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STAE Candidate Homework

Write up

I could not find any source code of the calculations of the parking calculator or any specifications of the rates, so I implemented black box testing. Since the program was small and consisted mostly of user inputs, my approach was fuzz testing. Most of the bugs found were that the program still calculated when invalid (non-numeric characters) or empty fields were entered.

The test design that I used was a Page Object Design Pattern. It separates the test code from page specific code such as the UI and specific locators. So if the UI was changed, tests would be easier to modify.

I used the Selenium Framework and the C# programming language in Microsoft Visual Studio Community 2013. The test suite is managed with Visual Studio's built in Test Tools Unit Testing. I also used two Selenium NuGet packages: Selenium WebDriver and Selenium WebDriver Support Classes. The two tools support browser automation, contain .NET bindings for the Selenium WebDriver API, and helper classes for Page Object creation. There are also references of Selenium WebDrivers, which I got from seleniumhq.org.

Test Cases

Environment for all test cases:
- Windows 7
- Firefox 38.0.5

Case 4: (Fails)
Entry time is after exit time
1. Navigate to http://adam.goucher.ca/parkcalc/index.php
2. Select the **Short-Term Parking** option from the **Choose a Lot** dropdown
3. Enter **5:00** and **01/01/2014** in the **Choose Entry Date and Time** section
4. Leave the **AM** option unchanged in **Choose Entry Date and Time** section
5. Enter **4:00** and **01/01/2014** in the **Choose Leaving Date and Time** section
6. Leave the **AM** option unchanged in **Choose Leaving Date and Time** section
7. Click **Calculate**
8. Check that the following error message appears: **ERROR! YOUR EXIT DATE OR TIME IS BEFORE YOUR ENTRY DATE OR TIME**

Case 5: (Passes)
Same time and date calculates correctly
1. Navigate to http://adam.goucher.ca/parkcalc/index.php
2. Select the **Short-Term Parking** option from the **Choose a Lot** dropdown
3. Enter **5:00** and **01/01/2014** in the **Choose Entry Date and Time** section

4. Leave the **AM** option unchanged in **Choose Entry Date and Time** section
5. Enter **5:00** and **01/01/2014** in the **Choose Leaving Date and Time** section
6. Leave the **AM** option unchanged in **Choose Leaving Date and Time** section
7. Click **Calculate**
8. Check that the **COST** is equal to **$ 2.00**
9. Check that the duration of stay is equal to **(0 Days, 0 Hours, 0 Minutes)**

Case 6: (Fails)
Negative values for time
1. Navigate to http://adam.goucher.ca/parkcalc/index.php
2. Select the **Short-Term Parking** option from the **Choose a Lot** dropdown
3. Enter **-1:00** and **01/01/2014** in the **Choose Entry Date and Time** section
4. Leave the **Leaving Time** unchanged
5. Enter **01/01/2014** in the **Choose Leaving Date and Time** section
6. Click **Calculate**
7. Check that there is an error message: **ERROR! YOUR EXIT DATE OR TIME IS INVALID!**

Case 7: (Fails)
Negative values for date
1. Navigate to http://adam.goucher.ca/parkcalc/index.php
2. Select the **Short-Term Parking** option from the **Choose a Lot** dropdown
3. Enter **1:00** and **01/01/2014** in the **Choose Entry Date and Time** section
4. Leave the **Leaving Time** unchanged
5. Enter -**01/01/2014** in the **Choose Leaving Date and Time** section
6. Click **Calculate**
7. Check that the following error message appears: **ERROR! YOUR EXIT DATE OR TIME IS INVALID!**

Case 8: (Fails)
Blank Fields for Time
1. Navigate to http://adam.goucher.ca/parkcalc/index.php
2. Select the **Short-Term Parking** option from the **Choose a Lot** dropdown
3. Delete time in the **Choose Entry Date and Time** section so the field is blank
4. Enter **01/01/2014** in the **Choose Entry Date and Time** section
5. Leave the **Leaving Time** unchanged
6. Enter **01/01/2014** in the **Choose Leaving Date and Time** section
7. Click **Calculate**
8. Check that the following error message appears: **ERROR! YOUR EXIT DATE OR TIME IS INVALID**

Bugs

1. Entry time after Exit time does not cause error message to appear
    Severity: High
    Priority: High
    Steps to reproduce: See Case 4
    Result:
    -   **Cost**: $0.00
    -   **Duration:** (-1 Days, 15 Hours, 0 Minutes)
    Expected Result: **ERROR! YOUR EXIT DATE OR TIME IS BEFORE YOUR ENTRY DATE OR TIME**

2. Negative times does not cause error message to appear
    Severity: High
    Priority: High
    Steps to reproduce: See Case 6
    Result:
    -   **Cost**: $2.00
    -   **Duration:** (0 Days, 1 Hours, 0 Minutes)
    Expected Result: **ERROR! YOUR EXIT DATE OR TIME IS INVALID**

3. Negative date does not cause error message to appear
    Severity: High
    Priority: High
    Steps to reproduce: See Case 7
    Result:
    -   **Cost**: $1,588.00
    -   **Duration:** (61 Days, 0 Hours, 0 Minutes)
    Expected Result: **ERROR! YOUR EXIT DATE OR TIME IS INVALID**

4. Blank field for Date does not cause error message to appear
    Severity: High
    Priority: High
    Steps to reproduce:
    1. Navigate to http://adam.goucher.ca/parkcalc/index.php
    2. Select the **Short-Term Parking** option from the **Choose a Lot** dropdown
    3. Leave **Entry Time** unchanged
    4. Delete **Entry Date** so that the field is blank
    5. Select the **AM** option in the **Choose Leaving Date and Time** section
    6. Leave the **Leaving Time** unchanged
    7. Enter **01/01/2014** in the **Choose Leaving Date and Time** section
    8. Click **Calculate**
    Result:
    -   **Cost**: $133,798.00
    -   **Duration:** (5146 Days, 0 Hours, 0 Minutes)

Expected Result: **ERROR! YOUR EXIT DATE OR TIME IS INVALID**

5. Blank field for Time does not cause error message to appear
   Severity: High
   Priority: High
   Steps to reproduce: See Case 8
   Result:
   - **Time** for **Entry Date and Time** is :00
   - **Cost**: $417,862.00
   - **Duration:** (16071 Days, 8 Hours, 0 Minutes)
   Expected Result: **ERROR! YOUR EXIT DATE OR TIME IS INVALID**

6. Times containing letters do not cause error message to appear
   Severity: High
   Priority: High
   Steps to reproduce:
   1. Navigate to http://adam.goucher.ca/parkcalc/index.php
   2. Select the **Short-Term Parking** option from the **Choose a Lot** dropdown
   3. Enter **asdf** and **01/01/2014** in the **Choose Entry Date and Time** section
   4. Leave the **Leaving Time** unchanged
   5. Enter **01/01/2014** in the **Choose Leaving Date and Time** section
   6. Click **Calculate**
   Result:
   - **Cost**: $417,862.00
   - **Duration**: **(16071 Days, 8 Hours, 0 Minutes)**
   Expected Result: **ERROR! YOUR EXIT DATE OR TIME IS INVALID**

7. Dates containing letters do not cause error message to appear
   Severity: High
   Priority: High
   Steps to reproduce:
   1. Navigate to http://adam.goucher.ca/parkcalc/index.php
   2. Select the **Short-Term Parking** option from the **Choose a Lot** dropdown
   3. Leave the **Entry Time** unchanged
   4. Enter **asdf** in the **Choose Entry Date** section
   5. Leave the **Leaving Time** unchanged
   6. Enter **01/01/2014** in the **Choose Leaving Date and Time** section
   7. Click **Calculate**
   Result:
   - **Cost**: $133,798.00
   - **Duration**: **(5146 Days, 0 Hours, 0 Minutes)**
   Expected Result: **YOUR EXIT DATE OR TIME IS INVALID**

8. Invalid time (greater than 12:59) when PM is selected do not cause error message to appear

Severity: High
Priority: High
Steps to reproduce:
1. Navigate to http://adam.goucher.ca/parkcalc/index.php
2. Select the **Short-Term Parking** option from the **Choose a Lot** dropdown
3. Enter **13:00** and **01/01/2014** in the **Choose Entry Date and Time** section
4. Select the **PM** option in the **Choose Leaving Date and Time** section
5. Leave the **Leaving Time** unchanged
6. Enter **01/02/2014** in the **Choose Leaving Date and Time** section
7. Click **Calculate**

Result:
- **Time** for **Entry Date and Time** is 25:00
- **Cost**: $0.00
- **Duration**: **(-1 Days, 23 Hours, 0 Minutes)**

Expected Result: **ERROR! YOUR EXIT DATE OR TIME IS INVALID**

9. Drop down and radio buttons does not persist after calculation
Severity: Medium
Priority: Medium
Steps to reproduce:
1. Navigate to http://adam.goucher.ca/parkcalc/index.php
2. Select the **Long-Term Parking** option from the **Choose a Lot** dropdown
3. Enter **12:00** and **01/01/2014** in the **Choose Entry Date and Time** section
4. Enter **12:00** and **01/01/2014** in the **Choose Leaving Date and Time** section
5. Select the **PM** option in the **Choose Leaving Date and Time** section
6. Click **Calculate**

Result:
- Drop down menu is back to **Short-Term Parking**
- **AM** is selected in **Choosing Leaving Date and Time**

Expected Result:
- Drop down menu is **Long-Term Parking**
- **PM** is selected in **Choosing Leaving Date and Time**

10. Invalid Time (extra integers) do not cause error message to appear
Severity: High
Priority: High
Steps to reproduce:
7. Navigate to http://adam.goucher.ca/parkcalc/index.php
8. Select the **Short-Term Parking** option from the **Choose a Lot** dropdown
9. Enter **12:001** and **01/01/2014** in the **Choose Entry Date and Time** section
10. Leave the **Leaving Time** unchanged
11. Enter **01/01/2014** in the **Choose Leaving Date and Time** section

12. Click **Calculate**

Result:

- **Cost**: $0.00
- **Duration**: **(-1 Days, 22 Hours, 9 Minutes)**

Expected Result: **ERROR! YOUR EXIT DATE OR TIME IS INVALID**

11. Invalid Date (January 101th) do not cause error message to appear

    Severity: High

    Priority: High

    Steps to reproduce:

    13. Navigate to http://adam.goucher.ca/parkcalc/index.php
    14. Select the **Short-Term Parking** option from the **Choose a Lot** dropdown
    15. Enter **12:00** and **01/01/2014** in the **Choose Entry Date and Time** section
    16. Leave the **Leaving Time** unchanged
    17. Enter **01/101/2014** in the **Choose Leaving Date and Time** section
    18. Click **Calculate**

    Result:

    - **Cost**: $2,600.00
    - **Duration**: **(99 Days, 23 Hours, 0 Minutes)**

    Expected Result: **ERROR! YOUR EXIT DATE OR TIME IS INVALID**