CS 1632 - DELIVERABLE 3: Unit Testing

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Github URL: https://github.com/Ningyou134679/CS1632_Deliverable3
Download URL: https://github.com/Ningyou134679/CS1632_Deliverable3.git

Summary

There are 5 expected fails in these test cases, including testFibonacciEmpty(), testFactorialEmpty(), testFibonacciString(), testLeadText2(), testFactorialString(), all due to defects found on the website. There is no unexpected fail case.

Also note that the program is expected to run for up to 10 or more seconds before the output is displayed.

The problems that I encounter includes:

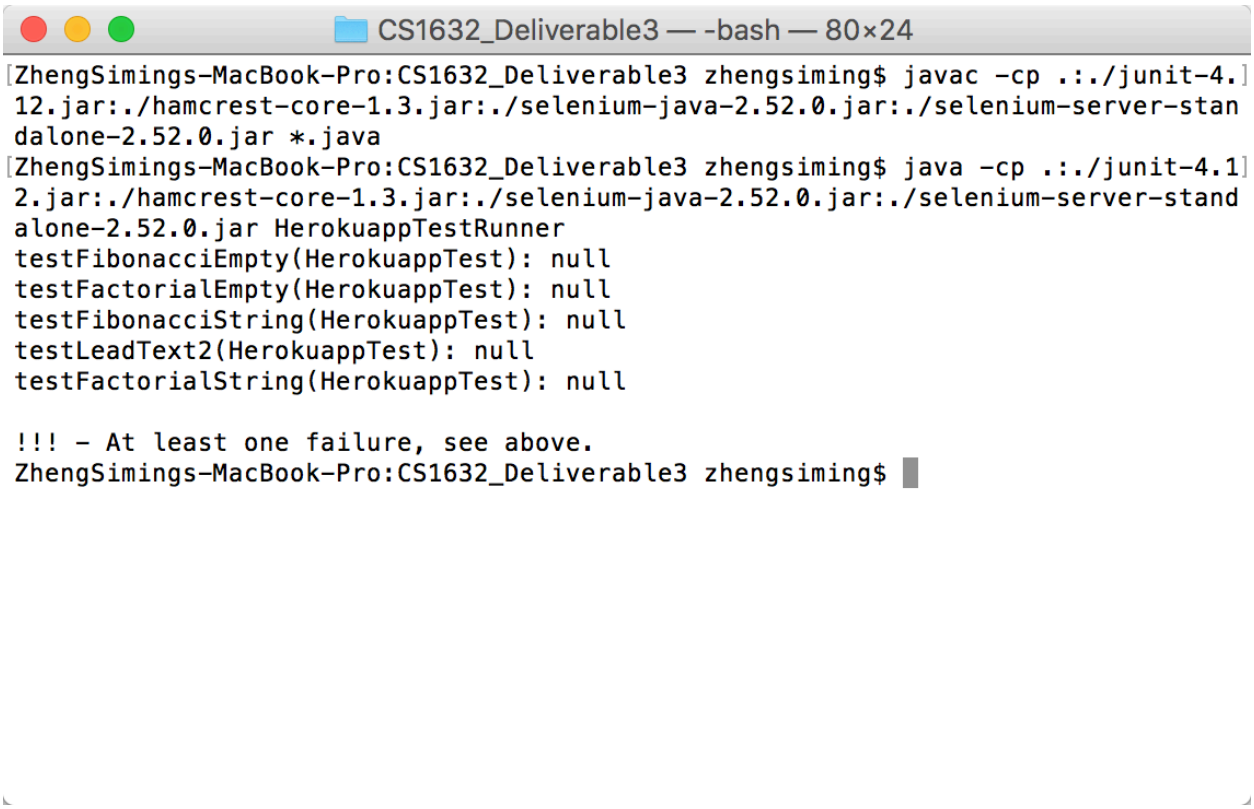
1. The use of getText() method that gets the text from a WebElement converts “
” to “\n”, while the requirement treats it as a space. I think that it is of no importance, so I replace “\n” with space and didn’t count that as a defect.
2. Most elements in this web app do not have an id or a class name, so that I have to find elements by their attributes, or even by an xpath, like a submit button.
3. I do not know how to manually add a trailing to the existing url, so I just navigate to a new url with the trailing in the end
4. I had a difficult time finding elements in an ordered list. I solved it by first getting the ol element, and from it get the list of li within.
5. Some defects seem to be fixed during the completion of the project, so that they are not defects any more.

The problems that I expect to face in the future:

1. This deliverable tests only html, which means it will be the simplest web test I will ever do
2. When it comes to css and javascript, elements start to move around the page and get disabled and enabled, or added, means that these tests might not work in those situations

Screenshot

Here is a screenshot of the execution of the program



Traceability Matrix

Here is a traceability matrix, which corresponds the test methods and the requirements listed in https://github.com/laboon/CS1632_Fall2017/blob/master/deliverables/3/requirements.md in order.

1. testLeadText, testLeadText2
2. testHasCorrectHeaderLinks, testCorrectHomeHref, testCorrectFactorialHref, testCorrectFibonacciHref, testCorrectHelloHref, testCorrectCathedralHref
3. testFactorial
4. testFibonacci
5. testFactorialNegative, testFactorialExceed, testFactorialString, testFactorialEmpty, testFibonacciNegative, testFibonacciExceed, testFibonacciString, testFibonacciEmpty
6. testHello
7. testHelloTrailing
8. testCathy

Defects Report

SUMMARY: Wrong message displayed on the main page
DESCRIPTION: testLeadText2 tests if the main page displays "Used for CS1632 Software Quality Assurance, taught by Bill Laboon", but instead it displays "THE WORLD IS YOUR OYSTER"
REPRODUCTION STEPS: Go to https://cs1632ex.herokuapp.com/ , look at the text
EXPECTED BEHAVIOR: The main page shall display "Used for CS1632 Software Quality Assurance, taught by Bill Laboon".
OBSERVED BEHAVIOR: The main page displays "THE WORLD IS YOUR OYSTER"
SEVERITY: TRIVIAL/CRITICAL, depends
IMPACT: Users who is not taking this course will not know that is is Used for CS1632 Software Quality Assurance, taught by Bill Laboon

SUMMARY: An error occurs when input is empty for factorial and fibonacci
DESCRIPTION: testFactorialEmpty, testFibonacciEmpty results in an error by inputting nothing in the text area in either of these links: https://cs1632ex.herokuapp.com/fact , https://cs1632ex.herokuapp.com/fib . However, there should be no error.
REPRODUCTION STEPS: Go to https://cs1632ex.herokuapp.com/fact or https://cs1632ex.herokuapp.com/fib, hit the submit button
EXPECTED BEHAVIOR: Due to the description, for both the Fibonacci and Factorial pages, if a user enters an invalid value of any kind, they shall be informed that the value is 1.
OBSERVED BEHAVIOR: The page crashes and an Internal server error is displayed.
SEVERITY: MAJOR
IMPACT: Users who do not enter a valid integer will cause the webpage to crash.

SUMMARY: An error occurs when input is a string for factorial and fibonacci
DESCRIPTION: testFactorialString, testFibonacciString results in an error by inputting a string in the text area in either of these links: https://cs1632ex.herokuapp.com/fact , https://cs1632ex.herokuapp.com/fib . However, there should be no error.
REPRODUCTION STEPS: Go to https://cs1632ex.herokuapp.com/fact or https://cs1632ex.herokuapp.com/fib, enter "a" in the text area and hit the submit button.
EXPECTED BEHAVIOR: Due to the description, for both the Fibonacci and Factorial pages, if a user enters an invalid value of any kind, they shall be informed that the value is 1.
OBSERVED BEHAVIOR: The page crashes and an Internal server error is displayed.
SEVERITY: MAJOR
IMPACT: Users who do not enter a valid integer will cause the webpage to crash.