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Link: <https://github.com/Thonyvb/DELIVERABLE-4>

### "CS 1632 - DELIVERABLE 4: Automated Web Testing"

The testing of the web app required learning the new syntax and style of Katalon for chrome which for me was the most challenging part since there was very little information available. Nevertheless, after working on several exploratory analyses, I was able to understand the requirements and how to test them using Katalon. Three defects were observed on the tests when executing tests `fib_limit_test`, `invalid_factorial_test`, and `invalid_fib_test`. Where edge cases such as testing the web app with values such as char 'a' caused the app to crash with error message: "Internal Server Error". In the same way when testing `fib_limit_test` with edge case 100 caused the web app to print the incorrect output. The testing of this deliverable became much easier due to the amount of theoretical background already studied in Deliverable 1. For instance, I was already familiar with the report of defects and the analysis of observed and expected behavior. Once more for me it took quite some time to familiarize with Katalon in order to complete the assignment successfully.

# TRACEABILITY MATRIX

**1. HOMEPAGE-TEXT-REQ:**

homepage\_text\_test  
homepage\_tex2\_test

**2. LINKS-REQ:**

verify\_name\_links\_test,  
verify\_number\_of\_links\_test,  
homepage\_link\_test,  
Factorial\_link\_test,  
fib\_link\_test,  
hello\_link\_test,  
cathy\_link\_test

**3. FACTORIAL-REQ:**

factorial\_test,  
factorial\_limit\_test

**4. FIBONACCI-REQ:**

fib\_test,  
fib\_limit\_test

**5. INVALID-FACTORIAL-FIB-REQ:**

out\_of\_range\_factorial\_test,  
invalid\_factorial\_test,  
out\_of\_range\_fib\_test,  
invalid\_fib\_test

**6. HELLO-REQ:**

hello\_test

**7. HELLO-TRAIL-REQ:**

hello\_input\_test,  
hello\_input\_number\_test

**8. CATHY-REQ:**

cathy\_list\_count\_test

# DEFECTS

SUMMARY: The web app incorrectly outputs the value of Fibonacci number within range.

DESCRIPTION: The web app outputs "Fibonacci of 100 is 1!" when the value 100 which is within the range of valid numbers [1, 100] is passed. The Test case used is **fib\_limit\_test**

REPRODUCTION STEPS:

1. Open: <https://cs1632ex.herokuapp.com/>
2. Click link Fibonacci
3. Type value of 100 in input box
4. Observe wrong output

EXPECTED BEHAVIOR: The web app should accept 100 as valid input and output the correct Fibonacci such as 354224848179261915075

OBSERVED BEHAVIOR: The web app considers 100 not to be within the range of valid inputs, and it outputs "Fibonacci of 100 is 1!"

SUMMARY: The web app crashes when a char or string is used as an input for obtaining a factorial.

DESCRIPTION: The web app crashes with error message "Internal Server Error" when invalid input such as char or string data types is used as an input. Test case used is **invalid\_factorial\_test**,

REPRODUCTION STEPS:

1. Open: <https://cs1632ex.herokuapp.com/>
2. Click link Factorial
3. Type value of a in input box
4. Observe error message

EXPECTED BEHAVIOR: The web app should handle invalid data type. When user input invalid value of any kind, they shall be informed that the value is 1. Such as "Factorial of a is 1!"

OBSERVED BEHAVIOR: The web app crashes with error message: "Internal Server Error"

SUMMARY: The web app crashes when a char or string is used as an input for obtaining a fibonacci.

DESCRIPTION: The web app crashes with error message "Internal Server Error" when invalid input such as char or string data types is used as an input. Test case used is **invalid\_fib\_test**,

REPRODUCTION STEPS:

1. Open: <https://cs1632ex.herokuapp.com/>
2. Click link Fibonacci
3. Type value of a in input box
4. Observe error message

EXPECTED BEHAVIOR: The web app should handle invalid data type. When user input invalid value of any kind, they shall be informed that the value is 1. Such as "Fibonacci of a is 1!"

OBSERVED BEHAVIOR: The web app crashes with error message: "Internal Server Error"

# SCREENSHOTS

The screenshot displays the Selenium IDE interface. At the top, there is a toolbar with buttons for New, Record, Play, Play Suite, Play All, Pause, and Export. Below the toolbar, the interface is divided into three main sections:

- Test Suites:** A list of test suites on the left. The selected suite is 'D4', which contains the following tests:
  - homepage\_text\_test
  - homepage\_text2\_test
  - verify\_name\_links\_test
  - verify\_number\_of\_links\_test
  - homepage\_link\_test
  - factorial\_link\_test
  - fib\_link\_test
  - hello\_link\_test
  - cathy\_link\_test
  - factorial\_test
  - out\_of\_range\_factorial\_test
  - invalid\_factorial\_test (marked as failed)
  - factorial\_limit\_test
  - fib\_test
- Command Table:** A table showing the commands for the selected test suite. The table has three columns: Command, Target, and Value.

Command	Target	Value
open	https://cs1632ex.herokuapp.com/	
click	link=Cathedral Pics	
assertXPathCount	//ol	1
assertXPathCount	//img	3
- Log:** A section at the bottom showing the execution log. It includes a tab for 'Screenshots' and a tab for 'Variables'. The 'Screenshots' tab is active, showing a screenshot of a web page with the text 'Fibonacci of 100 is 11'.

New ● Record ▶ Play ▶ Play Suite ▶ Play All || Pause { } Export

Test Suites	Command	Target	Value
• fib_link_test	open	https://cs1632ex.herokuapp.com/	
• hello_link_test	click	link=Cathedral Pics	
• cathy_link_test	assertXPathCount	//oi	1
• factorial_test	assertXPathCount	//img	3
• out_of_range_factorial_test			
• invalid_factorial_test			
• factorial_limit_test			
• fib_test			
• out_of_range_fib_test			
• fib_limit_test			
• invalid_fib_test			
• hello_test			
• hello_input_test			
• hello_input_number_test			
• cathy_list_count_test			


**Passed: 18** **Failed: 3**

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Command   
 Target  🔍  
 Value

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Log Screenshots Variables Data Driven Reference



Fibonacci of 100 is 11