SDAT AND DEV OPS COMBINED QAP 1

Project Overview

Choose one of the following project topics to develop a basic Java application. You are required to write at least three-unit tests for your application using JUnit 5. Additionally, your project must be configured to run tests automatically using GitHub Actions. Clean code practices are also required to be followed

Project does not need a front-end portion you can just run it all using the CLI. You do not need to create a scanner to handle inputs. *(If you have time once requirements are met, feel free to attempt a scanner to handle inputs)*

Project Topics

Choose one of the following topics for your project:

1. **Library Management System**

   o Features: Book issue/return, search catalog, user management.

   o Unit Tests: Validate book availability, user borrowing limits, search functionality or any other scenarios.

2. **Simple Banking Application**

   o Features: Account creation, deposit/withdrawal, balance inquiry.

   o Unit Tests: Validate transactions, balance updates, error handling or any other scenarios.

3. **Fitness Tracker**

   o Features: Log workouts, track progress, set goals.

   o Unit Tests: Validate workout logging, progress tracking, goal setting or any other scenarios.

4. **Game Store System**

   o Features: Browse games, add to cart, purchase.

   o Unit Tests: Validate game addition/removal, cart total calculation, purchase processing.

5. **Your own Idea** that follows the basic objectives like the above examples
   - Must have at least 3-unit test with good mix of assertions.
   - Needs to be designed in an object-oriented way.
   - KEEP IT SIMPLE

Project Requirements

1. **Java Application:**

   o   Implement the chosen topic using Java.

   o   Ensure that your application follows clean code practices.

2. **Unit Testing:**

   o   Write at least three-unit tests using JUnit 5.

   o   There should be a good mix of assertions

   o   Try and cover both positive and negative scenarios

3. **Maven Configuration:**

   o   Use Maven to manage your project's dependencies.

   o   Ensure that the pom.xml file includes necessary dependencies for your project and JUnit 5.

4. **GitHub Actions:**

   o   Configure GitHub Actions to automatically run your tests each time you make a Pull request

   o   Ensure that your tests pass successfully in the GitHub Actions workflow. If they don't pass due to a configuration problem that is ok too. We just want to see you set actions up

5. **Documentation:**

   o   Document your code and tests for clarity.

      1. Explain how your code meets clean code practices by using at least 3 examples of your own code. Screenshots should be used

      2. Explain your project. What it does, how it works. Explain the test cases you used

      3. Outline the needed dependencies. Where did you get them from?

      4. If you had any problems the QAP please explain what happened.

Pass Outstanding Criteria (All must be met)

1. Actions is set up and passes
2. More than basic project requirements met
3. Code follows clean coding practices
4. Project structure is easy to navigate
5. Good evidence of dev/trunk based workflow

Submission Instructions

- **Create a GitHub repository for your project. ZIP Files Will Not Be Marked and Returned As 0**

- **Commit your code to the repository. Make sure to use regular commits and make use of the Dev/Trunk based workflow (Branching and PRs)**

- **Ensure that your GitHub Actions workflow is set up and at least attempted a run**

- **Submit the repository link for evaluation to the Microsoft Teams Assignment page**

- **Project is due February 7th**