- The First is for GET baseUrl, which will return the status code 200 for the welcome page.
- The second is for POST event registration, which will return status code 302 for successful event registration and will refresh the page.

## Result

```
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL AZURE COMMENTS powershell - programming_club + - [ ] [ ] ... ^ x

PS C:\Users\HP\IT314_project_27\programming_club> npm test -- auth.spec.js

> programming_club@1.0.0 test
> jest

PASS tests/auth.spec.js
  GET /
    ✓ should return status 200 for welcome page (845 ms)
  POST /
    ✓ should return status 302 for event registration successfully and refreash page (722 ms)

Test Suites: 1 passed, 1 total
Tests: 2 passed, 2 total
Snapshots: 0 total
Time: 2.333 s, estimated 3 s
Ran all test suites matching /auth.spec.js/i.
PS C:\Users\HP\IT314_project_27\programming_club>
```

We can observe that both the test cases gets passed successfully

### 3) isStrongpassword

#### Function to check the password

```
// function to check Password is strong enough for security or not
function isStrongPassword(password) {
  const minLength = 6; // Minimum length requirement
  const maxLength = 64; // Maximum length requirement
  const hasUpperCase = /[A-Z]/.test(password); // Upper case letters
  requirement
  const hasLowerCase = /[a-z]/.test(password); // Lower case letters
  requirement
  const hasNumber = /[0-9]/.test(password); // Numbers requirement
  const hasSpecialChar = /[$&+,;=?@#|'<>.^*()%!-]/.test(password); //
  Special characters requirement
  const isCommonPassword = /password|123456|qwerty/i.test(password); //
  Common password check

  if (password.length < minLength || password.length > maxLength) {
    return false;
  }

  if (!hasUpperCase || !hasLowerCase || !hasNumber || !hasSpecialChar) {
    return false;
  }
}
```

```

}

if (isCommonPassword) {
  return false;
}

return true;
}

```

## Test case for the Password

```

test('Password is Strong enough for security', () => {
  expect(isStrongPassword('Chalodiya@76')).toBe(true);
  expect(isStrongPassword('Sanghani$65')).toBe(true);
  expect(isStrongPassword('Archit#74')).toBe(true);
  expect(isStrongPassword('Adhiya@77')).toBe(true);
  expect(isStrongPassword('Fenil@123')).toBe(true);
  expect(isStrongPassword('Krunal%987')).toBe(true);
  expect(isStrongPassword('Deep@@00')).toBe(true);
  expect(isStrongPassword('Tushar.678')).toBe(true);
});

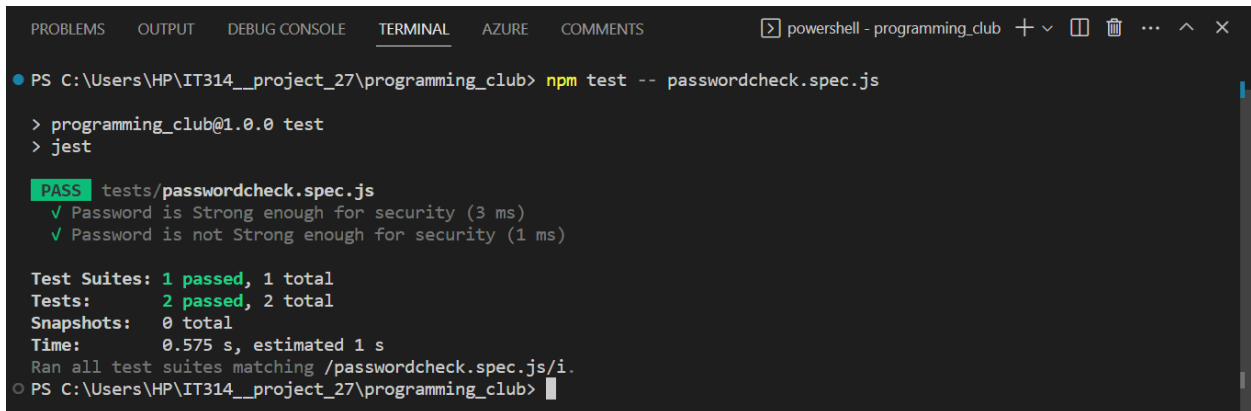
test('Password is not Strong enough for security', () => {
  expect(isStrongPassword('archit12345')).toBe(false);
  expect(isStrongPassword('Abc@1')).toBe(false);
  expect(isStrongPassword('kishansanghani65')).toBe(false);
  expect(isStrongPassword('omchalodiya')).toBe(false);
  expect(isStrongPassword('leadtester')).toBe(false);
  expect(isStrongPassword('123456789')).toBe(false);
  expect(isStrongPassword('aa11bb33')).toBe(false);
  expect(isStrongPassword('qwertyuiop')).toBe(false);
});

```

The test suite consists of two test units:

- The first is for a Strong password which returns true when the password is a strong.
- The second is for a weak password which returns true when the password is a weak one.

## Result



```
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL AZURE COMMENTS powershell - programming_club + - ✕
• PS C:\Users\HP\IT314__project_27\programming_club> npm test -- passwordcheck.spec.js

> programming_club@1.0.0 test
> jest

PASS tests/passwordcheck.spec.js
  ✓ Password is Strong enough for security (3 ms)
  ✓ Password is not Strong enough for security (1 ms)

Test Suites: 1 passed, 1 total
Tests: 2 passed, 2 total
Snapshots: 0 total
Time: 0.575 s, estimated 1 s
Ran all test suites matching /passwordcheck.spec.js/i.
o PS C:\Users\HP\IT314__project_27\programming_club>
```

We can observe that both the test cases gets passed successfully

## 4) GET and POST router for Admin login

### Test case

```
const request = require('supertest');

const baseURL = 'https://programming-club-daiict.up.railway.app';

describe('GET /', () => {
  test('should return status 200 for successfully go to admin login page',
  async () => {
    const res = await request(baseURL).get('/admin/');
    expect(res.status).toEqual(200);
  });

  test('should return status 302 and redirect to login page(wrong
password)', async () => {
    const user = {
      email: '202001265@daiict.ac.in',
      password: 'Kishan@65',
    };

    const res = await request(baseURL).post('/admin/').send(user);
    expect(res.status).toEqual(302);
    expect(res.headers.location).toEqual('/admin/dashboard');
```

```

    });

    test('should return status 302 and redirect to admin dashboard', async
    () => {
        const user = {
            email: '202001265@daiict.ac.in',
            password: 'Kisn@65',
        };

        const res = await request(baseUrl).post('/admin/').send(user);
        expect(res.status).toEqual(302);
        expect(res.headers.location).toEqual('/admin/');
    });
});

```

The test suite consists of two unit tests:

- The First is for GET baseUrl, which will return the status code 200 for the Admin login page.
- The second is for POST Admin login and redirect to the Admin page again because the input test case is wrong.
- The third is for POST Admin login and redirect to the Admin Dashboard page because the input test case is right.

## Result

```

PS C:\Users\HP\IT314__project_27\programming_club> npm test -- login_check.spec.js

> programming_club@1.0.0 test
> jest

PASS tests/login_check.spec.js
  GET /
    ✓ should return status 200 for successfully go to admin login page (900 ms)
    ✓ should return status 302 and redirect to login page(wrong password) (1053 ms)
    ✓ should return status 302 and redirect to admin dashboard (1064 ms)

Test Suites: 1 passed, 1 total
Tests:       3 passed, 3 total
Snapshots:  0 total
Time:        3.904 s, estimated 5 s
Ran all test suites matching /login_check.spec.js/i.
PS C:\Users\HP\IT314__project_27\programming_club>

```

We can observe that all the test cases gets passed successfully



## 5) GET router for Profile page

### Test case

```
const request = require('supertest');

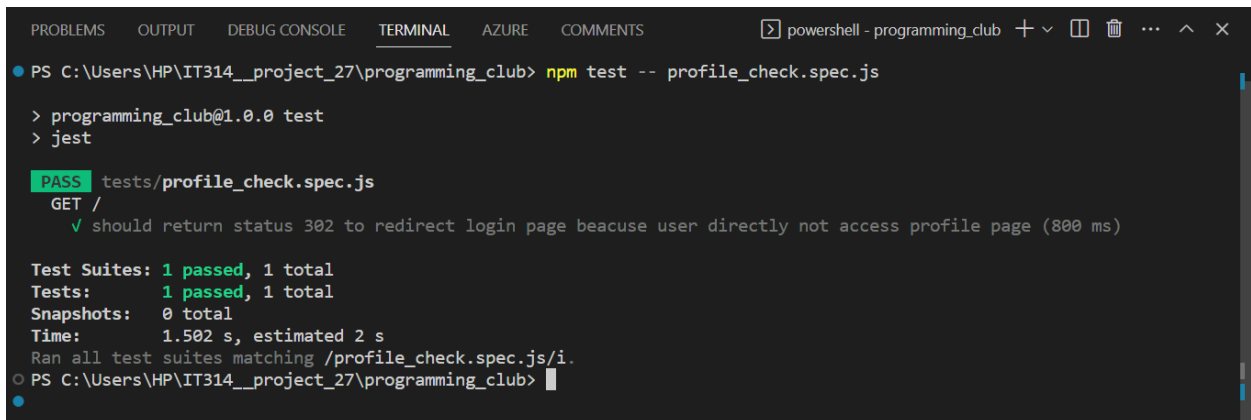
const baseUrl = 'https://programming-club-daiict.up.railway.app';

describe('GET /', () => {
  test('should return status 302 to redirect login page beacuse user directly not access profile page', async () => {
    const res = await request(baseUrl).get('/profile');
    expect(res.status).toEqual(302);
    expect(res.headers.location).toEqual('/users/login');
  });
});
```

The test suite consists of two unit tests:

- The First is for GET baseUrl, which will return the status code 200 for the Admin login page.

### Result



```
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL AZURE COMMENTS powershell - programming_club + v [] ... ^ x
PS C:\Users\HP\IT314__project_27\programming_club> npm test -- profile_check.spec.js

> programming_club@1.0.0 test
> jest

PASS tests/profile_check.spec.js
  GET /
    ✓ should return status 302 to redirect login page beacuse user directly not access profile page (800 ms)

Test Suites: 1 passed, 1 total
Tests: 1 passed, 1 total
Snapshots: 0 total
Time: 1.502 s, estimated 2 s
Ran all test suites matching /profile_check.spec.js/i.
PS C:\Users\HP\IT314__project_27\programming_club>
```

We can observe that the test cases gets passed successfully

## 6) IsInputValid for registration form

### Test case

```
function isFormValid(Data) {  
  const { name, email, program, batch, password, password2 } = Data;  
  if(  
    !name ||  
    !email ||  
    !password ||  
    !password2 ||  
    program === '0' ||  
    batch === '0'  
  ) {  
    return false;  
  }  
  
  return true;  
}
```

```
describe('Register form validation', () => {  
  test('returns true if all fields are filled', () => {  
    // Mock form data  
    const formData = {  
      name: 'John Doe',  
      email: 'johndoe@example.com',  
      password: 'password123',  
      password2: 'password123',  
      batch: '1',  
      program: '1',  
    };  
  
    expect(isFormValid(formData)).toBe(true);  
  });  
  
  test('returns false if any field is empty', () => {  
    // Mock form data  
    const formData = {  
      name: 'John Doe',  
      email: '',  
    };  
  });  
});
```

```

    password1: 'password123',
    password2: 'password123',
    batch: '1',
    programe: '1',
  };

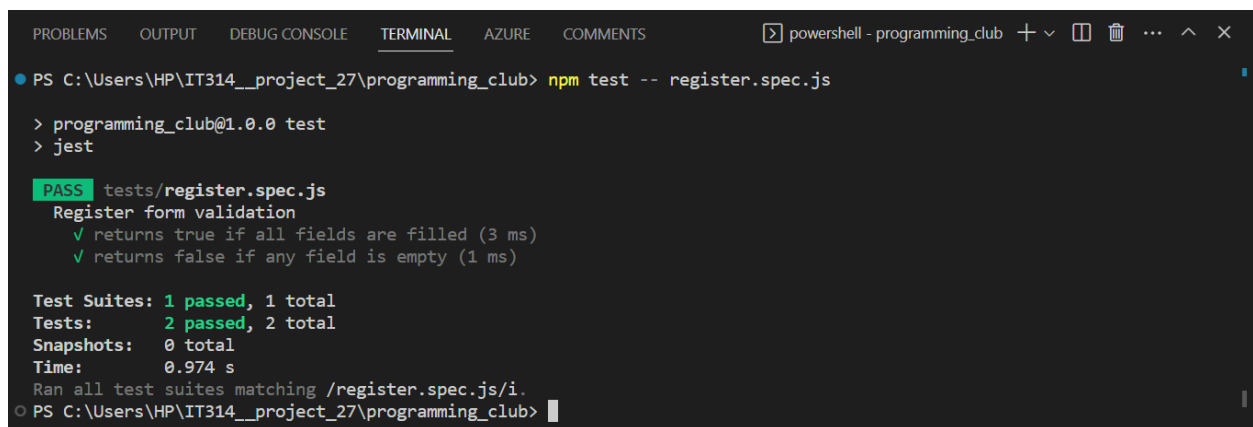
  expect(isFormValid(formData)).toBe(false);
});
});

```

The test suite consists of two unit tests:

- The First is for non-empty input, function will return true if all fields are non empty.
- The Second is for at least one empty input, the function will return false if any field is empty.

## Result



```

PS C:\Users\HP\IT314__project_27\programming_club> npm test -- register.spec.js

> programming_club@1.0.0 test
> jest

PASS tests/register.spec.js
  Register form validation
    ✓ returns true if all fields are filled (3 ms)
    ✓ returns false if any field is empty (1 ms)

Test Suites: 1 passed, 1 total
Tests: 2 passed, 2 total
Snapshots: 0 total
Time: 0.974 s
Ran all test suites matching /register.spec.js/i.
PS C:\Users\HP\IT314__project_27\programming_club>

```

We can observe that both the test cases gets passed successfully

## 7) GET router for Logout

### Test case

```

const request = require('supertest');

const baseURL = 'https://programming-club-daiict.up.railway.app/';

describe('Logging out', () => {

```

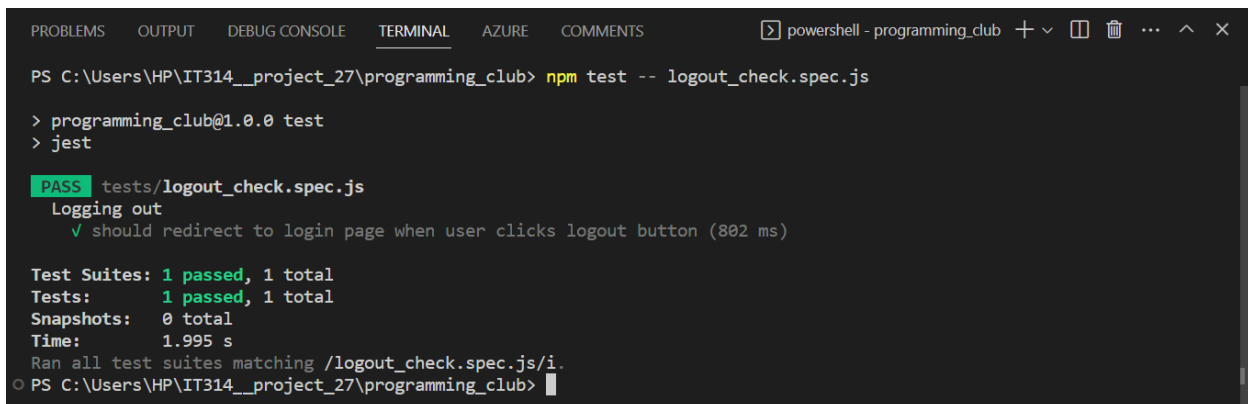
```
test('should redirect to login page when user clicks logout button',
async () => {

    const res = await request(app).get('users/logout');
    expect(res.status).toEqual(302);
    expect(res.headers.location).toEqual('/');
});
});
```

The test suite consists of two unit tests:

- The First is for GET baseURL, which will return the status code 302 for the logout button and redirect to the welcome page.

## Result

A screenshot of a PowerShell terminal window with tabs for PROBLEMS, OUTPUT, DEBUG CONSOLE, TERMINAL, AZURE, and COMMENTS. The terminal shows the execution of 'npm test -- logout\_check.spec.js' in the directory 'C:\Users\HP\IT314\_\_project\_27\programming\_club'. The output shows 'programing\_club@1.0.0 test' and 'jest' being run. A green 'PASS' box highlights the test suite 'tests/logout\_check.spec.js'. The test 'Logging out' is shown with a green checkmark and the message 'should redirect to login page when user clicks logout button (802 ms)'. Summary statistics show 1 passed test suite and 1 total test. The time taken is 1.995 s. The terminal ends with the prompt 'PS C:\Users\HP\IT314\_\_project\_27\programming\_club>'.

```
PS C:\Users\HP\IT314__project_27\programming_club> npm test -- logout_check.spec.js

> programing_club@1.0.0 test
> jest

PASS tests/logout_check.spec.js
  Logging out
    ✓ should redirect to login page when user clicks logout button (802 ms)

Test Suites: 1 passed, 1 total
Tests:       1 passed, 1 total
Snapshots:   0 total
Time:        1.995 s
Ran all test suites matching /logout_check.spec.js/i.
PS C:\Users\HP\IT314__project_27\programming_club>
```

We can observe that the test cases gets passed successfully.