Software Test Cases

Run Command and Quit Command

1.1.1

Description: The user will attempt to run the Turing Machine on a valid string to be accepted by the Turing Machine

Component:

1. Type: function
2. Name: main()
3. int main(int argc, char\*\* argv)

Input condition: User will enter “r” to execute the run command menu, and then select “1” to select the first input string on the input string list.

Input state or configuration: Turing Machine set to run 1,000,000 transitions on an individual run command, input string list contains “aabb” and “abab” only. Turing machine not currently running on a string. Truncate set to 32.

Expected result: Console displays in order:

0) [s0]aabb

13) XXYY-[s4]

Input string "aabb" was accepted in 13 transitions

1.1.2

Description: The user will attempt to run the Turing Machine on a valid string to be rejected by the Turing Machine

Component:

1. Type: function
2. Name: main()
3. int main(int argc, char\*\* argv)

Input condition: User will enter “r” to execute the run command menu, and then select “2” to select the first input string on the input string list.

Input state or configuration: Turing Machine set to run 1,000,000 transitions on an individual run command, input string list contains “aabb” and “abab” only. Turing machine not currently running on a string. Truncate set to 32.

Expected result: Console displays in order:

0) [s0]abab

Undefined transition from s3 reading a.

4) XY[s3]ab

Input string "abab" was rejected in 4 transitions

1.2.1

Description: The user will attempt to run the Turing Machine on an invalid string selection, greater than the number of strings in the list

Component:

1. Type: function
2. Name: main()
3. int main(int argc, char\*\* argv)

Input condition: User will enter “r” to execute the run command menu, and then select “3” to select the first input string on the input string list.

Input state or configuration: Turing Machine set to run 1,000,000 transitions on an individual run command, input string list contains “aabb” and “abab” only. Turing machine not currently running on a string. Truncate set to 32.

Expected result: Console displays in order:

Enter input string number: 3

Error: Integer needs to be between 1 and 2

1.2.2

Description: The user will attempt to run the Turing Machine on an invalid string selection, user input of 0

Component:

1. Type: function
2. Name: main()
3. int main(int argc, char\*\* argv)

Input condition: User will enter “r” to execute the run command menu, and then select “0” to select the first input string on the input string list.

Input state or configuration: Turing Machine set to run 1,000,000 transitions on an individual run command, input string list contains “aabb” and “abab” only. Turing machine not currently running on a string. Truncate set to 32.

Expected result: Console displays in order:

Enter input string number: 0

Error: Integer needs to be between 1 and 2

1.2.3

Description: The user will attempt to run the Turing Machine on an invalid string selection, user input of -1

Component:

1. Type: function
2. Name: main()
3. int main(int argc, char\*\* argv)

Input condition: User will enter “r” to execute the run command menu, and then select “-1” to select the first input string on the input string list.

Input state or configuration: Turing Machine set to run 1,000,000 transitions on an individual run command, input string list contains “aabb” and “abab” only. Turing machine not currently running on a string. Truncate set to 32.

Expected result: Console displays in order:

Enter input string number: -1

Error: Integer needs to be between 1 and 2

1.2.4

Description: The user will attempt to run the Turing Machine on an invalid string selection, user input of “a”

Component:

1. Type: function
2. Name: main()
3. int main(int argc, char\*\* argv)

Input condition: User will enter “r” to execute the run command menu, and then select “a” to select the first input string on the input string list.

Input state or configuration: Turing Machine set to run 1,000,000 transitions on an individual run command, input string list contains “aabb” and “abab” only. Turing machine not currently running on a string. Truncate set to 32.

Expected result: Console displays in order:

Enter input string number: a

Error: Requires an integer value.

Returning to top level

1.2.5

Description: The user will attempt to run the Turing Machine on an invalid string selection, user input of “aabb”

Component:

1. Type: function
2. Name: main()
3. int main(int argc, char\*\* argv)

Input condition: User will enter “r” to execute the run command menu, and then select “aabb” to select the first input string on the input string list.

Input state or configuration: Turing Machine set to run 1,000,000 transitions on an individual run command, input string list contains “aabb” and “abab” only. Turing machine not currently running on a string. Truncate set to 32.

Expected result: Console displays in order:

Enter input string number: aabb

Error: Requires an integer value.

Returning to top level

1.3.1

Description: The user will use the run command after the Turing Machine was already running. String still has to be accepted or rejected following command

Component:

1. Type: function
2. Name: main()
3. int main(int argc, char\*\* argv)

Input condition: User will enter “r” to execute the run command menu.

Input state or configuration: Turing Machine set to run 1 transition on an individual run command, input string list contains “aabb” and “abab” only. Turing machine ran once on the string “aabb”. Truncate set to 32.

Expected result: Console displays in order:

Command: r

1) X[s1]abb

2) Xa[s1]bb

1.3.2

Description: The user will use the run command after the Turing Machine was already running. String still has to be accepted or rejected following command

Component:

1. Type: function
2. Name: main()
3. int main(int argc, char\*\* argv)

Input condition: User will enter “r” to execute the run command menu.

Input state or configuration: Turing Machine set to run 1 transition on an individual run command, input string list contains “aabb” and “abab” only. Turing machine ran 13 times on the string “aabb”. Truncate set to 32.

Expected result: Console displays in order:

Command: r

13) XXYY-[s4]

13) XXYY-[s4]

Input string "aabb" was accepted in 13 transitions

1.3.3

Description: The user will use the run command after the Turing Machine was already running. String still has to be accepted or rejected following command

Component:

1. Type: function
2. Name: main()
3. int main(int argc, char\*\* argv)

Input condition: User will enter “r” to execute the run command menu..

Input state or configuration: Turing Machine set to run 1 transition on an individual run command, input string list contains “aabb” and “abab” only. Turing machine ran 4 times on the string “abab”. Truncate set to 32.

Expected result: Console displays in order:

Command: r

4) XY[s3]ab

Undefined transition from s3 reading a.

4) XY[s3]ab

Input string "abab" was rejected in 4 transitions

2.1

Description: The user will use the quit command before the Turing Machine has ever run on a string

Component:

1. Type: function
2. Name: main()
3. int main(int argc, char\*\* argv)

Input condition: User will enter “q” to execute the run command menu..

Input state or configuration: Turing Machine utilizing the default settings

Expected result: Console displays in order:

Command: q

Error: Machine not actively running, no action taken

2.2

Description: The user will use the quit command after the Turing Machine has run once on a string

Component:

1. Type: function
2. Name: main()
3. int main(int argc, char\*\* argv)

Input condition: User will enter “q” to execute the run command menu..

Input state or configuration: Turing Machine set to run 1 transition on an individual run command, input string list contains “aabb” and “abab” only. Turing machine ran once on the string “aabb”. Truncate set to 32.

Expected result: Console displays in order:

Command: q

Input string"aabb" was neither accepted nor rejected within 1 transitions

2.3

Description: The user will use the quit command after the Turing Machine has accepted a string.

Component:

1. Type: function
2. Name: main()
3. int main(int argc, char\*\* argv)

Input condition: User will enter “q” to execute the run command menu..

Input state or configuration: Turing Machine set to run 1 transition on an individual run command, input string list contains “aabb” and “abab” only. Turing machine ran to completion on the string “aabb”. Truncate set to 32.

Expected result: Console displays in order:

Command: q

Error: Machine not actively running, no action taken

2.4

Description: The user will use the quit command after the Turing Machine has rejected a string.

Component:

1. Type: function
2. Name: main()
3. int main(int argc, char\*\* argv)

Input condition: User will enter “q” to execute the run command menu..

Input state or configuration: Turing Machine set to run 1 transition on an individual run command, input string list contains “aabb” and “abab” only. Turing machine ran to completion on the string “abab”. Truncate set to 32.

Expected result: Console displays in order:

Command: q

Error: Machine not actively running, no action taken