

Bahan Ajar

Chapter 10



Materi Pembelajaran

Matakuliah :

PEMROGRAMAN TERSTRUKTUR

Kode Matakuliah : SKO 21411

Prodi : **SISTEM KOMPUTER**

Dosen Pengampu Matakuliah:

Bayu Nugroho, S.Kom., M.Eng

Tables of Content

Logical Operators

- Logical AND Operator (&&)
- Logical OR (||)
- Logical NOT (!)



Logical AND Operator (&&)

The AND operator is formed by placing two ‘&’ characters back-to-back with no space between them (&&). Consider the truth table for the logical AND operator as shown

Expression1	Expression2	Expression1 && Expression2
TRUE	TRUE	TRUE
TRUE	FALSE	FALSE
FALSE	TRUE	FALSE
FALSE	FALSE	FALSE

Logical AND Operator (&&)

Suppose you have variables k and j and k equals 2 and j equals 3, then the statement:

```
if (k == 2 && j == 3)
```

finds expression1 is true and expression2 is also true. You can see that the result of the && operation within the if statement must therefore be true.

However, using the same values for k and j, the following statement:

```
if (k == 9 && j == 3)
```

Logical OR (||)

The logical OR operator is formed by placing two vertical bar ‘|’ (also called pipe) characters back-to-back with no space between them (||). The truth table for the logical OR operator is shown

Expression1	Expression2	Expression1 Expression2
TRUE	TRUE	TRUE
TRUE	FALSE	TRUE
FALSE	TRUE	TRUE
FALSE	FALSE	FALSE

Logical OR (||)

Once again, suppose you have variables k and j and k equals 2 and j equals 3, then the OR expression in the following:

```
if (k == 2 || j == 3)
```

is logic true. However, it is also true that

```
if (k == 9 || j == 3)
```

Logical NOT (!)

The logical NOT operator is the exclamation point (!). Because the logical NOT operator is a unary operator, its truth table is a little simpler, as shown

Expression1	! Expression1
TRUE	FALSE
FALSE	TRUE

Logical NOT (!)

NOT operator does is invert the logic of the expression. For example, suppose k equals 2 again.

Then:

```
if (! k == 2)
```

is logic false. Because expression1 is true (k does equal 2), Table 6-4 shows that the result of the logical NOT operator is logic false. I surround the expression in a NOT operation with parentheses, as in:

```
if (! (k == 2) )
```

Chapter 9

Tugas Mandiri (teori):

Jelaskan fungsi Gerbang logika

- AND
- NOT
- OR
- XOR
- NAND
- NOR

Buat tabel kebenaran tiap gerbang logika...

Tugas Mandiri (prakt):

Lakukan perakitan skema rangkaian LED di proteus untuk sketch gerbang logika dalam bahasa C Arduino.

end

