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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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 */
#include <iostream>
#include <list>
#include <algorithm>
#include "print.hpp"
using namespace std;

// function object that adds the value with which it is initialized
class AddValue {
private:
    int theValue;    // the value to add
public:
    // constructor initializes the value to add
    AddValue(int v) : theValue(v) {
    }

    // the ``function call'' for the element adds the value
    void operator() (int& elem) const {
        elem += theValue;
    }
};

int main()
{
    list<int> coll;

    // insert elements from 1 to 9
    for (int i=1; i<=9; ++i) {
        coll.push_back(i);
    }

    PRINT_ELEMENTS(coll, "initialized:          ");

    // add value 10 to each element
    for_each (coll.begin(), coll.end(),    // range
              AddValue(10));               // operation

    PRINT_ELEMENTS(coll, "after adding 10:      ");

    // add value of first element to each element
    for_each (coll.begin(), coll.end(),    // range
              AddValue(*coll.begin()));    // operation

    PRINT_ELEMENTS(coll, "after adding first element: ");
}

```