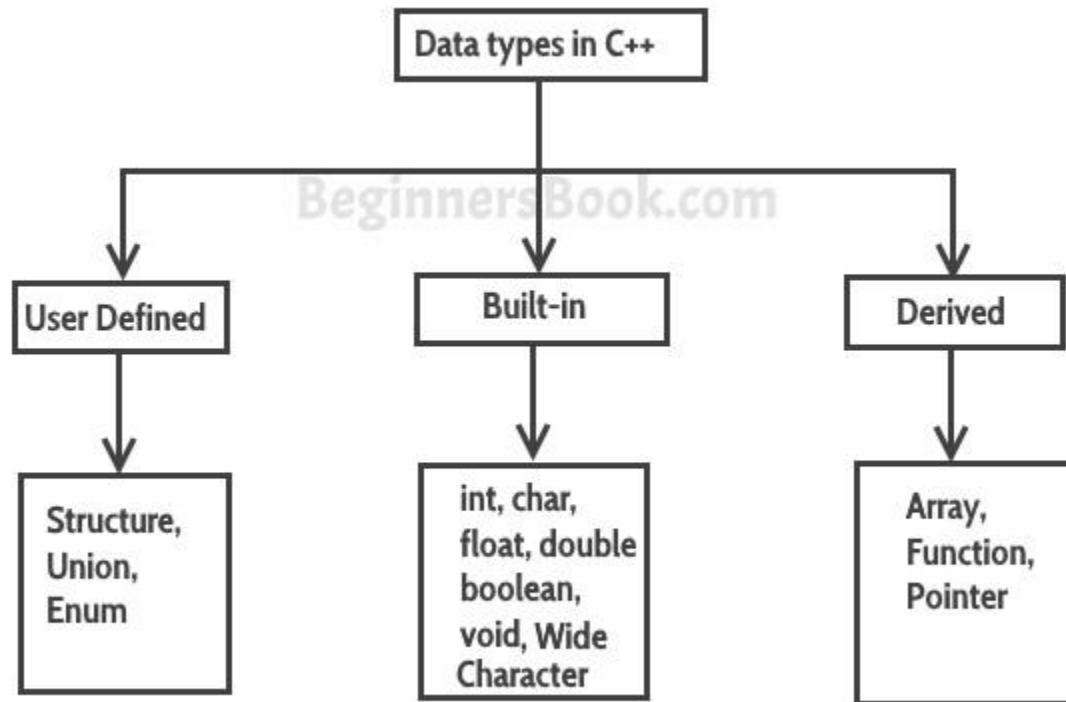


C++ Data Types

Data types define the type of data a **variable** can hold, for example an integer variable can hold integer data, a character type variable can hold character data etc.

Data types in C++ are categorised in three groups: **Built-in**, **user-defined** and **Derived**.



Built in data types

char: For characters. Size 1 byte.

```
char ch = 'A';
```

int: For integers. Size 2 bytes.

```
int num = 100;
```

float: For single precision floating point. Size 4 bytes.

```
float num = 123.78987;
```

double: For double precision floating point. Size 8 bytes.

```
double num = 10098.98899;
```

C++ Programming

bool: For booleans, true or false.

```
bool b = true;
```

The following table shows the variable type, how much memory it takes to store the value in memory, and what is maximum and minimum value which can be stored in such type of variables.

Type	Typical Bit Width	Typical Range
char	1byte	-127 to 127 or 0 to 255
unsigned char	1byte	0 to 255
signed char	1byte	-127 to 127
int	4bytes	-2147483648 to 2147483647
unsigned int	4bytes	0 to 4294967295
signed int	4bytes	-2147483648 to 2147483647
short int	2bytes	-32768 to 32767
unsigned short int	2bytes	0 to 65,535
signed short int	2bytes	-32768 to 32767
long int	8bytes	-2,147,483,648 to 2,147,483,647
signed long int	8bytes	same as long int
unsigned long int	8bytes	0 to 4,294,967,295
long long int	8bytes	$-(2^{63})$ to $(2^{63})-1$
unsigned long long int	8bytes	0 to 18,446,744,073,709,551,615
float	4bytes	
double	8bytes	
long double	12bytes	
wchar_t	2 or 4 bytes	1 wide character

The size of variables might be different from those shown in the above table, depending on the compiler and the computer you are using.



User-defined data types

We have three types of user-defined data types in C++

1. struct
2. union
3. enum

I have covered them in detail in separate tutorials. For now just remember that these comes under user-defined data types.

Derived data types in C++

We have three types of derived-defined data types in C++

1. Array
2. Function
3. Pointer

They are wide topics of C++ and I have covered them in separate tutorials. Just follow the tutorials in given sequence and you would be fine.