
Huang and Co.

Boolean Expression Evaluator

Test Case

Version 1.0

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Test Case	Date: 27/04/24
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Revision History

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27/04/24	1.0	<details>	Andrew Huang, Elizabeth Miller, Hunter Long, Katherine Swann, Keaton Xu

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Test Case

1. Purpose

This Test Case Specification document for the <Project Name> defines a test case for an item that should be tested.

[The sections of the test case specification shall be ordered in the specified sequence. Additional sections may be included at the end. If some or all of the content of a section is in another document, then a reference to that material may be listed in place of the corresponding content. The referenced material must be attached to the test case specification or available to users of the case specification.]

This Test Case Specification document for the Boolean expression evaluator lists a table of black box test cases to test its functionality. The functional areas of the evaluator that the test cases cover, as well as the results of the test cases, are recorded to determine what areas of the evaluator need to be changed.

Test Case ID	Test Case Description	Test Input	Expected Results	Actual Results	Pass/Fail Status
TC-01	Basic unit of evaluation (AND gate)	T & F	False	False	Pass ▾
TC-02	Parentheses handling around single variable	(T)	True	True	Pass ▾
TC-03	Basic unit of evaluation (NOT gate)	!T	False	Error	Fail ▾
TC-04	NOT evaluation of single variable within parentheses	!(T)	False	Error	Fail ▾
TC-05	Using other variables	X = T Y = F X Y	True	False	Fail ▾
TC-06	Doubled parentheses	((T & F))	False	False	Pass ▾
TC-07	Two expressions	(T & F) (F T)	True	True	Pass ▾
TC-08	Uninitialized variable	H	Invalid Expression	False	Fail ▾
TC-09	Double NOT gates in front of expression	!!T	True	True	Pass ▾
TC-10	Missing open	T & F)	Invalid	Invalid	Pass ▾

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	parentheses		Expression	Expression	
TC-11	Invalid operator (logical)	T>F	Invalid Expression	Invalid Expression	Pass ▾
TC-12	Nested Parentheses expression	((T@F)) (F\$F)	True	True	Pass ▾
TC-13	Basic unit of evaluation (OR gate)	T F	True	True	Pass ▾
TC-14	Basic unit of evaluation (NAND gate)	T@F	True	True	Pass ▾
TC-15	Basic unit of evaluation (XOR gate)	T\$F	True	True	Pass ▾
TC-16	Incomplete expression	T	Invalid Expression	Invalid Expression	Pass ▾
TC-17	Empty input	Invalid Expression	Invalid Expression	False	Fail ▾
TC-18	Variables only	T T F	Invalid Expression	Invalid Expression	Pass ▾
TC-19	Expression with excess spaces	T & F	False	False	Pass ▾
TC-20	Missing close parentheses	(T & F	Invalid Expression	Invalid Expression	Pass ▾
TC-21	Incorrect variable instantiating	X = T X = F X X	Invalid Expression	True	Fail ▾
TC-22	Invalid operator (arithmetical)	T+T	Invalid Expression	Invalid Expression	Pass ▾
TC-23	Single variable expression (T)	(T T) & T	True	True	Pass ▾
TC-24	Single variable expression (F)	(F F) & F	False	False	Pass ▾
TC-25	Nested parentheses	((T & F) T)	True	True	Pass ▾
TC-26	Empty	()	Invalid	Invalid	Pass ▾

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	parentheses		Expression	Expression	
TC-27	Variable with length greater than 1	X1 = T X2 = F X1 X2	Invalid Expression	Weird print statements	Fail ▾
TC-28	Expression with multiple operators in a row	T F	Invalid Expression	Invalid Expression	Pass ▾
TC-29	Insufficient parentheses	T F T	Invalid Expression	Invalid Expression	Pass ▾
TC-30	Expressions containing NOTS between operator and variables	T & !F	True	True	Pass ▾

2. Test case identifier

Specify the unique identifier assigned to this test case.

3. Test item

Identify and briefly describe the items and features to be exercised by this test case.

For each item, consider supplying references to the following test item documentation:

- a) Requirements specification*
- b) Design specification*
- c) Users guide*

4. Input specifications

Specify each input required to execute the test case. Some of the inputs will be specified by value, while others, such as constant tables or transaction files, will be specified by name. Identify all appropriate databases, files, terminal messages, memory resident areas, and values passed by the operating system. Specify all required relationships between inputs.

5. Output specifications

Specify all of the outputs and features required of the test items. Provide the exact value for each required output or feature.

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6. Environmental needs

6.1.1 Hardware (nothing particular for the arithmetic expression project)

Specify the characteristics and configurations of the hardware required to execute this test

6.1.2 Software (nothing particular for the arithmetic expression project)

Specify the system and application software required to execute this test case. This may include system software such as operating systems, compilers, simulators, and test tools. In addition, the test item may interact with application software.

6.1.3 Other

Specify any other requirement.

7. Special procedural requirements

Describe any special constraints on the test procedures that execute this test case. These constraints may involve special set up, operator intervention, output determination procedures, and special wrap up.

8. Intercase dependencies

List the identifiers of test cases that must be executed prior to this test case. Summarize the nature of the dependencies.