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/* The following code example is taken from the book
 * "The C++ Standard Library – A Tutorial and Reference, 2nd Edition"
 * by Nicolai M. Josuttis, Addison-Wesley, 2012
 *
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 */
#include <iostream>
#include <string>
#include <vector>
#include <memory>
using namespace std;

class Person : public enable_shared_from_this<Person> {
public:
    string name;
    shared_ptr<Person> mother;
    shared_ptr<Person> father;
    vector<weak_ptr<Person>> kids;    // weak pointer!!!

    Person (const string& n)
        : name(n) {

    void setParentsAndTheirKids (shared_ptr<Person> m = nullptr,
                                shared_ptr<Person> f = nullptr) {
        mother = m;
        father = f;
        if (m != nullptr) {
            m->kids.push_back(shared_from_this());
        }
        if (f != nullptr) {
            f->kids.push_back(shared_from_this());
        }
    }

    ~Person() {
        cout << "delete " << name << endl;
    }
};

shared_ptr<Person> initFamily (const string& name)
{
    shared_ptr<Person> mom(new Person(name+" s mom"));
    shared_ptr<Person> dad(new Person(name+" s dad"));
    shared_ptr<Person> kid(new Person(name));
    kid->setParentsAndTheirKids(mom, dad);
    return kid;
}

int main()
{
    shared_ptr<Person> p = initFamily("nico");

```

```
cout << "nico's family exists" << endl;
cout << "- nico is shared " << p.use_count() << " times" << endl;
cout << "- name of 1st kid of nico's mom: "
    << p->mother->kids[0].lock()->name << endl;
```

```
p = initFamily("jim");
cout << "jim's family exists" << endl;
```

```
}
```