

Session 4

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print("%d", var); int byte =

↳ char letter = 'A' ; → %d or %i →
 %o →

زعماء

55 → 171 حصة الحرف

→ $\frac{1}{6} p \rightarrow$ address

→ %f, %.lf

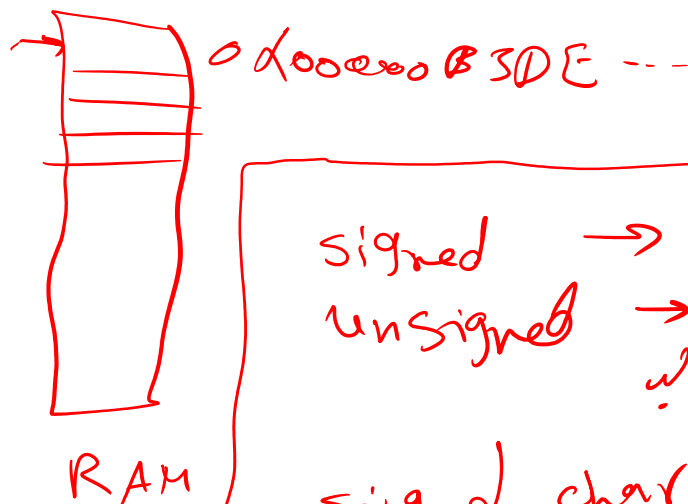
→ 6% Zu

%

$$\text{inf} \rightarrow \underline{\underline{7}} + 3 = 10$$

check \rightarrow '7' + 3 = 58

$\rightarrow \underline{\underline{\%Zu}}$ letter
 256
 $0, 255$
 $53 \ 4 \ 12$
 $123 \ 000$
 $\text{char} \rightarrow \text{حرف}$
 $\text{int} \rightarrow \text{عدد} \quad \underline{\underline{\%d}}$



signed $\rightarrow -\infty : \infty$

$\infty \rightarrow 0$ مفترض ارقام باارسانه \rightarrow unsigned

signed char \rightarrow

$$\begin{array}{r} \hline -128 \quad 0 \quad 127 \\ \hline 1 \quad 128 \quad 1 \quad 128 \quad 1 \end{array}$$

byte = 8 bit = 1111... = 255

255 + 1 = 256

00 00 0 0 0 0
1 1 1 1 1 1 1 1
0 0 0 0 0 0 0 0 → 256

$$\begin{cases} 128 & \rightarrow [-128, 0[\\ 128 & [0, 127] \end{cases}$$

One more thing from last session



- **Using Range in switch Case in C**

Syntax

The syntax for using range case is:

```
case low ... high:
```

It can be used for a range of ASCII character codes like this:

```
case 'A' ... 'Z':
```

Operators in C

Operators in C

	Operators	Type
Unary Operator →	++, --	Unary Operator
Binary Operator {	+, -, *, /, %	Arithmetic Operator
	<, <=, >, >=, ==, !=	Rational Operator
	&&, , !	Logical Operator
	&, , <<, >>, ~, ^	Bitwise Operator
	=, +=, -=, *=, /=, %=	Assignment Operator
Ternary Operator →	?:	Ternary or Conditional Operator

Arithmetic Operations in C

S. No.	Symbol	Operator	Description	Syntax
1	+	Plus	Adds two numeric values.	$a + b$
2	-	Minus	Subtracts right operand from left operand.	$a - b$
3	*	Multiply	Multiply two numeric values.	$a * b$
4	/	Divide	Divide two numeric values.	a / b
5	%	Modulus	Returns the remainder after dividing the left operand with the right operand.	$a \% b$

Arithmetic Operations in C

6	+	Unary Plus	Used to specify the positive values.	+a
7	-	Unary Minus	Flips the sign of the value.	-a
8	++	Increment	Increases the value of the operand by 1.	a++
9	--	Decrement	Decreases the value of the operand by 1.	a--

Relational Operators in C

S. No.	Symbol	Operator	Description	Syntax
1	<	Less than	Returns true if the left operand is less than the right operand. Else false	a < b
2	>	Greater than	Returns true if the left operand is greater than the right operand. Else false	a > b
3	<=	Less than or equal to	Returns true if the left operand is less than or equal to the right operand. Else false	a <= b
4	>=	Greater than or equal to	Returns true if the left operand is greater than or equal to right operand. Else false	a >= b

Relational Operators in C

5	==	Equal to	Returns true if both the operands are equal.	a == b
6	!=	Not equal to	Returns true if both the operands are NOT equal.	a != b

Logical Operator in C

note: } False → 0
 } True → > 0

S. No.	Symbol	Operator	Description	Syntax
1	!&& &&	Logical <u>AND</u>	Returns true if both the operands are true.	a && b
2	! 	Logical OR	Returns true if both or any of the operand is true.	a b
3	!&& !	Logical NOT	Returns true if the operand is false.	!a

Bitwise Operators in C

S. No.	Symbol	Operator	Description	Syntax
1	&	Bitwise AND	Performs bit-by-bit AND operation and returns the result.	<code>a & b</code>
2		Bitwise OR	Performs bit-by-bit OR operation and returns the result.	<code>a b</code>
3	^	Bitwise XOR	Performs bit-by-bit XOR operation and returns the result.	<code>a ^ b</code>

Bitwise Operators in C

$2^4 = 16$
 $2^5 = 32$
 $2^6 = 64$
 $2^7 = 128$
 $2^8 = 256$
 $2^9 = 512$
 $2^{10} = 1024$
 $2^{11} = 2048$
 $2^{12} = 4096$
 $2^{13} = 8192$
 $2^{14} = 16384$
 $2^{15} = 32768$
 $2^{16} = 65536$
 $2^{17} = 131072$
 $2^{18} = 262144$
 $2^{19} = 524288$
 $2^{20} = 1048576$
 $2^{21} = 2097152$
 $2^{22} = 4194304$
 $2^{23} = 8388608$
 $2^{24} = 16777216$
 $2^{25} = 33554432$
 $2^{26} = 67108864$
 $2^{27} = 134217728$
 $2^{28} = 268435456$
 $2^{29} = 536870912$
 $2^{30} = 1073741824$
 $2^{31} = 2147483648$
 $2^{32} = 4294967296$
 $2^{33} = 8589934592$
 $2^{34} = 17179869184$
 $2^{35} = 34359738368$
 $2^{36} = 68719476736$
 $2^{37} = 137438953472$
 $2^{38} = 274877906944$
 $2^{39} = 549755813888$
 $2^{40} = 1099511627776$
 $2^{41} = 2199023255552$
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 $2^{43} = 8796093022208$
 $2^{44} = 17592186044416$
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 $2^{46} = 70368744177664$
 $2^{47} = 140737488355328$
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 $2^{49} = 562949953421312$
 $2^{50} = 1125899906842624$
 $2^{51} = 2251799813685248$
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 $2^{70} = 1180591620717411303424$
 $2^{71} = 2361183241434822606848$
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 $2^{234} = 27606985387162255149739023449108101809804435888681546220650096895197184$
 $2^{235} = 55213970774324510299478046898216203619608871777363092441300193790394368$
 $2^{236} =$

Signed Char X;



11111
 ~~~~~  
 11111 1101  
 ↑  
 (10)

1010000101

00000101  
 ~~~~~  
 11110100
 ~~~~~  
 1011

1

25 → 0000010101

~~~~~  
 1111010101

Assignment Operators in C

S. No.	Symbol	Operator	Description	Syntax
1	=	Simple Assignment	Assign the value of the right operand to the left operand.	a = b
2	$x \oplus = y \rightarrow x = x + y$ +=	Plus and assign	Add the right operand and left operand and assign this value to the left operand.	a += b
3	$x -= y \rightarrow x = x - y$ -=	Minus and assign	Subtract the right operand and left operand and assign this value to the left operand.	a -= b
4	$x *= y \rightarrow x = x * y$ *=	Multiply and assign	Multiply the right operand and left operand and assign this value to the left operand.	a *= b

Assignment Operators in C

$$x /= y \rightarrow x = x / y$$

$$x \% = y \rightarrow x = x \% y$$

$$x \& = y \rightarrow x = x \& y$$

5		Divide and assign	Divide the left operand with the right operand and assign this value to the left operand.	$a /= b$
6		Modulus and assign	Assign the remainder in the division of left operand with the right operand to the left operand.	$a \% = b$
7		AND and assign	Performs bitwise AND and assigns this value to the left operand.	$a \& = b$

Assignment Operators in C

}
etc

$x \ggg = y \rightarrow x = x \ggg y$
 $\ggg =$

8	=	OR and assign	Performs bitwise OR and assigns this value to the left operand.	$a = b$
9	$\wedge =$	XOR and assign	Performs bitwise XOR and assigns this value to the left operand.	$a \wedge = b$
10	$\ggg =$	Rightshift and assign	Performs bitwise Rightshift and assign this value to the left operand.	$a \ggg = b$
11	$\ll =$	Leftshift and assign	Performs bitwise Leftshift and assign this value to the left operand.	$a \ll = b$

sizeof Operator

Syntax

```
sizeof (operand)
```


Conditional Operator (? :)

Condition ? Case 1 : Case 2
✓ ✓

Syntax

```
operand1 ? operand2 : operand3;
```

Links