Quality Assurance Overview & Test

By: Herman Pardo

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Purpose of QA

- In the Software Development Life Cycle, the importance of QA is to establish, maintain, and constantly improve a set of testing requirements for developing reliable products.

- Improve the user experience while while creating preventative measures from the software development side to minimize errors before software releases.

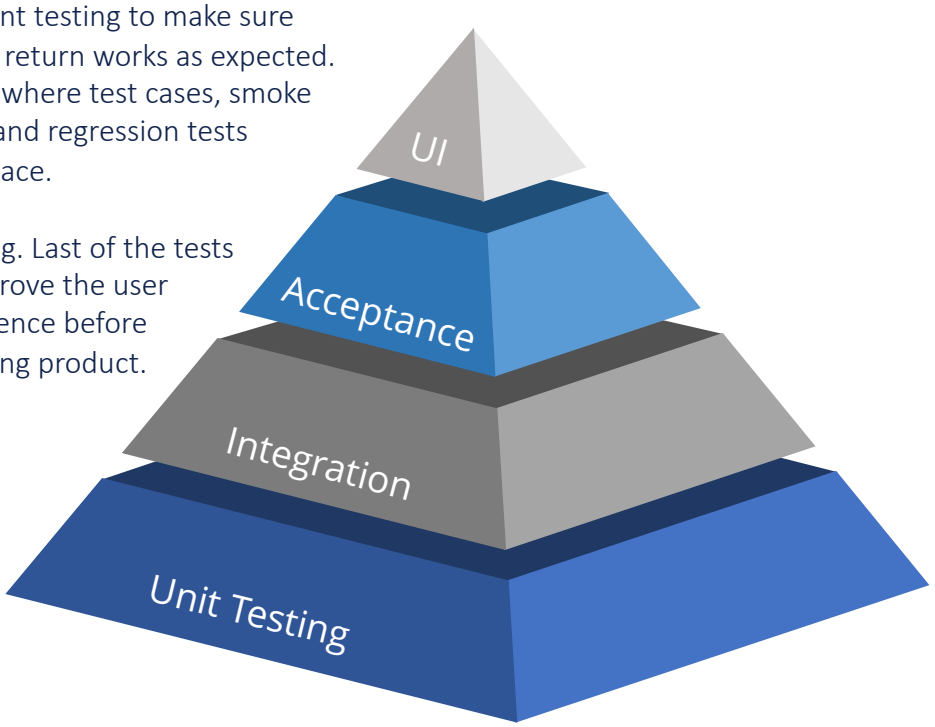
- To achieve proper QA of software, there must be a series of tests conducted. The following is a quick diagram to showcase that with the proper test foundation it's easier, cost effective, and efficient to build up and release software:

    - Unit Testing: In memory/code testing. Test the smallest components of the app and their fine grain logic. Doesn't connect to external databases or outside integrations. This is the code that checks the code to verify proper workings and that nothing unnecessary has been changed.

    - Integration Test: app or external connections work as expected, such as databases or other modules.

    - Acceptance Test: Endpoint testing to make sure model return works as expected. This is where test cases, smoke tests, and regression tests take place.

    - UI Tests: Aesthetic testing. Last of the tests to improve the user experience before releasing product.



QA Challenge Assignment

For this challenge, in order to maximize test coverage, I created a top to bottom system from a visual standpoint, multiple excel test cases, and in code testing that not only gives a general overview to anyone quickly looking at the project, but also an in-depth testing of the code itself.

We begin by first running the application, seeing what it does, defining the goals of the application, adding what could be beneficial to the user, think ahead and create recommendations to future improvements of the application, outlining and creating all the testing cases, programing additions, and lastly, testing the application.

Goals of application:

- Display items that are almost out of stock (at less than 25% capacity)
- Allow him to input how many of each of those items he wants to re-order
- Determine the lowest total cost of re-ordering those items

Additions to application:

- Reset button: clears all values and resets the Total amount
- Auto Refill button: Automatically re-adds order amount to max capacity and updates total from items shown on low stock.
- Order Now: integrates payment gateway to suppliers to fulfill order. Obviously for this assignment it's impossible so that's why it was just rerouted to outside site.

QA Challenge Assignment (cont.)

Recommendation Improvements:

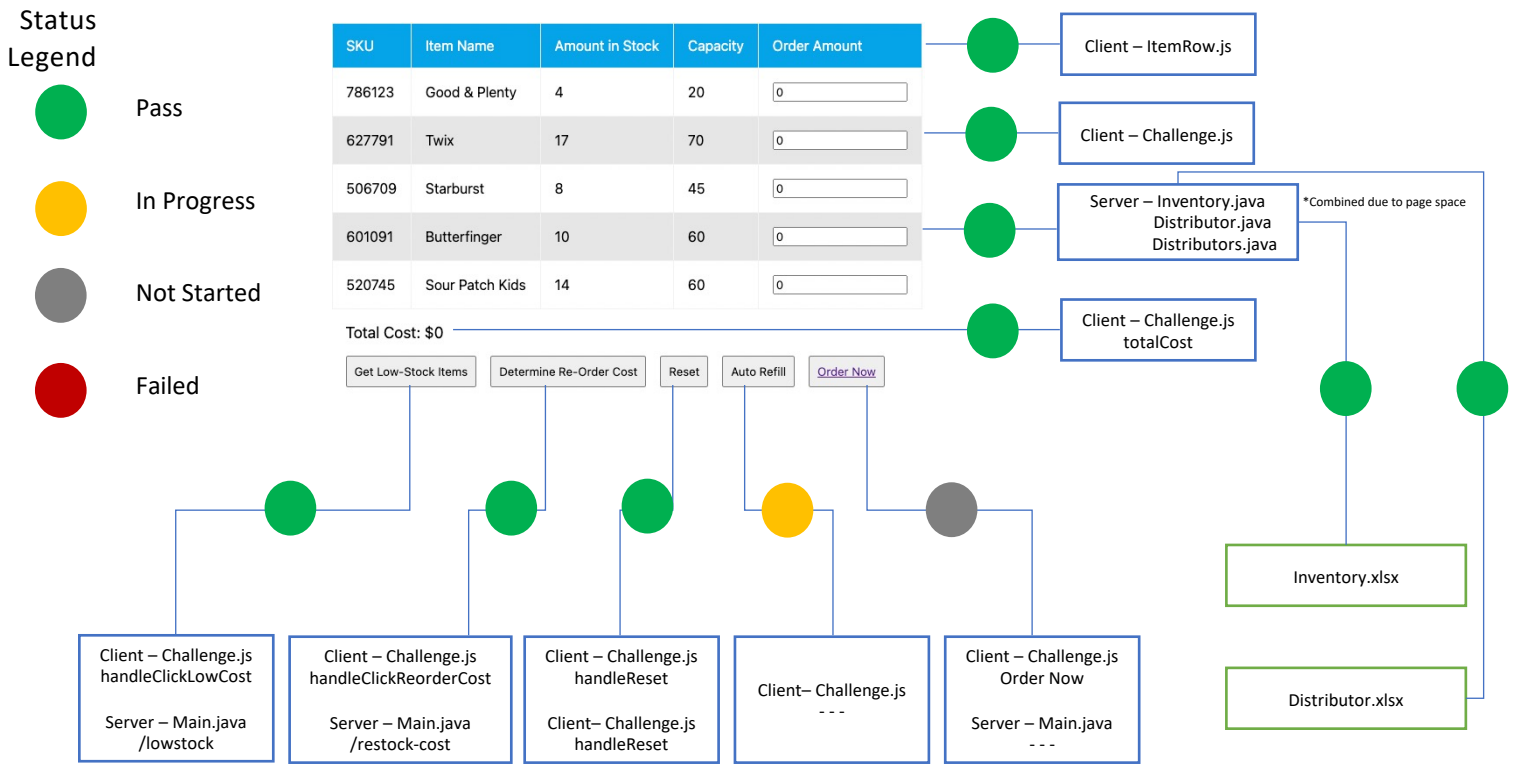
- Switch to a SQL database, from the excel, for better reliability, scalability, easier future growth module integrations, and better user experience later down the road.

- Connect distributors' pricing to SQL database for live pricing updates to increase efficiency and user experience.

- Add small details such as itemized totals by item, shipping cost, subtotal, tax, and grand total.

Visual Test Oversight

- The Visual Test Oversight (VTO) is a graphical grand view of how the app should look as well as how it links to different modules within the code.
- This can later be enhanced by adding live link statuses that connect to the excel case tests that update automatically on the VTO from updates on the excel.
- This will allow anyone to quickly check on the status of the project as well as focus on what needs to get done as a whole, from UI to frontend to backend.



Excel Test Case

- The attached excel file (RC Test Cases.xlsx) contains the following five different test case sheets:
    - App Test Case – Overall base set that tests functionality of the application.
    - App Uniformity Test Case – further minimize errors and improve efficiency by having naming schemes, styles, formatting, etc., established before programming gets underway.
        - Randy's Candies app examples:
            - Naming scheme in code and excel sheet is ID, but on user end it's called SKU.
            - There's at least 6 font families for such a simple app.
    - Browser / Device Compatibility Test Case – since this app may run on different browsers on different devices and one day in the future may be turned into an application on different devices.
    - Network Test Case – More on the advance side for this assignment, but still useful for more complex applications that are developed for real life purposes.
    - Additional: CSS / JS / Tables Test Case – Other things to consider when developing software that may aid the testing before release.

Code Unit Test

- The attached application code can be opened and reviewed for the additional changes to the code, as well as the Unit Code tests performed.

- I would like to thank you for the opportunity to create this and hope to further create and contribute to the QA team.

The End