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/* The following code example is taken from the book
 * "The C++ Standard Library – A Tutorial and Reference"
 * by Nicolai M. Josuttis, Addison-Wesley, 1999
 *
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 * warranty, and with no claim as to its suitability for any purpose.
 */
#include <iostream>
#include <memory>
using namespace std;

/* define output operator for auto_ptr
 * – print object value or NULL
 */
template <class T>
ostream& operator<< (ostream& strm, const auto_ptr<T>& p)
{
    // does p own an object ?
    if (p.get() == NULL) {
        strm << "NULL";          // NO: print NULL
    }
    else {
        strm << *p;              // YES: print the object
    }
    return strm;
}

int main()
{
    auto_ptr<int> p(new int(42));
    auto_ptr<int> q;

    cout << "after initialization:" << endl;
    cout << " p: " << p << endl;
    cout << " q: " << q << endl;

    q = p;
    cout << "after assigning auto pointers:" << endl;
    cout << " p: " << p << endl;
    cout << " q: " << q << endl;

    *q += 13;                      // change value of the object q owns
    p = q;
    cout << "after change and reassignment:" << endl;
    cout << " p: " << p << endl;
    cout << " q: " << q << endl;
}

```