$$5 < 3$$

$$5 < `a`$$

data type

Whole Numbers   Integers

Data type <u>int</u>

signed [−] – – – – – – – – – –
.1 = neg   – – – – – – – – – –
0 = pos   – – – – – – – –
           – –

$$\frac{a}{2^3} \frac{b}{2^2} \frac{c}{2^1} \frac{d}{2^0} = (a \cdot 2^3) + (b \cdot 2^2) + (c \cdot 2^1) + (d \cdot 2^0)$$

0 0 1 0 = 2 $2^4 - 1 = 15$

1 0 1 1 =   +1 $2^n - 1$

1 1 1 1 = 15 $2^{32} - 1$

$2^{31} = 2,147,483,648$

↗ int
$\big($ −2,147,483,648 to 2,147,483,647
signed int
Same

unsigned int
      0 to 4,296,967,295

signed
[0] 0 0 0 = 0 Overflow
[1] 0 0 0 = −1   min = 1 + max
                1 0 0 1 = −2
                1 0 1 0 = −3
−$\big($ 0 1 1 1 = 7 +1   1 1 1 1 = −8
                1 1 1 1 = min

Boolean Data type

true = 1

false = 0

$$\frac{bool}{data\ type}$$

3. Decimal

1. float — single point precision
2. double — double point precision

ASCII

4.　　　Symbols / Characters

　　char　　　　　　　　　　0 – 255

　　　　　　　　　　'@'　　　　　　　0 ← lowercase
'a' = 97　　　　　　　'*'　　　　　25
'A' = 65　　　　　　　　　　　　　　|
'0' = 48　　'1' = 49　　　　　　uppercase
zero

```
void   -no value

void main (){

return; //ends the void function
3//if no return it's O.K.
int main (){

return 0; //mandatory
3
```

1. define

dataType   variable name ;
                              assignment
                                   operator
2. dataTyp var_name $=$ value ;

Single var on left is updated by the
        value on the right

1. var name starts with a letter
      or an underscore.

2. it can contain letters, numbers,
      or underscores.

3. name must be unique from all other
    reserved words or other variables.

4. Variable names must be
    semi descriptive
        $x = (x+1)/8;$