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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 <valarray>
using namespace std;

// print valarray line-by-line
template <typename T>
void printValarray (const valarray<T>& va, int num)
{
    for (int i=0; i<va.size()/num; ++i) {
        for (int j=0; j<num; ++j) {
            cout << va[i*num+j] << ' ';
        }
        cout << endl;
    }
    cout << endl;
}

int main()
{
    // valarray with 12 elements
    // - four rows
    // - three columns
    valarray<double> va(12);

    // fill valarray with values
    for (int i=0; i<12; i++) {
        va[i] = i;
    }

    printValarray (va, 3);

    // assign 77 to all values that are less than 5
    va[va<5.0] = 77.0;

    // add 100 to all values that are greater than 5 and less than 9
    va[va>5.0 && va<9.0]
        = valarray<double>(va[va>5.0 && va<9.0]) + 100.0;

    printValarray (va, 3);
}

```