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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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 * warranty, and with no claim as to its suitability for any purpose.
 */
#include <iostream>
#include <string>
#include <vector>
#include <memory>
using namespace std;

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

    Person (const string& n,
            shared_ptr<Person> m = nullptr,
            shared_ptr<Person> f = nullptr)
        : name(n), mother(m), father(f) {
    }

    ~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, mom, dad));
    mom->kids.push_back(kid);
    dad->kids.push_back(kid);
    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;
}

```