



Namespace in C++ | Set 3 (Accessing, creating header, nesting and aliasing)

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Different ways to access namespace

In C++, there are two ways of accessing namespace variables and functions.

1. Normal way

```
// C++ program to demonstrate accessing of variables
// in normal way, i.e., using "::"
#include <iostream>
using namespace std;

namespace geek
{
    int rel = 300;
}

int main()
{
    // variable 'rel' accessed
    // using scope resolution operator
    cout << geek::rel << "\n"; // prints 300

    return 0;
}
```

Output :

300

2. “using” directive

```
// C++ program to demonstrate accessing of variables
// in normal way, i.e., using "using" directive
#include <iostream>
using namespace std;

namespace geek
{
    int rel = 300;
}

// use of 'using' directive
using namespace geek;

int main()
{
    // variable 'rel' accessed
    // without using scope resolution variable
    cout << rel << "\n";           //prints 300

    return 0;
}
```

Output:

300

Using namespace in header files

We can create namespace in one file and access contents using another program. This is done in the following manner.

- We need to create two files. One containing the namespace and all the data members and member functions we want to use later.
- And the other program can directly call the first program to use all the data members and member functions in it.

File 1

```
// file1.h
namespace foo
{
    int value()
    {
        return 5;
    }
}
```

File 2

```
// file2.cpp - Not to be executed online
#include <iostream>
#include "file1.h" // Including file1
using namespace std;

int main ()
{
    cout << foo::value();
    return 0;
}
```

Here we can see that the namespace is created in file1.h and the value() of that namespace is getting called in file2.cpp.

Nested Namespaces

In C++, namespaces can also be nested i.e., one namespace inside another. The resolution of namespace variables is hierarchical.

```
// C++ program to demonstrate nesting of namespaces
#include <iostream>
using namespace std;

// Nested namespace
namespace out
{
    int val = 5;
    namespace in
    {
        int val2 = val;
    }
}

// Driver code
int main()
{
    cout << out::in::val2;    // prints 5
    return 0;
}
```

OUTPUT :

5

Namespace Aliasing

In C++, you can use an alias name for your namespace name, for ease of use. Existing namespaces can be aliased with new names, with the following syntax:

```
namespace new_name = current_name;
```

```
#include <iostream>

namespace name1
{
    namespace name2
    {
        namespace name3
        {
            int var = 42;
        }
    }
}

// Aliasing
namespace alias = name1::name2::name3;

int main()
{
    std::cout << alias::var << '\n';
}
```

Output :

42

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1.7

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