The following document outlines details of the individual test cases and how they are executed. Section 1.0 of this document references Team 2’s first pass at requirements testing. Refer to section 2.0 of the document for Team 2’s regression testing after correction to source code. Test Case ID numbers can be traced back to the requirement \_matrix providing additional information and traceability to the requirement as specified by the requirements document.

**1.0 Validation Test Cases**

Below is a list of test descriptions that can be referenced back to program requirements in the test matrix by Test Case ID.

|  |  |
| --- | --- |
| Test Case ID 1 | This test was ran using two scenarios, scenario 1 was to execute the Turing Machine application with a valid definition file meeting all of the requirements specified in the requirements documentation. Scenario 2 was executed by distorting the definition file intentionally straying from requirements to ensure the Turing Machine would reject the definition file and exit accordingly. More extensive testing was completed for this portion of the Turing Machine and can be found in Section 5 of the below document:  <https://github.com/lansdon/cpts422/blob/master/docs/assignment4/assignment4_software_test_plan.pdf> |
| Result | Pass |
| Error description | N/A |

|  |  |
| --- | --- |
| Test Case ID 2 | Created a text file names test.str located in the same directory as .def. Included 5 valid strings to ensure TM loads. Loads when TM is initialized. |
| Result | Pass |
| Error description | N/A |

|  |  |
| --- | --- |
| Test Case ID 3 | Created a text file names test.str located in the same directory as .def. Included 5 valid strings of varying lengths. Loads when TM is initialized. |
| Result | Pass |
| Error description | N/A |

|  |  |
| --- | --- |
| Test Case ID 4 | Created a text file names test.str located in the same directory as .def. Included 5 valid strings of varying lengths, included blank line to see how TM handles. Loads when TM is initialized. |
| Result | Fail |
| Error description | Empty string was represented as / character |

|  |  |
| --- | --- |
| Test Case ID 5 | Created a text file names test.str located in the same directory as .def. Empty string represented as / in file. Loads when TM is initialized. |
| Result | Fail |
| Error description | Empty string was ignored |

|  |  |
| --- | --- |
| Test Case ID 6 | Created a text file names test.str located in the same directory as .def. Included a line containing two // characters. Loads when TM is initialized. |
| Result | Pass |
| Error description | N/A |

|  |  |
| --- | --- |
| Test Case ID 7 | Created a text file names test.str located in the same directory as .def. Included the reserved character \ in the middle of string abb\a. Loads when TM is initialized. |
| Result | Pass |
| Error description | N/A |

|  |  |
| --- | --- |
| Test Case ID 8 | Created a text file names test.str located in the same directory as .def. Included duplicate strings abba. Loads when TM is initialized. |
| Result | Fail |
| Error description | No error displayed referencing duplicate entry. |

|  |  |
| --- | --- |
| Test Case ID 9 | Created a text file names test.str located in the same directory as .def. Included duplicate strings abba. Loads when TM is initialized. |
| Result | Fail |
| Error description | No error displayed referencing duplicate entry. |

|  |  |
| --- | --- |
| Test Case ID 10 | Input List file entries are retained in program memory for insertion and deletion. |
| Result | Pass |
| Error description | N/A |

|  |  |
| --- | --- |
| Test Case ID 11 | Deleted input string list during run time the input string should be overwritten on application exit. Previous data will not be saved. |
| Result | Fail |
| Error description | File could not be saved to c:\ on exit |

|  |  |
| --- | --- |
| Test Case ID 12 | The .def was moved to a different directory than application. Initialized with UNC path name. |
| Result | Pass |
| Error description | N\A |

|  |  |
| --- | --- |
| Test Case ID 13 | Moved .str to other directory that .def file. |
| Result | Pass |
| Error description | N\A |

|  |  |
| --- | --- |
| Test Case ID 14 | Initialize TM application with valid .def. Ensure the values are correct default by executing the View command. |
| Result | Pass |
| Error description | N/A |

|  |  |
| --- | --- |
| Test Case ID 15 | Loaded a valid .def file to ensure TM application will display loaded successfully. |
| Result | Pass |
| Error description | N/A |

|  |  |
| --- | --- |
| Test Case ID 16 | After successful load of TM application test the help command by type ‘H’ at command prompt and pressing enter. |
| Result | Pass |
| Error description | N/A |

|  |  |
| --- | --- |
| Test Case ID 17 | After successful load of TM application intentionally leave command blank and press enter key |
| Result | Pass |
| Error description | N\A |

|  |  |
| --- | --- |
| Test Case ID 18 | After successful load of TM application test the help command by type ‘H’ at command prompt and pressing enter. |
| Result | Pass |
| Error description | N\A |

|  |  |
| --- | --- |
| Test Case ID 19 | After successful load of TM application test the help command by type ‘H’ at command prompt and pressing enter. Test Truncate command to see if help description is displayed. |
| Result | Fail |
| Error description | Command did not reference the help message. |

|  |  |
| --- | --- |
| Test Case ID 20 | Show status will be invoked by entering 'W' at command. |
| Result | Pass |
| Error description | N\A |

|  |  |
| --- | --- |
| Test Case ID 21 | Step 1: Use View command to verify TM has never run , Step 2: use run command and begin running TM, Step 3: using View command see that TM is running, Step 4: continue to use Run command until TM is done processing string, Step 5: use View commend to show TM has accepted or rejected string. |
| Result | Pass |
| Error description | N\A |

|  |  |
| --- | --- |
| Test Case ID 22 | View will be invoked by entering 'V' at command. |
| Result | Pass |
| Error description | N\A |

|  |  |
| --- | --- |
| Test Case ID 23 | List will be invoked by 'L' at command. |
| Result | Pass |
| Error description | N\A |

|  |  |
| --- | --- |
| Test Case ID 24 | List will be invoked by 'L' at command. Verify each string is displayed on a new line with an associated number for uniqueness. |
| Result | Pass |
| Error description | N\A |

|  |  |
| --- | --- |
| Test Case ID 25 | Starting TM with an empty input string list. List will be invoked by 'L' at command. Verify display of an appropriate message. |
| Result | Pass |
| Error description | N\A |

|  |  |
| --- | --- |
| Test Case ID 26 | Insert will be invoked by 'i' at command. Additional string “aabb” will be entered at insert command. |
| Result | Pass |
| Error description | N\A |

|  |  |
| --- | --- |
| Test Case ID 27 | Insert will be invoked by 'i' at command. Additional string “aabb”, already in list will be entered at insert command. |
| Result | Pass |
| Error description | N\A |

|  |  |
| --- | --- |
| Test Case ID 28 | Delete will be invoked by 'D' at command. Valid string number entered at prompt to delete. |
| Result | Pass |
| Error description | N\A |

|  |  |
| --- | --- |
| Test Case ID 29 | Delete will be invoked by 'D' at command. Invalid string number entered at prompt to delete. |
| Result | Pass |
| Error description | N\A |

|  |  |
| --- | --- |
| Test Case ID 30 | Set will be invoked by 'E' at command. Current value will be displayed for user and new valid number is entered. |
| Result | Pass |
| Error description | N\A |

|  |  |
| --- | --- |
| Test Case ID 31 | Set will be invoked by 'E' at command. Current value will be displayed for user and new invalid number < 0 is entered. |
| Result | Pass |
| Error description | N\A |

|  |  |
| --- | --- |
| Test Case ID 32 | Set will be invoked by 'E' at command. Current value will be displayed for user and new valid number is entered. Verify message of change is displayed. |
| Result | Pass |
| Error description | N\A |

|  |  |
| --- | --- |
| Test Case ID 33 | Truncate will be invoked by 'T' and command. Current value will be displayed valid number will be entered. |
| Result | Pass |
| Error description | N\A |

|  |  |
| --- | --- |
| Test Case ID 34 | Truncate will be invoked by 'T' at command. Current value will be displayed for user and new invalid number < 0 is entered. |
| Result | Pass |
| Error description | N\A |

|  |  |
| --- | --- |
| Test Case ID 35 | Run will be invoked by 'R' at command.  Case 35.1 TM is not running user should be prompted for a number of string to run.  Case 35.2 TM is running the next iteration of transitions will be executed. |
| Result | Pass |
| Error description | N\A |

|  |  |
| --- | --- |
| Test Case ID 36 | Run will be invoked by ‘R’ at command.  Run command will display a message in 3 conditions.  1. TM is done and accepted valid string, display including # of transitions to discover. 2. TM is done and Rejected invalid string, display including # of transitions to discover.  3. TM is still running Instantaneous description. |
| Result | Pass |
| Error description | N\A |

|  |  |
| --- | --- |
| Test Case ID 37 | Quit will be invoked by ‘Q’ at command.  1. TM is running a string this will quit any running TM but not exit program.  2. Not yet started TM If validate an appropriate message will be displayed. |
| Result | Pass |
| Error description | N\A |

|  |  |
| --- | --- |
| Test Case ID 38 | Exit will be invoked by 'X' at command.  Expect termination of the application and message of success or fail to write input string list .str |
| Result | Fail |
| Error description | Application Failed to exit. No message about file save displayed. |

**2.0 Regression Validation Test Cases**

The following are regression tests run after corrections to the source code.

|  |  |
| --- | --- |
| Test Case ID 1 | We used Bla Bla Test reference Assignment 4 for details, ect how we did the test. |
| Result | Don’t know |
| Error description | N/A |

|  |  |
| --- | --- |
| Test Case ID 2 | Created a text file names test.str located in the same directory as .def. Included 5 valid strings to ensure TM loads. Loads when TM is initialized. |
| Result | Pass |
| Error description | N/A |

|  |  |
| --- | --- |
| Test Case ID 3 | Created a text file names test.str located in the same directory as .def. Included 5 valid strings of varying lengths. Loads when TM is initialized. |
| Result | Pass |
| Error description | N/A |

|  |  |
| --- | --- |
| Test Case ID 4 | Created a text file names test.str located in the same directory as .def. Included 5 valid strings of varying lengths, included blank line to see how TM handles. Loads when TM is initialized. |
| Result | Pass |
| Error description | N/A |

|  |  |
| --- | --- |
| Test Case ID 5 | Created a text file names test.str located in the same directory as .def. Empty string represented as / in file. Loads when TM is initialized. |
| Result | Pass |
| Error description | N/A |

|  |  |
| --- | --- |
| Test Case ID 6 | Created a text file names test.str located in the same directory as .def. Included a line containing two // charecters. Loads when TM is initialized. |
| Result | Pass |
| Error description | N/A |

|  |  |
| --- | --- |
| Test Case ID 7 | Created a text file names test.str located in the same directory as .def. Included the reserved character \ in the middle of string abb\a. Loads when TM is initialized. |
| Result | Pass |
| Error description | N/A |

|  |  |
| --- | --- |
| Test Case ID 8 | Created a text file names test.str located in the same directory as .def. Included duplicate strings abba. Loads when TM is initialized. |
| Result | Pass |
| Error description | N/A |

|  |  |
| --- | --- |
| Test Case ID 9 | Created a text file names test.str located in the same directory as .def. Included duplicate strings abba. Loads when TM is initialized. |
| Result | Pass |
| Error description | N/A |

|  |  |
| --- | --- |
| Test Case ID 10 | Input List file entries are retained in program memory for insertion and deletion. |
| Result | Pass |
| Error description | N/A |

|  |  |
| --- | --- |
| Test Case ID 11 | deleted input string list during run time the input string should be overwritten on application exit. Previous data will not be saved. |
| Result | Pass |
| Error description | N\A |

|  |  |
| --- | --- |
| Test Case ID 12 | The .def was moved to a different directory than application. Initialized with UNC path name. |
| Result | Pass |
| Error description | N\A |

|  |  |
| --- | --- |
| Test Case ID 13 | Moved .str to other directory that .def file. |
| Result | Pass |
| Error description | N\A |

|  |  |
| --- | --- |
| Test Case ID 14 | Initialize TM application with valid .def. ensure the values are correct default by executing the View command. |
| Result | Pass |
| Error description | N/A |

|  |  |
| --- | --- |
| Test Case ID 15 | Loaded a valid .def file to ensure TM application will display loaded successfully. |
| Result | Pass |
| Error description | N/A |

|  |  |
| --- | --- |
| Test Case ID 16 | After successful load of TM application test the help command by type ‘H’ at command prompt and pressing enter. |
| Result | Pass |
| Error description | N/A |

|  |  |
| --- | --- |
| Test Case ID 17 | After successful load of TM application intentionally leave command blank and press enter key |
| Result | Pass |
| Error description | N\A |

|  |  |
| --- | --- |
| Test Case ID 18 | After successful load of TM application test the help command by type ‘H’ at command prompt and pressing enter. |
| Result | Pass |
| Error description | N\A |

|  |  |
| --- | --- |
| Test Case ID 19 | After successful load of TM application test the help command by type ‘H’ at command prompt and pressing enter. Test Truncate command to see if help description is displayed. |
| Result | Pass |
| Error description | N\A |

|  |  |
| --- | --- |
| Test Case ID 20 | Show status will be invoked by entering 'W' at command. |
| Result | Pass |
| Error description | N\A |

|  |  |
| --- | --- |
| Test Case ID 21 | Step 1: Use View command to verify TM has never run , Step 2: use run command and begin running TM, Step 3: using View command see that TM is running, Step 4: continue to use Run command until TM is done processing string, Step 5: use View commend to show TM has accepted or rejected string. |
| Result | Pass |
| Error description | N\A |

|  |  |
| --- | --- |
| Test Case ID 22 | View will be invoked by entering 'V' at command. |
| Result | Pass |
| Error description | N\A |

|  |  |
| --- | --- |
| Test Case ID 23 | List will be invoked by 'L' at command. |
| Result | Pass |
| Error description | N\A |

|  |  |
| --- | --- |
| Test Case ID 24 | List will be invoked by 'L' at command. Verify each string is displayed on a new line with an associated number for uniqueness. |
| Result | Pass |
| Error description | N\A |

|  |  |
| --- | --- |
| Test Case ID 25 | Starting TM with an empty input string list. List will be invoked by 'L' at command. Verify display of an appropriate message. |
| Result | Pass |
| Error description | N\A |

|  |  |
| --- | --- |
| Test Case ID 26 | Insert will be invoked by 'i' at command. Additional string “aabb” will be entered at insert command. |
| Result | Pass |
| Error description | N\A |

|  |  |
| --- | --- |
| Test Case ID 27 | Insert will be invoked by 'i' at command. Additional string “aabb”, already in list will be entered at insert command. |
| Result | Pass |
| Error description | N\A |

|  |  |
| --- | --- |
| Test Case ID 28 | Delete will be invoked by 'D' at command. Valid string number entered at prompt to delete. |
| Result | Pass |
| Error description | N\A |

|  |  |
| --- | --- |
| Test Case ID 29 | Delete will be invoked by 'D' at command. Invalid string number entered at prompt to delete. |
| Result | Pass |
| Error description | N\A |

|  |  |
| --- | --- |
| Test Case ID 30 | Set will be invoked by 'E' at command. Current value will be displayed for user and new valid number is entered. |
| Result | Pass |
| Error description | N\A |

|  |  |
| --- | --- |
| Test Case ID 31 | Set will be invoked by 'E' at command. Current value will be displayed for user and new invalid number < 0 is entered. |
| Result | Pass |
| Error description | N\A |

|  |  |
| --- | --- |
| Test Case ID 32 | Set will be invoked by 'E' at command. Current value will be displayed for user and new valid number is entered. Verify message of change is displayed. |
| Result | Pass |
| Error description | N\A |

|  |  |
| --- | --- |
| Test Case ID 33 | Truncate will be invoked by 'T' and command. Current value will be displayed valid number will be entered. |
| Result | Pass |
| Error description | N\A |

|  |  |
| --- | --- |
| Test Case ID 34 | Truncate will be invoked by 'T' at command. Current value will be displayed for user and new invalid number < 0 is entered. |
| Result | Pass |
| Error description | N\A |

|  |  |
| --- | --- |
| Test Case ID 35 | Run will be invoked by 'R' at command.  Case 35.1 TM is not running user should be prompted for a number of string to run.  Case 35.2 TM is running the next iteration of transitions will be executed. |
| Result | Pass |
| Error description | N\A |

|  |  |
| --- | --- |
| Test Case ID 36 | Run will be invoked by ‘R’ at command.  Run command will display a message in 3 conditions.  1. TM is done and accepted valid string, display including # of transitions to discover. 2. TM is done and Rejected invalid string, display including # of transitions to discover.  3. TM is still running Instantaneous description. |
| Result | Pass |
| Error description | N\A |

|  |  |
| --- | --- |
| Test Case ID 37 | Quit will be invoked by ‘Q’ at command.  1. TM is running a string this will quit any running TM but not exit program.  2. Not yet started TM If validate an appropriate message will be displayed. |
| Result | Pass |
| Error description | N\A |

|  |  |
| --- | --- |
| Test Case ID 38 | Exit will be invoked by 'X' at command.  Expect termination of the application and message of success or fail to write input string list .str |
| Result | Pass |
| Error description | N\A |