- class have an object of self type?
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- Some interesting facts about static member functions in C++
- Local Classes in C++
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- Destructors

in C++

Does C++ compiler create default constructor when we write our own?

When should we write our own copy constructor?

When is copy constructor called?

Initialization of data members

Use of explicit keyword in C++

When do we use Initializer List in C++?

string find in C++

Why array index starts from zero ?

How to

return multiple values from a function in C or C++?

static_cast in C++ | Type Casting operators

“static const” vs “#define” vs “enum”

Friend class and function in C++

Friend Class A friend class can access private and protected members of other class in which it is declared as friend. It is sometimes useful to allow a particular class to access private members of other class. For example a LinkedList class may be allowed to access private members of Node.

```
class Node
{
private:
  int key;
  Node *next;
  /* Other members of Node Class */

  friend class LinkedList; // Now class  LinkedList can
                           // access private members of Node
};
```


Friend Function Like friend class, a friend function can be given special grant to access private and protected members. A friend function can be:

a) A method of another class

b) A global function

```
class Node
{
private:
  int key;
  Node *next;

  /* Other members of Node Class */
  friend int LinkedList::search(); // Only search() of linkedLis
                                   // can access internal members
};
```

Following are some important points about friend functions and classes:

1) Friends should be used only for limited purpose. too many functions or external classes are declared as friends of a class with protected or private data, it lessens the value of encapsulation of separate classes in object-oriented programming.

2) Friendship is not mutual. If a class A is friend of B, then B doesn't become friend of A automatically.

3) Friendship is not inherited (See this for more details)

4) The concept of friends is not there in Java.

A simple and complete C++ program to demonstrate friend Class

```
#include <iostream>
class A {
private:
    int a;
public:
    A() { a=0; }
    friend class B;     // Friend Class
};

class B {
private:
    int b;
public:
    void showA(A& x) {
        // Since B is friend of A, it can access
        // private members of A
        std::cout << "A::a=" << x.a;
    }
};

int main() {
   A a;
   B b;
   b.showA(a);
   return 0;
}
```

Output:

```
A::a=0
```

A simple and complete C++ program to demonstrate friend function of another class

```
#include <iostream>

class B;

class A
{
public:
    void showB(B& );
};

class B
{
private:
    int b;
public:
    B()  {  b = 0; }
    friend void A::showB(B& x); // Friend function
};

void A::showB(B &x)
{
    // Since show() is friend of B, it can
    // access private members of B
    std::cout << "B::b = " << x.b;
}

int main()
{
    A a;
    B x;
    a.showB(x);
    return 0;
}
```

Output:

```
B::b = 0
```

A simple and complete C++ program to demonstrate global friend

```
#include <iostream>

class A
{
    int a;
public:
    A() {a = 0;}
    friend void showA(A&); // global friend function
};

void showA(A& x) {
    // Since showA() is a friend, it can access
    // private members of A
    std::cout << "A::a=" << x.a;
}

int main()
{
    A a;
    showA(a);
    return 0;
}
```

Output:

```
A::a = 0
```

References:

http://en.wikipedia.org/wiki/Friend_class

http://en.wikipedia.org/wiki/Friend_function

http://www.cprogramming.com/tutorial/friends.html

http://www.parashift.com/c++-faq/friends-and-encap.html

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