CS 1632 – DELIVERABLE 3: Automated System Testing of a Web Application (Extra Credit 1&2)

Zikai Zhang

GitHub Username: zzklachlan

GitHub URL: <https://github.com/zzklachlan/cs1632>

Summary and Testing Concerns:

This assignment is not too difficult in general, but it can be challenging to learn and use a language that I have never heard of. Fortunately, erb is just like the mixure of html and ruby, which is pretty intuitive. The first problem I encountered with is how to display two error pages—one for invalid address and another one for invalid data. At first, I put the not found condition in the beginning of my code, which led to that only invalid address page would display. After seeing professor, I moved the not found condition in the end of my code and it solved this problem. And then, it took me a while to figure out getting the permutation of true and false given a specific size. I was going to use a formula to calculate the permutation, but it was pretty hard. I found out that there was a method called repeated permutation that could generate the permutation. Because the truth table containing true and false symbols contains a two-dimensional array of characters, I could not perform and or xor on it. I created another array containing boolean values to represent the truth table.

For testing, the biggest problem is to find the best assertion. Since there is no assertion to assert the current URL, I came up with a way to click the “reload page” button and assert the text in the page after reloading page. I did the equivalence partition for invalid data since there are many possible ways of invalid input. The edge case I worried about the most is the size. A size that is greater than or equal to two should be accepted, so I tested when the size was one, two, and three. There are twenty test cases and none of them fails.

Screenshot:

A screenshot of a cell phone

Description automatically generated

Traceability Matrix:

|  |  |
| --- | --- |
| **Requirement** | **Test Case** |
| Requirement 1 | INDEX\_DISPLAY\_TEST  INDEX\_SUBMIT\_TEST |
| Requirement 2 | RELOAD\_PAGE\_TEST  INVALID\_PARAMS\_BACK\_MAIN\_TEST  DISPLAY\_BACK\_MAIN\_TEST  INVALID\_ADDRESS\_BACK\_MAIN\_TEST |
| Requirement 3 | INVALID\_TRUE\_SYMBOL\_TEST  INVALID\_FALSE\_SYMBOL\_TEST  INVALID\_SAME\_SYMBOLS\_TEST  INVALID\_SIZE\_TEST1  INVALID\_SIZE\_TEST2 |
| Requirement 4 | VALID\_PARAMS\_TEST1  VALID\_PARAMS\_TEST2 |
| Requirement 5 | DISPLAY\_TABLE\_HEAD\_TEST1  DISPLAY\_TABLE\_HEAD\_TEST2 |
| Requirement 6 | DISPLAY\_TABLE\_DATA\_TEST1  DISPLAY\_TABLE\_DATA\_TEST2 |
| Requirement 7 | DISPLAY\_DEFAULT\_TEST1  DISPLAY\_DEFAULT\_TEST2 |
| Requirement 8 | INVALID\_ADDRESS\_TEST |
| Extra Credit 1 | EXTRA\_CREDIT1\_TEST1  EXTRA\_CREDIT1\_TEST2  EXTRA\_CREDIT1\_TEST3  EXTRA\_CREDIT1\_TEST4 |
| Extra Credit 2 | EXTRA\_CREDIT2\_TEST1  EXTRA\_CREDIT2\_TEST2  EXTRA\_CREDIT2\_TEST3  EXTRA\_CREDIT2\_TEST4  EXTRA\_CREDIT2\_TEST5 |