🌟**Foundation Resource: https://www.cs.bu.edu/teaching/cpp/polymorphism/intro/**🌟
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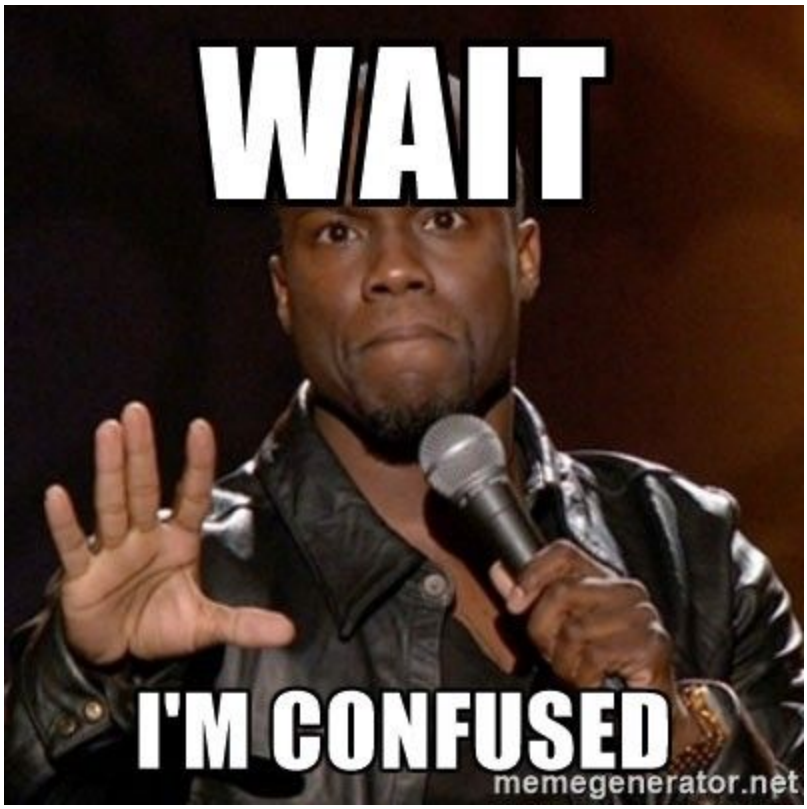
Polymorphism in C++

The word polymorphism means having many forms. In simple words, we can define polymorphism as the ability of a message to be displayed in more than one form.

Real life example of polymorphism, a person at the same time can have different characteristic. Like a man at the same time is a father, a husband, an employee. So the same person posses different behavior in different situations. This is called polymorphism.

Polymorphism is considered as one of the important features of Object Oriented Programming.



In C++ polymorphism is mainly divided into two types:

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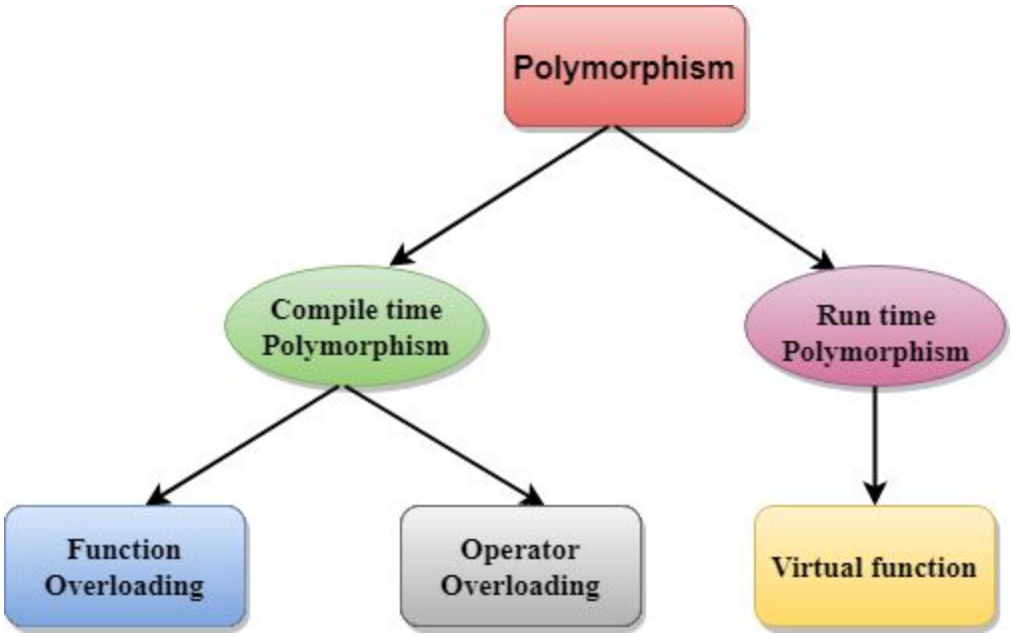
- Compile time Polymorphism
- Runtime Polymorphism



Compile time polymorphism: This type of polymorphism is achieved by function overloading or operator overloading.

Function Overloading: When there are multiple functions with same name but different parameters then these functions are said to be overloaded. Functions can be overloaded by change in number of arguments or/and change in type of arguments.

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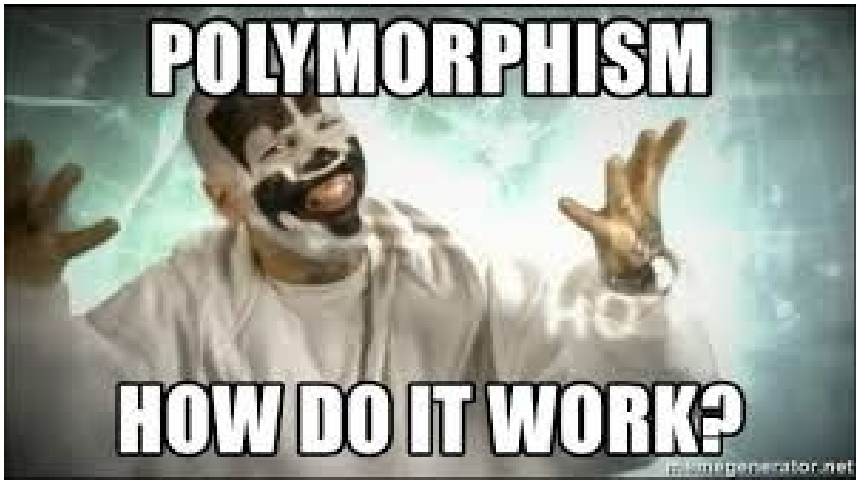

Rules of Function Overloading

Operator Overloading: C++ also provide option to overload operators. For example, we can make the operator (‘+’) for string class to concatenate two strings. We know that this is the addition operator whose task is to add two operands. So a single operator ‘+’ when placed between integer operands , adds them and when placed between string operands, concatenates them.

The operator ‘+’ is overloaded. The operator ‘+’ is an addition operator and can add two numbers(integers or floating point) but here the operator is made to perform addition of two imaginary or complex numbers.

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Runtime polymorphism: This type of polymorphism is achieved by Function Overriding.Function overriding on the other hand occurs when a derived class has a definition for one of the member functions of the base class. That base function is said to be overridden.

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Differences b/w compile time and run time polymorphism.

Compile time polymorphism	Run time polymorphism
The function to be invoked is known at the compile time.	The function to be invoked is known at the run time.
It is also known as overloading, early binding and static binding.	It is also known as overriding, Dynamic binding and late binding.
Overloading is a compile time polymorphism where more than one method is having the same name but with the different number of parameters or the type of the parameters.	Overriding is a run time polymorphism where more than one method is having the same name, number of parameters and the type of the parameters.
It is achieved by function overloading and operator overloading.	It is achieved by virtual functions and pointers.

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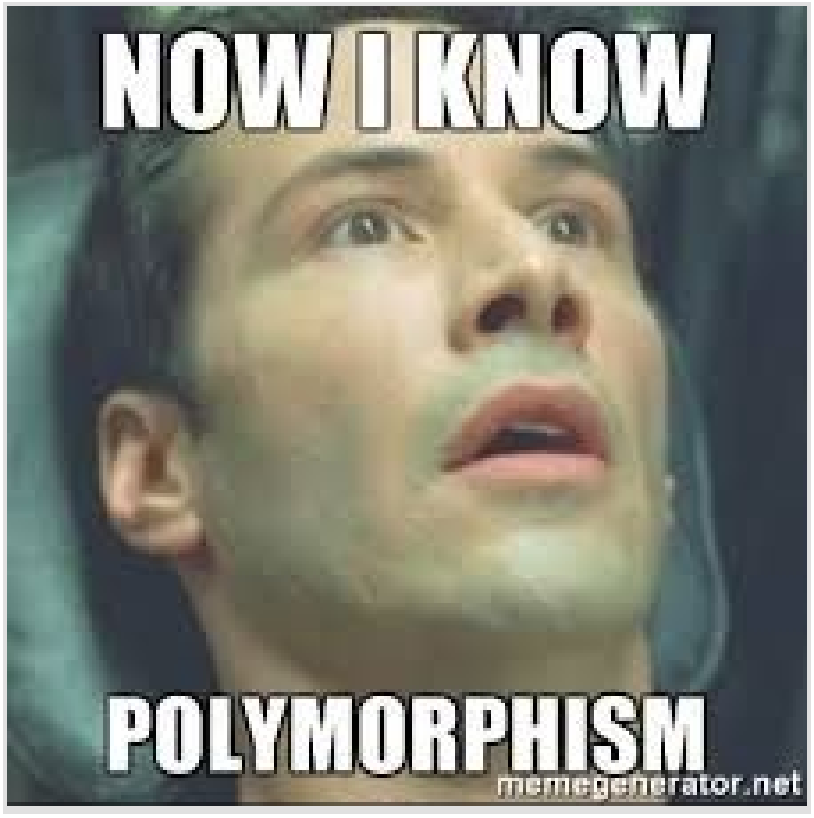
It provides fast execution as it is known at the compile time.	It provides slow execution as it is known at the run time.
It is less flexible as mainly all the things execute at the compile time.	It is more flexible as all the things execute at the run time.



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Thus I have become …

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