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Nested Classes in C++

A nested class is a class which is declared in another enclosing class. A nested class is a member and as such has the same access rights as any other member. The members of an enclosing class have no special access to members of a nested class; the usual access rules shall be obeyed.

For example, program 1 compiles without any error and program 2 fails in compilation.

Program 1

```
#include<iostream>

using namespace std;

 /* start of Enclosing class declaration */
class Enclosing {
   private:
       int x;

   /* start of Nested class declaration */
   class Nested {
      int y;
      void NestedFun(Enclosing *e) {
        cout<<e->x;  // works fine: nested class can access
                     // private members of Enclosing class
      }
   }; // declaration Nested class ends here
}; // declaration Enclosing class ends here

int main()
{

}
```

Program 2

```
#include<iostream>

using namespace std;

 /* start of Enclosing class declaration */
class Enclosing {

   int x;

   /* start of Nested class declaration */
   class Nested {
      int y;
   }; // declaration Nested class ends here

   void EnclosingFun(Nested *n) {
        cout<<n->y;  // Compiler Error: y is private in Nested
   }
}; // declaration Enclosing class ends here

int main()
{

}
```

References:

http://www.open-std.org/jtc1/sc22/wg21/docs/papers/2005/n1905.pdf

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