

Output:

```
vincyalbin15@penguin:~/cot_lab$ bison -d 4.y
vincyalbin15@penguin:~/cot_lab$ flex 4.1
vincyalbin15@penguin:~/cot_lab$ gcc -o boolean y.tab.c lex.yy.c -lfl
vincyalbin15@penguin:~/cot_lab$ ./boolean
Enter boolean expressions (e.g., 10 > 5):
7<3
Result: 0
8>6
Result: 1
3=6
Result: 0
4=4
Result: 1
5>9
Result: 0
7>9
Result: 0
3!=4
Result: 1
```

EXERCISE: 3

DATE: 26/02/2025

REACHING DEFINITIONS

Commands:

```
clang -S -emit-llvm -O0 -Xclang -disable-O0-optnone filename.c -o filename.ll
```

```
opt -passes=dse filename.ll -S -o output.ll
```

Input:

```
#include <stdio.h>
int main() {
    int a = 10;
    int b = 20;
    if (a > b) {
        a = b;
    } else {
        b = a;
    }
    return 0;
}
```

Output:

```
; Function Attrs: noinline nounwind uwtable
define dso_local i32 @main() #0 {
    %1 = alloca i32, align 4
    %2 = alloca i32, align 4
    store i32 0, i32* %1, align 4
    store i32 10, i32* %2, align 4
    store i32 20, i32* %2, align 4
    %3 = load i32, i32* %2, align 4
    %4 = call i32 @i8* getelementptr inbounds ([4 x i8], [4 x i8]* @.str, i64 0, i64 0), i32 %3
    ret i32 0
}
```

```
; Function Attrs: noinline nounwind uwtable
define dso_local i32 @main() #0 {
    %1 = alloca i32, align 4
    %2 = alloca i32, align 4
    store i32 0, i32* %1, align 4
    store i32 10, i32* %2, align 4
    store i32 20, i32* %2, align 4
    %3 = call i32 @i8* getelementptr inbounds ([4 x i8], [4 x i8]* @.str, i64 0, i64 0), i32 20
    ret i32 0
}
```