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How to define a class within another class' private in C++

Is it possible to define a class in another classes private and use it for an array? For instance:

```
class a
{
public:
private:
class b;
b myarray[10];

class b
{
public:
b(int a):a_val (a){}
private:
int a_val;
};
};
```

Ignoring public, is there anything wrong with my syntax?

Is it also possible to make a member function in A to modify the private values of b. For instance, myarray[0].a_val = 5; If so, is this syntax also correct?

c++ class nested private define

edited Jan 24 '12 at 23:44

asked Jan 24 '12 at 23:26



user782311

39 ● 1 ● 2 ● 4

You're constructor of `b` has an `int` argument called `a` but you also have a class called `a`. this is confusing. — [Gunther Fox](#) Jan 24 '12 at 23:30

4 Answers

No, your syntax for defining a private nested class is alright. Although some other things are wrong: You need to define `b` before creating an array to it. The type needs to be complete.

`b` is not default constructible so you also need to initialize the array in `a` constructor initializer list, which is actually not possible in C++03. C++11 offers initializer lists to get that functionality.

Just use a `std::vector` or `std::array`.

Fixed version of your code:

```
class a
{
public:
// ATTN C++11 feature here
a() : myarray({ 1, 2 }) {}
private:
class b {
public:
b(int a) : a_val (a){}
int a_val;
};
b myarray[2];
};
int main ()
{
a a;
}
```

edited Jan 24 '12 at 23:36

answered Jan 24 '12 at 23:29



pmr

33.5k ● 4 ● 47 ● 101

Yes, that's fine, but you have to define the nested class fully before declaring an array of it: Arrays can only be made of *complete* types:

```
class Outer
{
    class Inner { /* define it! */ };
    Inner a[100];
};
```

answered Jan 24 '12 at 23:32



Kerrek SB

215k ● 26 ● 352 ● 571

Yes you can declare classes privately inside other classes.

Yes, you can use them as the type of an array provided the class itself is visible to you where you create the array.

answered Jan 24 '12 at 23:28



Robert Allan Hennigan Lee

3,933 ● 12 ● 34

No, it's completely fine. It just means you can only declare instances of b within class a, which will stop people from doing:

```
a::b myB;
```

to declare their own b, which is presumably what you want.

answered Jan 24 '12 at 23:28



w00te

12.1k ● 6 ● 47 ● 115