**<Boolean Logic Simulator>**

**<The Booleanators>**

**Version <1.0>**

Test Cases

**Revision History**

| **Date** | **Version** | **Description** | **Author** |
| --- | --- | --- | --- |
| 23/04/2024 | x1.0 | Creation of Test Cases | Cole Cooper |
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**Table of Contents**

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| Test Case ID | Test Case Description | Test Data | Expected Results | Actual Results | Pass/Fail Status |
| --- | --- | --- | --- | --- | --- |
| TC01 | Tests the OR and AND operators with true and false operands. | (T & F) | (F & T) | False | False | Pass |
| TC02 | Tests the OR and XOR operators with true and false operands. | (T | T) $ F | True | True | Pass |
| TC03 | Evaluates the NOT operator applied to the result of an AND operation between two false operands | ! (F & F) | True | True | Pass |
| TC04 | Tests the OR operator combining the results of two AND operations: one with two true operands and the other with two false operands | (T & T) | (F & F) | True | True | Pass |
| TC05 | Tests the AND operator applied between the negations of true and false values. It evaluates how negating both True and False impacts the result when combined with an AND operation. | (!T) & (!F) | False | False | Pass |
| TC06 | Evaluates the OR operator applied to the negations of false and true values. This test checks the logical inclusiveness when combining the negated values True and False. | ((!F) | (!T)) | True | True | Pass |
| TC07 | Tests the combination of XOR and OR operators with true and false operands, followed by an AND operation between the results. | (T $ F) & (F | T) | True | True | Pass |
| TC08 | Evaluates the XOR operator applied to the negations of true and false values. This test assesses the behavior when exclusively combining False and True. | (!T) $ (!F) | True | True | Pass |
| TC09 | Evaluates the XOR operator between the result of an OR operation with true and false operands and the negation of a false operand. | (T | F) $ (!F) | False | False | Pass |
| TC10 | Evaluates the OR operator combining the negation of a true value and the result of an AND operation between true and false values | (!T) | (T & F) | False | False | Pass |
| TC11 | Tests the AND operator applied to the negation of a false value and the result of an OR operation between true and false operands | (!F) & (T | F) | True | True | Pass |
| TC12 | Evaluates the OR operator applied between the result of an AND operation with true and false operands and the negation of a false value. | (T & F) | (!F) | True | True | Pass |
| TC13 | Tests the XOR operator applied to the negation of a true value and the result of an AND operation between false and true operands. | (!T) $ (F & T) | False | False | Pass |
| TC14 | Tests the AND operator applied between the results of two OR operations, both with identical operands: true with true, and false with false. | (T | T) & (F | F) | False | False | Pass |
| TC15 | Evaluates the AND operator applied to the negations of true and false values. T | ((!T) & (!F)) | False | False | Pass |
| TC16 | Evaluates the OR operator applied to the results of two XOR operations, each combining a true and a false operand. | (F $ T) | (T $ F) | True | True | Pass |
| TC17 | Tests the XOR operator between the result of an AND operation with true and false operands and the negation of a false value. | (T & F) $ (!F) | True | True | Pass |
| TC18 | Evaluates the OR operator applied to the negations of true and false values. | (!T) | (!F) | True | True | Pass |
| TC19 | Tests the AND operator applied between the negation of a false value and the result of an AND operation between true and false operands. | (!F) & (T & F) | False | False | Pass |
| TC20 | Evaluates the XOR operator between the result of an OR operation with true and false operands and a false value. | (T | F) $ F | True | True | Pass |
| TC21 | Tests a complex combination of logical operations. | (((((F | T) & T) | (F & (F | T))) @ (T @ F)) $ (! (T | T))) | False | False | Pass |
| TC22 | Tests a complex combination of logical operations. | ((F@(T&F)) $ ((!T) | (T & T))) | ((F $ (!F)) & (T | (F & T))) | True | True | Pass |
| TC23 | Tests a complex combination of logical operations. | ((T & F) | ((T & F) $ ((!T) & T))) & ((F & T) @ ((!F) & T)) | False | False | Pass |
| TC24 | Tests a complex combination of logical operations. | ((F & F) | ((F & F) $ ((!F) & F))) & ((T & T) @ ((!F) | T)) | False | False | Pass |
| TC25 | Tests a complex combination of logical operations. | ((F | T) @ ((!F) | (T & T))) | ((T & F) $ ((!T) | T)) | True | True | Pass |