Bahan Ajar

Chapter 5

Materi Pembelajaran

Matakuliah :

PEMROGRAMAN TERSTRUKTUR

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Chapter 5

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Decision Making in C

The relational operators available to you in Arduino C.

Operator	Interpretation
>	Greater than
>=	Greater than or equal to
<	Less than
<=	Less than or equal to
==	Equal to
!=	Not equal to

The result of all relational operations is either logic true (non-zero) or logic false (zero). For example:

```
5 > 4    // Logic true
5 < 4    // logic false
5 == 4 // logic false
5 != 4  // logic true
```

If a = 5 and b = 4, then:

```
a > b    // Logic true
a < b    // logic false
a == b // logic false
a != b  // logic true
```

The if Statement

The syntax for an if statement is:

```
if (expression1 is logic true) {
        // execute this if statement block if true
}
        // statements following the if statement block

int b = 10;
        // some more program statement...
if (b < 20) {
        b = doSomethingNeat();
}
        doSomethingElse(b);
```

The if-else Statement

C provides another form of the simple if statement called the if-else statement. The syntax for the if_x0002_else statement is:

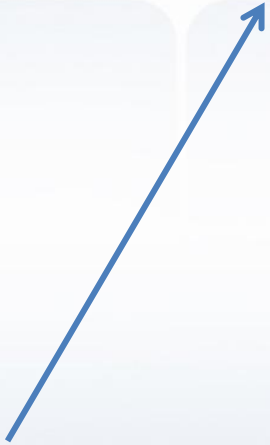
```
if (expression evaluates to logic true) {
        // perform this statement block if logic true
} else {
        // perform this statement block otherwise
}
```

The if-else Statement

```
void loop() {
if (counter % 2 == 1) {
digitalWrite(led1, LOW); // turn the LED off by making the voltage
LOW
digitalWrite(led2, HIGH); // turn the LED on (HIGH is the voltage
level)
} else {
digitalWrite(led1, HIGH); // turn the LED on (HIGH is the voltage
level)
digitalWrite(led2, LOW); // turn the LED off by making the voltage
LOW
}
delay(1000); // wait for a second
 counter = counter + 1;
}
```

Cascading if Statements

```
int myDay;
// Some code that determines
// what day it is...
if (myDay == 1) {
        doSundayStuff();
}
if (myDay == 2) {
        doMondayStuff();
}
if (myDay ==3) {
        doTuesdayStuff();
}
if (myDay == 4) {
        doWednesdayStuff();
}
if (myDay == 5) {
        doThursdayStuff();
}
if (myDay == 6) {
        doFridayStuff();
}
if (myDay == 7) {
        doSaturdayStuff();
}
```



Cascading if Statements

```
if (myDay == 1) {
        doSundayStuff();
} else {
        if (myDay == 2) {
                doMondayStuff();
        } else {
                if (myDay == 3) {
                        doTuesdayStuff();
                } else {
                        // you get the idea...
                }
        }
}
```

Tugas Mandiri (teori):

Ada beberapa variasi penggunaan IF – ELSE ? Sebutkan jelaskan fungsi masing-masing.

Tugas Mandiri (prakt):

Analisa Sketch Program, jelaskan, dan buat kesimpulan)

```
1.  // Pin 13 untuk LED
2.  constint pinLED = 13;
3.  voidsetup() {
4.  // pin LED sebagai output
5.      pinMode(pinLED,OUTPUT);
6.  }
7.      int timeDelay = 1000;
9.  voidloop() {
10.     if(timeDelay <= 100){
11.             delay(3000);
12.             timeDelay = 1000;
13. }else{
14.     timeDelay = timeDelay - 100;
15. }
16.     digitalWrite(pinLED,HIGH);
17.     delay(timeDelay);
18.     digitalWrite(pinLED,LOW);
19.     delay(timeDelay);
20. }
```

end