

# C++- Templates

## Introduction

Templates are the foundation of generic programming, which involves writing code in a way that is independent of any particular type.

A template is a blueprint or formula for creating a generic class or a function. The library containers like iterators and algorithms are examples of generic programming and have been developed using template concept.

There is a single definition of each container, such as vector, but we can define many different kinds of vectors for example, vector <int> or vector <string>.

## Function Template

The general form of a template function definition is shown here:

```
template <class type> ret-type func-name(parameter list) {  
    // body of function  
}
```

Here, type is a placeholder name for a data type used by the function. This name can be used within the function definition.

## Class Template

Just as we can define function templates, we can also define class templates. The general form of a generic class declaration is shown here:

```
template <class type> class class-name {  
    .  
    .  
    .  
}
```

Here, type is the placeholder type name, which will be specified when a class is instantiated. You can define more than one generic data type by using a comma-separated list.