

Create your First Program

Instructor: Love Babbar

Programming Languages

Why we need it ?

- A Language using which, we can instruct the computer to carry out real life tasks and computations is called a programming language. It acts as a language in which we could easily express our thoughts to the machine.
- Like natural languages, programming language has a fixed set of rules according to which programs could be written in it. These programs are then converted into a language which machines can understand. This task is carried out by a special software called compiler.
- Every language has its own compiler/Interpreter.
- Once a program is compiled and linked, its executable is created and the computer can run our program now.

Compilation Process

IDE:

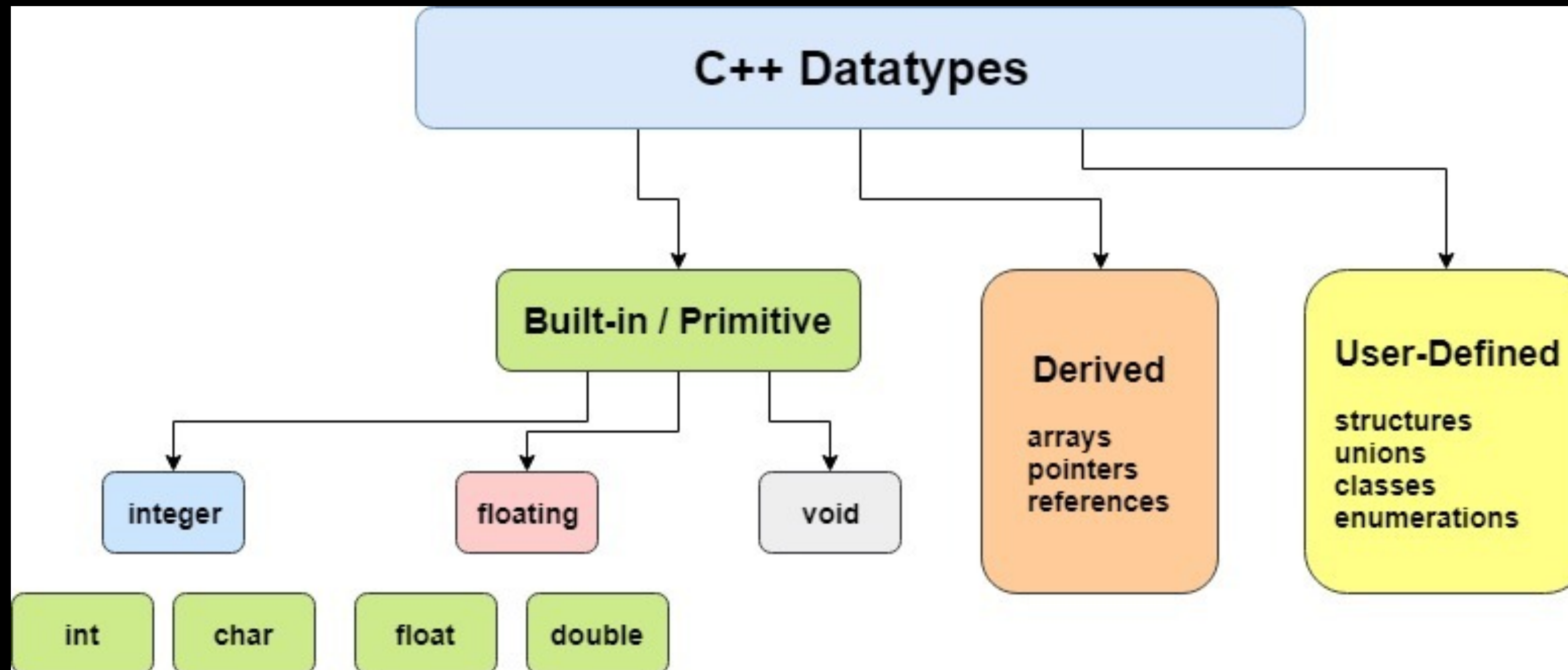
Let's Code your 1st Program

“Namaste Bharat”

Taking Input in C++

Datatypes & Variables

A variable in C is a memory location associated with some name in order to store some form of data and retrieve it when required & data types are used to tell the variables the type of data they can store.



DataTypes:

C Basic Data Types	32-bit CPU		64-bit CPU	
	Size (bytes)	Range	Size (bytes)	Range
char	1	-128 to 127	1	-128 to 127
short	2	-32,768 to 32,767	2	-32,768 to 32,767
int	4	-2,147,483,648 to 2,147,483,647	4	-2,147,483,648 to 2,147,483,647
long	4	-2,147,483,648 to 2,147,483,647	8	- 9,223,372,036,854,775,808- 9,223,372,036,854,775,807
long long	8	9,223,372,036,854,775,808- 9,223,372,036,854,775,807	8	9,223,372,036,854,775,808- 9,223,372,036,854,775,807
float	4	3.4E +/- 38	4	3.4E +/- 38
double	8	1.7E +/- 308	8	1.7E +/- 308

Variable Naming Conventions [Explore]

How data is stored ?

Positive vs Negative integers

Interesting Problem:

Signed vs Unsigned data:

TypeCasting

Implicit vs Explicit

- Type casting refers to the conversion of one data type to another in a program. Typecasting can be done in two ways: automatically by the compiler and manually by the programmer or user. Type Casting is also known as Type Conversion.

Implicit Type Casting or Implicit Type Conversion

- It is known as the automatic type casting.
- It automatically converted from one data type to another without any external intervention such as programmer or user. It means the compiler automatically converts one data type to another.
- All data type is automatically upgraded to the largest type without losing any information.
- It can only apply in a program if both variables are compatible with each other.

Explicit Type Casting or Explicit Type Conversion

- It is also known as the manual type casting in a program.
- It is manually cast by the programmer or user to change from one data type to another type in a program. It means a user can easily cast one data to another according to the requirement in a program.
- It does not require checking the compatibility of the variables.
- In this casting, we can upgrade or downgrade the data type of one variable to another in a program.
- It uses the cast () operator to change the type of a variable.

Operators:

- Arithmetic
- Relational
- Assignment
- Logical
- Bitwise

Conditionals

Loops: