<The Booleanators>

<Boolean Logic Simulator>

User’s Manual

Version <1.0>

Revision History

Date	Version	Description	Author
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User's Manual

1. Introduction

This project acts as a simplified Boolean logic simulator. The program simulates the behavior of logic circuits, including operations such as AND, OR, NOT, NAND, and XOR. The program can handle complex logic circuits with multiple gates and input/output signals.

2. Getting started

The software will prompt the user for a logical Boolean expression. Using the keyboard the user will input a logical Boolean expression. The user will use the letters T and F as the operands for the Boolean expression and will use the characters & for AND, | for OR, ! for NOT, @ for NAND, and $ for XOR. Once the logical expression has been entered the user will press the ENTER key to submit the expression to the software. The software will interpret the expression and output the result of the expression will be output to the same interface used to input the expression. The output will inform the user of the resulting output of the expression or if there was an error in the user's input. The software will immediately prompt the user for another logical Boolean expression. If the user wishes to exit the program without entering a Boolean logic expression the user may type the word "exit" using the keyboard and pressing the ENTER key to submit the request.

3. Advanced Features

The software does not have any advanced features

4. Troubleshooting

If any error is encountered that cannot be evaluated by the software, close the program then restart the software with a valid Boolean expression.

5. Examples

Listed below are example user input's and the resulting output by the program.

User Input	**Program Output**
(T | F) $ F	Result: True
! (T & T)	Result: False
(F @ T) | (T @ F)	Result: True
(T $ T) & F	Result: False
! F | ! T	Result: True
(((((T | F) & F) | (T & (T | F))) @ (T @ T)) $ (! (T | F)))	Result: True
((F $ ((T | F) & (F @ (T | F)))) | (T $ (T & F)))	Result: True

(((! (T $ F)) & (T @ T)) | ((F | T) & (T $ T)))	Result: False
(((T @ T) $ (F @ T)) | ((!T) & (T | (!T))))	Result: True
((F @ T) $ (T | (F & F))) & (T & (T @ (!T)))	Result: False

6. Glossary of terms

T - Shorthand expression for True

F - Shorthand expression for False
& - The operator for the AND function
| - The operator for the OR function
! - The operator for the NOT function
@ - The operator for the NAND function
$ - The operator for the XOR function
AND - Function that is true when all inputs are true
OR - Function that is true when any input is true
NOT - Function that returns the negation of the input
NAND - Function that is true when it is not the case that all inputs are true
XOR - Function that is true when one of its inputs is true and the other is false