Introduction to C++ Programming

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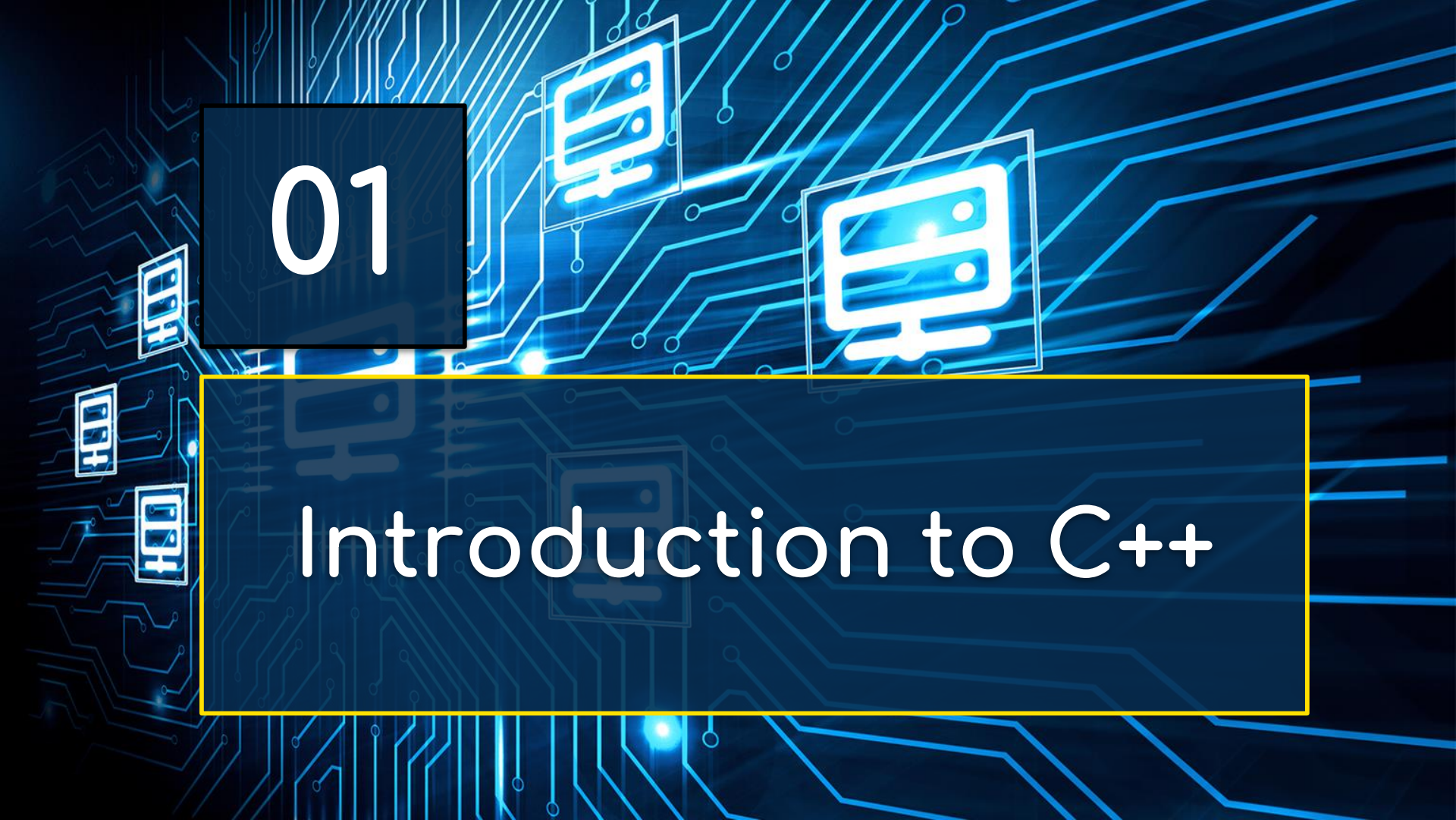

01
Introduction to C++

Before start coding...

What is a programming language?

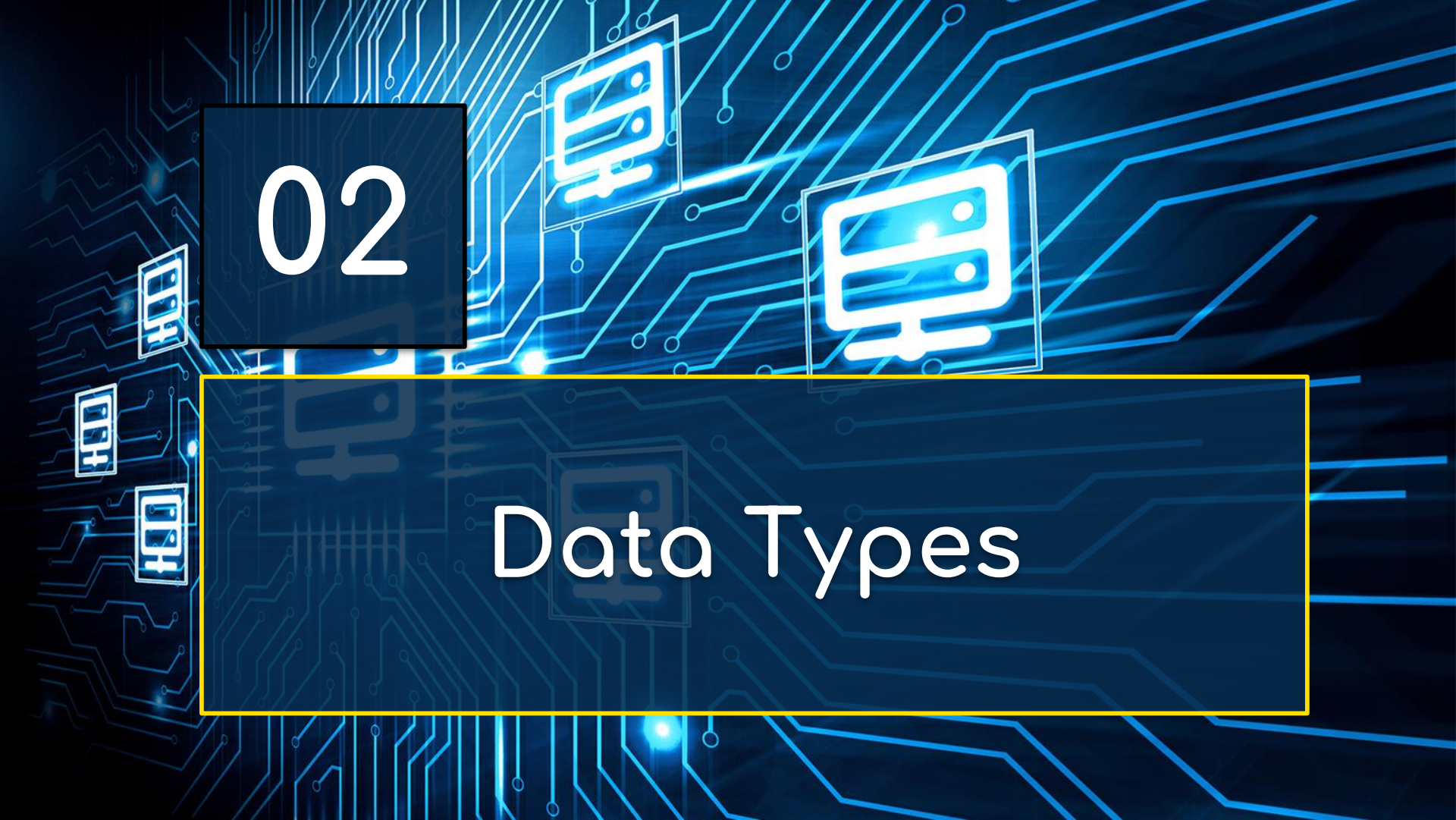
Binary → 0/1

From Code text to Binary file

Integrated Development Environment

What is a Computer?

Hello World!


02
Data Types

Variable

variable_type variable_name = initial value ;

variable_type variable_name ;

variable_name = value ;

C++ data types

sizeof()

Data Type	Size	Description
`boolean`	1 byte	Stores true or false values
`char`	1 byte	Stores a single character/letter/number, or ASCII values
`int`	2 or 4 bytes	Stores whole numbers, without decimals
`float`	4 bytes	Stores fractional numbers, containing one or more decimals. Sufficient for storing 6-7 decimal digits
`double`	8 bytes	Stores fractional numbers, containing one or more decimals. Sufficient for storing 15 decimal digits

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More or Less Bytes!

Data Type	Size (in bytes)	Range
short int	2	-32,768 to 32,767
unsigned short int	2	0 to 65,535
unsigned int	4	0 to 4,294,967,295
int	4	-2,147,483,648 to 2,147,483,647
long int	4	-2,147,483,648 to 2,147,483,647
unsigned long int	4	0 to 4,294,967,295
long long int	8	-(2^63) to (2^63)-1
unsigned long long int	8	0 to 18,446,744,073,709,551,615
signed char	1	-128 to 127
unsigned char	1	0 to 255
float	4	-3.4×10^38 to 3.4×10^38
double	8	-1.7×10^308 to1.7×10^308
long double	12	-1.1×10^4932 to1.1×10^4932
wchar_t	2 or 4	1 wide character

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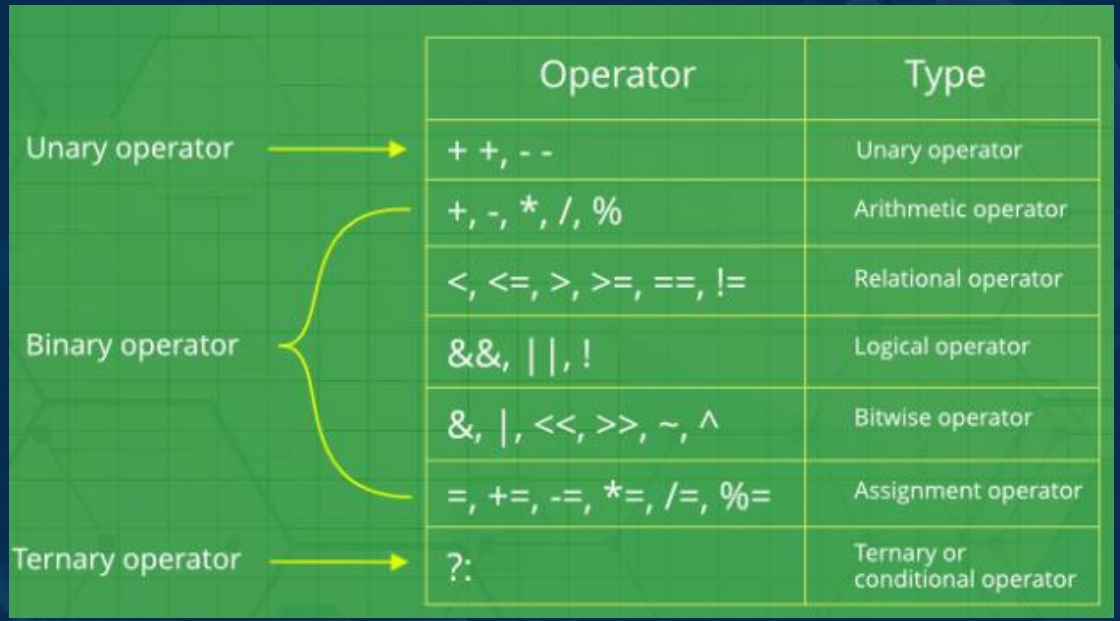
C++ has string type

```
string var_name = “initialization” ;

cout << var_name << endl ;
```


03
Operators

Different kinds of operators



	Operator	Type
Unary operator →	+ +, - -	Unary operator
Binary operator →	+, -, *, /, %	Arithmetic operator
	<, <=, >, >=, ==, !=	Relational operator
	&&, ||, !	Logical operator
	&, |, <<, >>, ~, ^	Bitwise operator
	=, +=, -=, *=, /=, %=	Assignment operator
Ternary operator →	?:	Ternary or conditional operator

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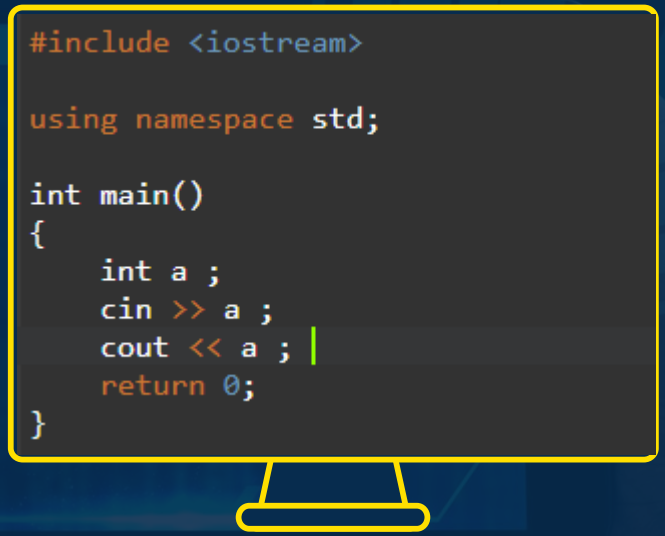
```
#include <bitset>

bitset<size>(variable)
```

```
#include <math.h>

#include <cmath>
```

Input & Output



```cpp
#include <iostream>

using namespace std;

int main()
{
    int a ;
    cin >> a ;
    cout << a ;
    return 0;
}
```


04
Conditionals

if statement

```
#include <iostream>

using namespace std;

int main()
{
    code1...;
    if (condition)
    {
        code2...;
    }
    code3...;
    return 0;
}
```

if-else statement

```
#include <iostream>

using namespace std;

int main()
{
    code1...;
    if (condition)
    {
        code2...;
    }
    else
    {
        code3...
    }
    code4...;
    return 0;
}
```

if-else if-else statement

```
#include <iostream>

using namespace std;

int main()
{
    code1...;
    if (condition1) { code2...; }
    else if (condition2) { code3...; }
    else if (condition3) { code4...; }
    else { code5...; }
    code6...;
    return 0;
}
```

switch-case statement

```cpp
#include <iostream>

using namespace std;

int main()
{
    code1...;
    switch (expression)
    {
        case x:
            code2...;
            break;
        case y:
            code3...;
            break;
        default:
            code4...;
    }
    code5...;
    return 0;
}
```

Thanks!