C++ Programming

Logical Operators

Homework

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Teaching, Training and Coaching since more than a decade!

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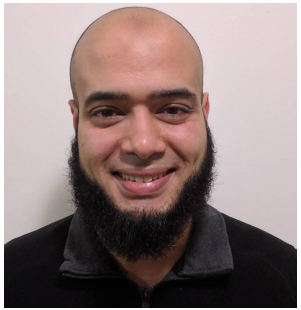

Homework 1: Guess the output

03_homework1.cpp

```cpp
#include<iostream>
using namespace std;

int main() {

    int a = 10, b = 20, c = 30, d = 40;

    cout << (a + b == c) << "\n";
    cout << (a + b + c >= 2 * d) << "\n";

    cout << (a > 5 || d < 30) << "\n";
    cout << (a > 5 && d < 30) << "\n";
    cout << (a <= b && b <= c) << "\n";

    cout << (a > 5 && d < 30 || c - b == 10) << "\n";
    cout << (a <= b && b <= c && c <= d) << "\n";

    cout << (a > 5 && d < 30 || c > d || d % 2 == 0) << "\n";
    cout << (a > 5 && d < 30 || c > d && d % 2 == 0) << "\n";

    cout << ( a == 10 || b != 20  && c != 30 || d != 40) << "\n";
    cout << ((a == 10 || b != 20) && c != 30 || d != 40) << "\n";

    return 0;
}
```

Homework 2: Create logic!

- Write a program that reads 3 integers about the class room
  - Number of boys (nb), number of girls (ng), number of teachers (nt)
- Prepare and **print** a boolean variable for these cases:
- nb greater than 25
- ng less than or equal to 30
- nb > 20 and nt > 2 or ng > 30 and nt > 4
- Either nb < 60 or ng < 70
- Neither nb >= 60 nor ng >= 70
- nb is 10 more students than ng
- Difference between nb and ng is more than 10 or nt > 5
- Either **nb is 10 more students than ng** or **ng is 15 more students than nb**

Homework 3: Simplify expressions

- For each expression:
  - Manually Simplify it step by step to finally be a T or F
  - Optional: Write a line of code to verify the result
- T && T && F && T
- T && T && F && T || T && T
- T && T && T && T || T && (T || F)
- T && T && T || T && (F || (T && (T && T)))
- T && T || T && F && T || T && T && F || (T && (T || F))
- T && T || T && F && T || (T && T && F || (T && (T || F)))
- (T && T || T && F && T || T) && T && F || (T && (T || F))
- T && T || T && (F && T || T && T) && F || (T && (T || F))

"Acquire knowledge and impart it to the people."

"Seek knowledge from the Cradle to the Grave."