Mahidol University

Wisdom of the Land

ITCS371 Introduction to Software Engineering

Testing Assignment: Unit Testing, Integration Testing and System Testing

Presented to

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Mahidol University, Semester 1/2022

Preface

This report is written to summarize the three types of testing include test Table, source code and output for each type of testing.

Table of Contents

Task 1 (Unit Testing)

Test Case ID: #1,2

Test Title: Check Student Validation.

Description: Check Age's student is equal to 25 and check first name of student is "Andrew".

Test Type: Unit Testing

Test Priority: Fast

Test Designed by: Teerapat Burasotikul and Thanakorn Charoenritthitham

Test Designed Date: 19/11/2022

Test Executed by: Teerapat Burasotikul and Thanakorn Charoenritthitham

Test Executed Date: 19/11/2022

Test Cases#1 Table

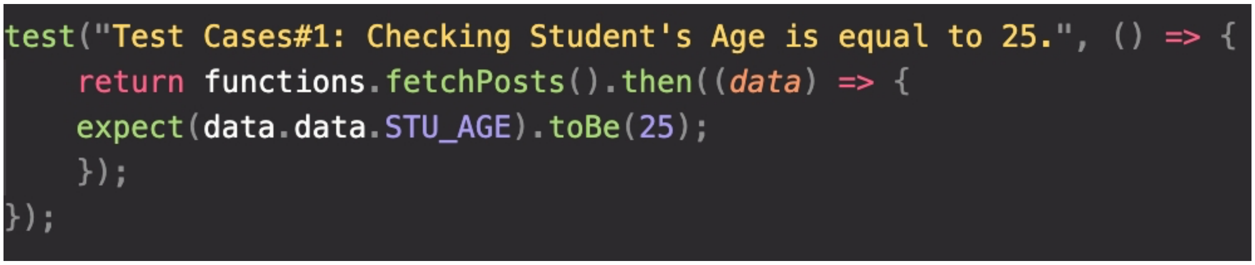
Step	Test Steps	Test Data	Expected Result	Actual Result	Status (Pass/Fail)	Note
1	Check data from database	-	There are students who are 25 years old.	There are students who are 25 years old stand for the database.	Pass	-

Tase Cases2# Table

Step	Test Steps	Test Data	Expected Result	Actual Result	Status (Pass/Fail)	Note
1	Check data from database	-	There is a student whose first name is “Andrew’.	There is a student whose first name is “Andrew’.	Pass	-

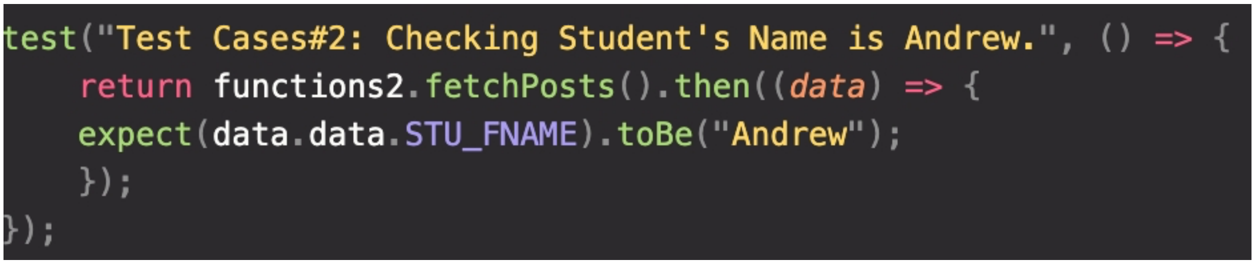
Testing Source Code

Test Cases#1



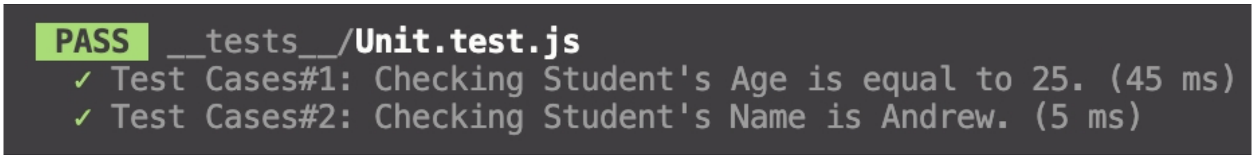
```
test("Test Cases#1: Checking Student's Age is equal to 25.", () => {
    return functions.fetchPosts().then((data) => {
    expect(data.data.STU_AGE).toBe(25);
    });
});
```

Test Cases#2



```
test("Test Cases#2: Checking Student's Name is Andrew.", () => {
    return functions2.fetchPosts().then((data) => {
    expect(data.data.STU_FNAME).toBe("Andrew");
    });
});
```

Testing Output



```
PASS  __tests__/Unit.test.js
  ✓ Test Cases#1: Checking Student's Age is equal to 25. (45 ms)
  ✓ Test Cases#2: Checking Student's Name is Andrew. (5 ms)
```

Task 2 (Integration Testing)

Test Case ID: #3,4

Test Title: Check Student's information

Description: Check Student's information and check by student id.

Test Type: Integration Testing

Test Priority: Fast

Test Designed by: Teerapat Burasotikul and Thanakorn Charoenritthitham

Test Designed Date: 19/11/2022

Test Executed by: Teerapat Burasotikul and Thanakorn Charoenritthitham

Test Executed Date: 19/11/2022

Test Cases#3 Table

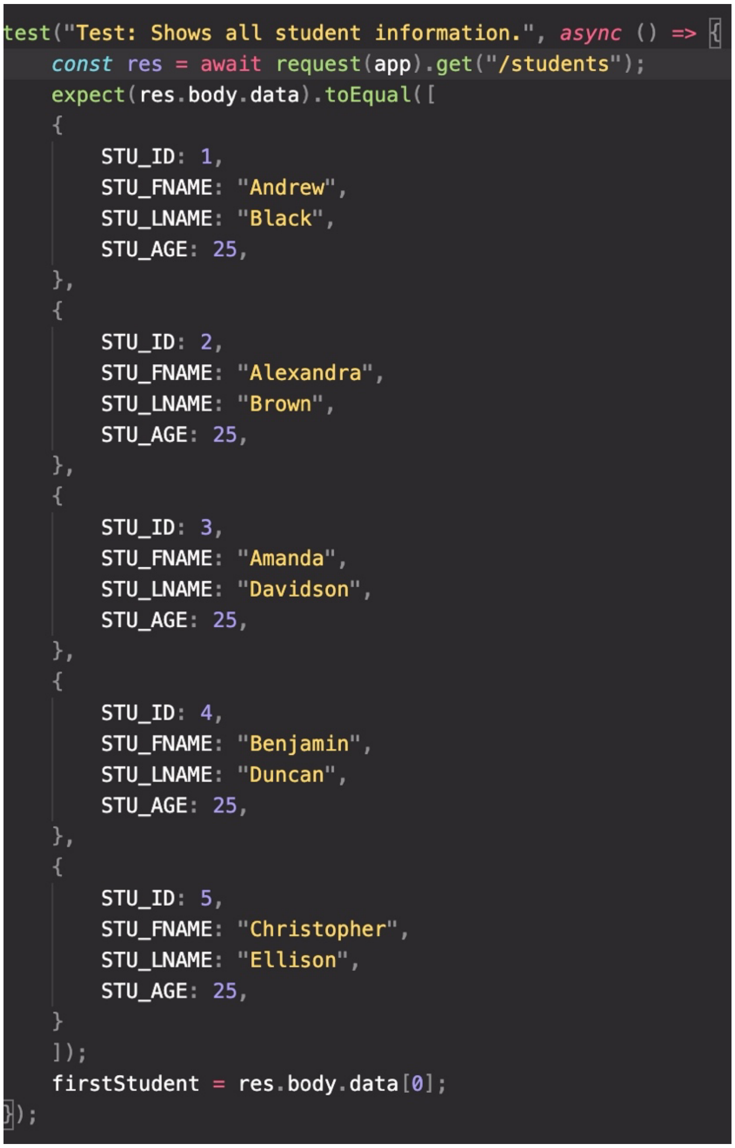
Step	Test Steps	Test Data	Expected Result	Actual Result	Status (Pass/Fail)	Note
1	Navigate to student information	-	Student's information was show	Student's information was show	Pass	-

Test Cases#4 Table

Step	Test Steps	Test Data	Expected Result	Actual Result	Status (Pass/Fail)	Note
1	Navigate to student information	STU_ID	Display information of first student	The information of first student was display	Pass	-

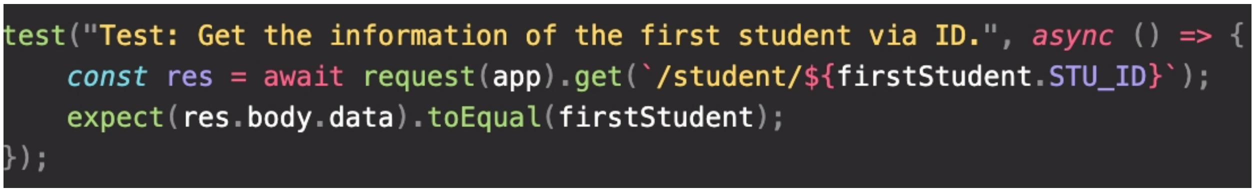
Testing Source Code

Test Cases#3



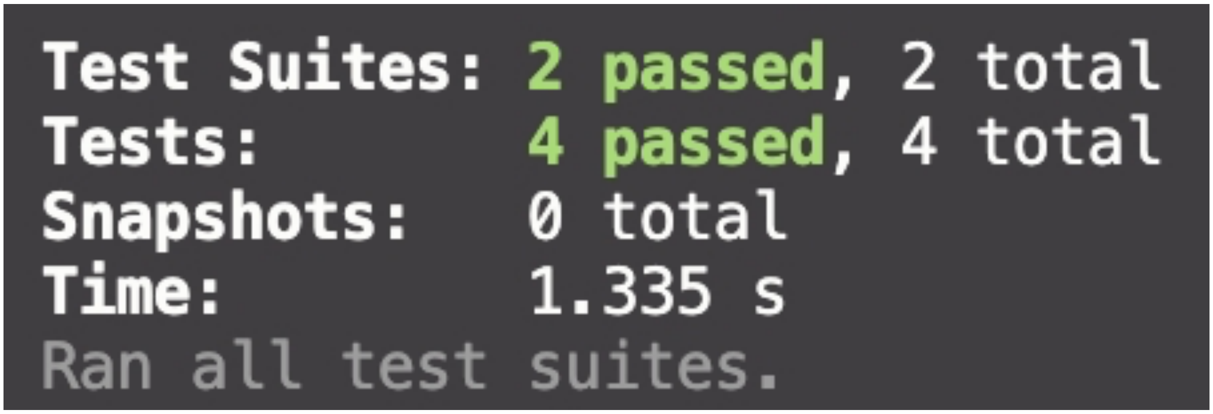
```
test("Test: Shows all student information.", async () => {
    const res = await request(app).get("/students");
    expect(res.body.data).toEqual([
    {
        STU_ID: 1,
        STU_FNAME: "Andrew",
        STU_LNAME: "Black",
        STU_AGE: 25,
    },
    {
        STU_ID: 2,
        STU_FNAME: "Alexandra",
        STU_LNAME: "Brown",
        STU_AGE: 25,
    },
    {
        STU_ID: 3,
        STU_FNAME: "Amanda",
        STU_LNAME: "Davidson",
        STU_AGE: 25,
    },
    {
        STU_ID: 4,
        STU_FNAME: "Benjamin",
        STU_LNAME: "Duncan",
        STU_AGE: 25,
    },
    {
        STU_ID: 5,
        STU_FNAME: "Christopher",
        STU_LNAME: "Ellison",
        STU_AGE: 25,
    }
    ]);
    firstStudent = res.body.data[0];
});
```

Test Cases#4



```
test("Test: Get the information of the first student via ID.", async () => {
    const res = await request(app).get(`/student/${firstStudent.STU_ID}`);
    expect(res.body.data).toEqual(firstStudent);
});
```

Testing Output



```
Test Suites: 2 passed, 2 total
Tests:       4 passed, 4 total
Snapshots:   0 total
Time:        1.335 s
Ran all test suites.
```

Task 3 (System Testing)

Test Case ID: #5

Test Title: Test to get the student’s information though the user interface.

Description: Test the service to get the student’s information in the database.

Test Type: System Testing

Test Priority: Fast

Test Designed by: Teerapat Burasotikul and Thanakorn Charoenritthitham

Test Designed Date: 19/11/2022

Test Executed by: Teerapat Burasotikul and Thanakorn Charoenritthitham

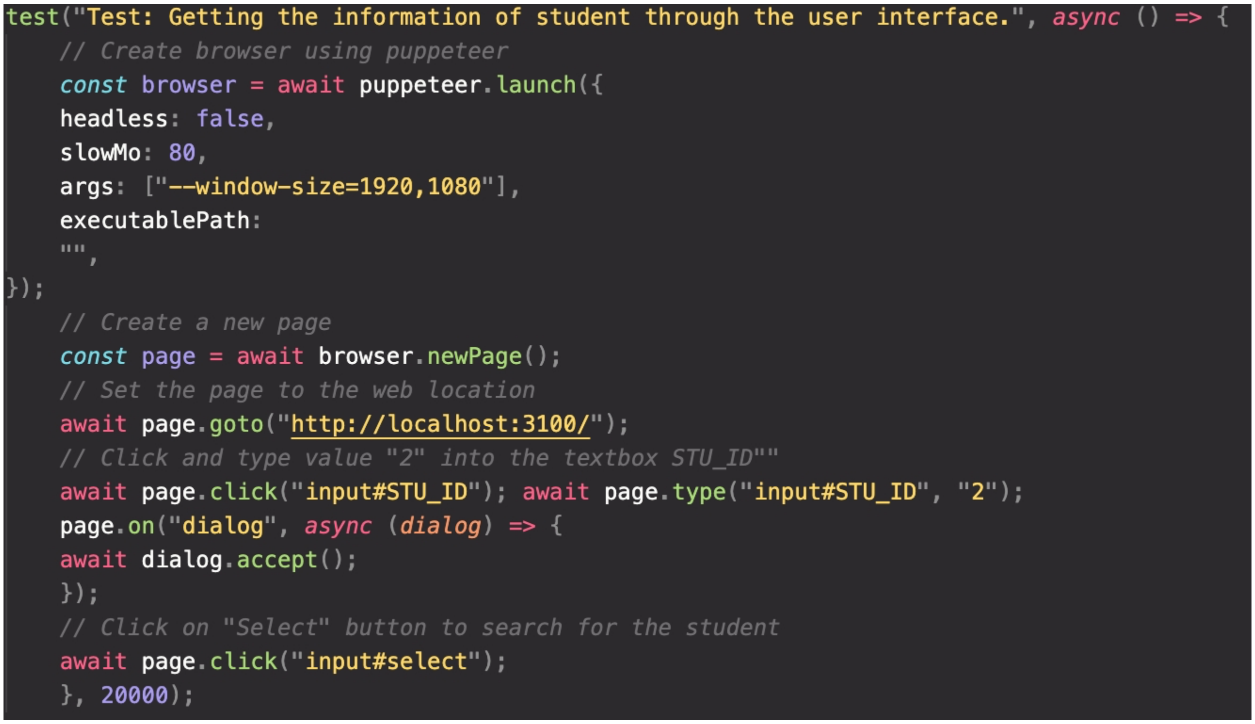
Test Executed Date: 19/11/2022

- Pre-conditions: The user enters a new student ID and the user needs to connect to “http://localhost:3100//”/.

Test Cases#5 Table

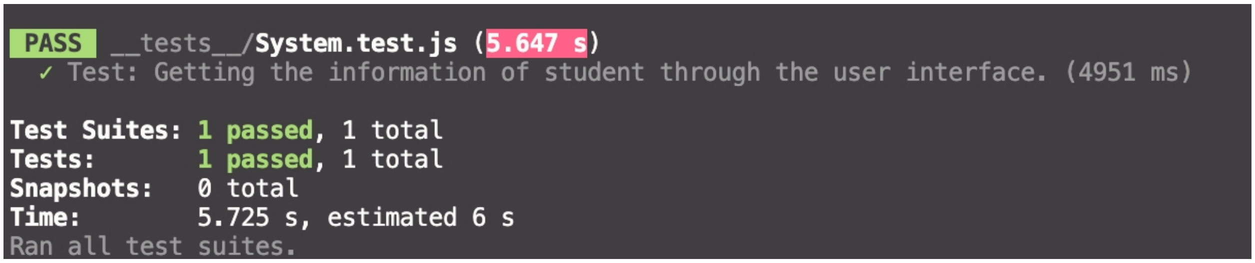
Step	Test Steps	Test Data	Expected Result	Actual Result	Status (Pass/Fail)	Note
1	Navigate to the student service page	“http://localhost:3100//	Student’s information was display	Student’s information was display	Pass	-
2	Fill the student via ID	STU_ID				

Testing Source Code



```
test("Test: Getting the information of student through the user interface.", async () => {
    // Create browser using puppeteer
    const browser = await puppeteer.launch({
    headless: false,
    slowMo: 80,
    args: ["--window-size=1920,1080"],
    executablePath:
    "",
});
    // Create a new page
    const page = await browser.newPage();
    // Set the page to the web location
    await page.goto("http://localhost:3100/");
    // Click and type value "2" into the textbox STU_ID""
    await page.click("input#STU_ID"); await page.type("input#STU_ID", "2");
    page.on("dialog", async (dialog) => {
    await dialog.accept();
    });
    // Click on "Select" button to search for the student
    await page.click("input#select");
    }, 20000);
```

Testing Output



```
 PASS  __tests__/System.test.js (5.647 s)
  ✓ Test: Getting the information of student through the user interface. (4951 ms)

Test Suites: 1 passed, 1 total
Tests:       1 passed, 1 total
Snapshots:   0 total
Time:        5.725 s, estimated 6 s
Ran all test suites.
```