Variable

Nathee Srina

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ตัวแปรชนิดตัวเลขจำนวนเต็ม
byte
[Data Types]
Description
A byte stores an 8-bit unsigned number, from 0 to 255.

Syntax
byte var = val;

Parameters
var: variable name.
val: the value to assign to that variable.
```

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ตัวแปรชนิดตัวเลขจำนวนเต็ม
short
[Data Types]
Description
A short is a 16-bit data-type.

On all Arduinos (ATMega and ARM based) a short stores a 16-bit (2-byte) value.
This range of -32,768 to 32,767 (minimum value of -2^15 and a maximum value of (2^15) - 1).

Syntax
short var = val;

Parameters
var: variable name.
val: the value you assign to that variable.

Example Code
short ledPin = 13
```

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ตัวแปรชนิดตัวเลขจำนวนเต็ม
int
[Data Types]
Description
Integers are your primary data-type for number storage.

An int stores a 16-bit (2-byte) value. This range of -32,768 to 32,767
Syntax
int var = val;

Parameters
var: variable name.
val: the value you assign to that variable.

Example Code

int countUp = 0;            //creates a variable integer called 'countUp'

void setup() {
  Serial.begin(9600);       // use the serial port to print the number
}

void loop() {
  countUp++;                //Adds 1 to the countUp int on every loop
  Serial.println(countUp);  // prints out the current state of countUp
  delay(1000);
}
```

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ตัวแปรชนิดตัวเลขจำนวนเต็ม
long
[Data Types]
Description
Store 32 bits (4 bytes), from -2,147,483,648 to 2,147,483,647.

Syntax
long var = val;

Parameters
var: variable name.
val: the value assigned to the variable.

Example Code
long speedOfLight_km_s = 300000L;
```

```
ตัวแปรชนิดตัวเลขทศนิยม
float
[Data Types]
Description
Datatype for floating-point numbers, a number that has a decimal point.

Syntax
float var = val;

Parameters
var: variable name.
val: the value you assign to that variable.

Example Code
float myfloat;
float sensorCalbrate = 1.117;

int x;
int y;
float z;

x = 1;
y = x / 2;          // y now contains 0, ints can't hold fractions
z = (float)x / 2.0; // z now contains .5 (you have to use 2.0, not 2)
```

```
ตัวแปรชนิดตัวเลขทศนิยม
double
[Data Types]
Description
Double precision floating point number. doubles have 8-byte (64 bit) precision.

Syntax
double var = val;

Parameters
var: variable name.
val: the value to assign to that variable.

Example Code
double sensorCalbrate = 1.117;
```

```
ตัวแปรชนิดตัวอักขระ
char
[Data Types]
Description
A data type used to store a character value.
Character literals are written in single quotes,
like this: 'A' (for multiple characters - strings - use double quotes: "ABC").

Syntax
char var = val;

Parameters
var: variable name.
val: the value to assign to that variable.

Example Code
char myChar = 'A';
char myChar = 65; // both are equivalent
```

```
ตัวแปรชนิดข้อความ
String
[Data Types]

Syntax
String(val)
String(val, base)
String(val, decimalPlaces)

Parameters
val: a variable to format as a String.
Allowed data types: string, char, byte, int, long, unsigned int, unsigned long, float, double.
base: (optional) the base in which to format an integral value.
decimalPlaces: only if val is float or double. The desired decimal places.

Example Code
All of the following are valid declarations for Strings.

String stringOne = "Hello String";                    // using a constant String
String stringOne = String('a');                       // converting a constant char into a String
String stringTwo = String("This is a string");        // converting a constant string into a String object
String stringOne = String(stringTwo + " with more");  // concatenating two strings
String stringOne = String(13);                        // using a constant integer
String stringOne = String(analogRead(0), DEC);        // using an int and a base
String stringOne = String(45, HEX);                   // using an int and a base (hexadecimal)
String stringOne = String(255, BIN);                  // using an int and a base (binary)
String stringOne = String(millis(), DEC);             // using a long and a base
String stringOne = String(5.698, 3);                  // using a float and the decimal places
```

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ตัวแปรชนิดตรรกะ
bool
[Data Types]
Description
A bool holds one of two values, true or false. (Each bool variable occupies one byte of memory.)

Syntax
bool var = val;

Parameters
var: variable name.
val: the value to assign to that variable.

Example Code
This code shows how to use the bool datatype.

int LEDpin = 5;     // LED on pin 5
int switchPin = 13; // momentary switch on 13, other side connected to ground

bool running = false;

void setup() {
  pinMode(LEDpin, OUTPUT);
  pinMode(switchPin, INPUT);
  digitalWrite(switchPin, HIGH);  // turn on pullup resistor
}

void loop() {
  if (digitalRead(switchPin) == LOW) {
    // switch is pressed - pullup keeps pin high normally
    delay(100);                     // delay to debounce switch
    running = !running;             // toggle running variable
    digitalWrite(LEDpin, running);  // indicate via LED
  }
}
```