Condo Management System

Testing Plan for Sprint #3

27/02/2024

Testing Approaches

The approaches to take in testing the system for this project are varied to ensure that we have an efficient and effective testing plan. For the duration of the project, we will use the Agile methodology to conduct testing iteratively throughout the sprints. In addition, and in line with the Agile method, we will also incorporate Test Driven Development to write tests before the code is written. We will also conduct exploratory tests to increase the user experience by allowing ourselves to test multiple functions of the system simultaneously. Lastly, we will configure our CI Pipeline to run the tests automatically to catch issues early in the development.

Testing Tools, Coverage and Metric

In this project, the technologies we use consist of Next.js framework for both the backend and the frontend. As such, the testing tools must be compatible with these frameworks. Since we will make use of Next.js, and given that it utilizes React.js for the front end of our project, the decision for a testing tool to use for unit and integration tests that would be compatible with the technologies is JEST. It is a popular testing framework, providing a "zero-configuration" testing experience. It also has a built-in tool for code coverage which is essential for the purposes of this project. We will be writing unit and integration tests for our project to produce testing analytics and verify the quality of the code.

For the testing metrics, JEST reports test coverage, test execution time and test pass/fail ratio. When "npx jest --coverage" is executed in the terminal of the project, it will create a coverage directory with coverage information such as statements, branches, functions and lines. Another command is executed in the terminal for execution time. The results of these tests will be saved and analyzed in a short testing report. We are aiming for a code coverage of at least 80%. We believe that this number is both feasible and a promising ratio for the proper functioning of the system.

For the code quality metrics, we will be using ESLint, which is a static code analysis tool for identifying and reporting potential errors and improving code quality. It is integrated in the IDEs to provide feedback as the team writes code. It is possible to install many plugins and extensions to cover many code quality metrics.

ESLint reports static code analysis violation, code duplication, code smells and performance metrics when ESLint is executed in the terminal for the entire project. It gives feedback, shows potential errors and improvements. If fixable errors are detected, it is possible to run the command " npx eslint --fix " to fix all the errors detected. For code duplication, we will be using an ESLint plugin and updating the ESLint configuration file. This will detect code duplication when we run ESLint in the terminal of the entire project.

Using these tools will improve code readability, catch bugs early in development and will help us follow a consistent coding standard. The static code analysis tools will be integrated in the continuous integration pipeline.

Another testing metric of our focus is defect density. It is related to the number of found defects per unit of code. We believe that this metric helps the testers to write helpful and efficient tests for the project. We will be using the results of the test coverage to calculate the defect density.

Acceptance Tests

Feature: Viewing Annual Condo Fee Reports (US #53)

Given I am a condo management company authorized representative accessing the financial system page, I want to see and open annual reports showing all condo fees collected when I select a specific year.

Acceptance Criteria	Example Test Data
- Financial system page prompts the user to select an year in a dropdown list. - The user must select a year. - All documents related to the selected year appear on the page with appropriate title of what the document contains. - The user clicks on the document to open. - The page should display the pdf file in a new tab. - The condo fee page should be accessible to authorized representatives of the condo management company.	Selected year: 2023 Selected Document: Report_2023.pdf

Feature: Record Operational Budget ([US #51](#))

Given I am a condo management company authorized representative accessing the operation fees page, I should see a form to enter information about a fee I just collected and a form to enter the cost of a service.

Acceptance Criteria	Example Test Data
- The page should display a form with the following information: type, condo, service, cost, date, people involved and a submit button. - The form should have a user-friendly layout. - The form should display a confirmation message once submitted. - The form should check for invalid inputs. - The condo fee page should be accessible to authorized representatives of the condo management company. - The form should be associated with a condo unit	Type: Income Date: 23 March 2024 Condo: 54 Servive: Rent Cost: 2000 Condo Renter: Jane Doe

Feature: Set Condo Fees per Area and Parking (US #50)

Given I am a condo management company authorized representative accessing the condo fee page, I should be able to set up a condo fee per square foot and per parking spot when I enter the area and the number of parking spots. I would like the page to automatically calculate the price and I am allowed to adjust the price.

Acceptance Criteria	Example Test Data
- The condo fee page should be accessible to authorized representatives of the condo management company. - The form should prompt the user for condo unit, condo area and the number of parking spots - Once the form is submitted, the system calculates its price. - The representative is allowed to adjust the price. - Once the price is confirmed, the system should save and associate the price with the condo unit - The form should be associated with a condo unit	Condo unit: 45 Condo area: 300 Parking Spot: 2

Feature: Detailed Information Entry ([US #47](#))

Given I am a representative of the condo management company logged into the system and I navigate to the detailed information entry section for a specific property, I provide information for each condo unit, parking spot, and locker, including unit size, owner information, and associated condo fees. Then I submit the detailed information for each unit, parking spot, and locker should be successfully entered and associated with the property.

Acceptance Criteria	Example Test Data
- The detailed information entry section should be accessible to authorized representatives of the condo management company. - The system should allow the entry of detailed information for each condo unit, parking spot, and locker. - The information for each unit should include unit size, owner information (name, contact details), and associated condo fees. - The information for each parking spot and locker should include relevant details and associations. - Upon submitting the information, the system should store and associate the detailed information with the respective property. - The entered information should be accurate and reflect the current state of each condo unit, parking spot, and locker.	Property Name: Sample Condo Condo Unit Information: Unit Size: 1000 sq. ft. Owner Information: John Doe, johndoe@example.com Condo Fees: $500/month Parking Spot Information: Parking Spot Number: P001 Owner Information: Jane Smith, janesmith@example.com Condo Fees: $50/month Locker Information: Locker Number: L001 Owner Information: Alex Johnson, alexjohnson@example.com Condo Fees: $10/month

Feature: Registration key processing to make a public user a condo owner or renter (<u>US #41</u>)

Given I am a public user with a registration key obtained from my condo management company assessing my profile page, when I enter my valid key, the system should update my status and make me a condo owner/renter and show appropriate information.

Acceptance Criteria	Example Test Data
- A registration key form should be available on the public user's profile page - The user must provide a valid key and submit the form - The user should receive a confirmation message that the key is valid - Upon submitting the valid key, the public user's status changes to condo owner/renter and the system should let the user have access to all functionalities related to condo owners/renters.	Registration key: RC-93752

Feature: Set Operation Costs ([US #52](#))

Given I am a representative of the condo management company accessing the operation fee page, I provide information about the price and operation name. When I submit the information, each operation is associated with a cost. I can also see all operations in the system with their costs.

Acceptance Criteria	Example Test Data
- The operation fee page should only be accessible to authorized representatives of the condo management company. - The system should display a form to add the name of the operation and its cost. - The user enters valid data into the form and submits the form. - The system should display a message if the submission was successful or if an error occurred. - The added operation gets added on the list of operations with their associated fee and is visible to the user on the same page.	Operation: Window cleaning Cost: 1400