Introduction to Arduino Programs:

Boolean Logic Operators: && and //

Objectives

- Understand *boolean logic operators* and how they are used

- Understand how to use *boolean operators* on inputs

Logical Operators

&& (Logical AND)
- True if both values are true. Examples:

    - If (val1 == 1 && val2 == 1)

    - if (digitalRead(2) == HIGH && digitalRead(3) == HIGH)
          is true only if both inputs 2 and 3 are high

|| (logical OR)
- True if either value is true

    - If (value1 == 1 || value 2 == 1)

    - if (digitalRead(2) == HIGH || digitalRead(3) == HIGH)
          is true if either pin 2 or 3 are high

Using logical operators to evaluate a range of values

The AND logical operator (&&) can be used to evaluate a range of values:

```
if (a >= 10  &&  a <= 20)     //  true if "a" is between 10 and 20
{

        digitalWrite(RedLED, HIGH);

}
```

Using logical operators to evaluate a range of values

This is easier than writing two *if* loops:

```
if (a >= 10)        //  true if "a" is greater than 10
{
  if (a <= 20)       // true if "a" is less than or equal to 20
  {
     digitalWrite(RedLED, HIGH);
  }
}
```