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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 <tuple>
#include <iostream>
#include <complex>
#include <string>
using namespace std;

int main()
{
    // create a four-element tuple
    // - elements are initialized with default value (0 for fundamental types)
    tuple<string,int,int,complex<double>>> t;

    // create and initialize a tuple explicitly
    tuple<int,float,string> t1(41,6.3,"nico");

    // "iterate" over elements:
    cout << get<0>(t1) << " ";
    cout << get<1>(t1) << " ";
    cout << get<2>(t1) << " ";
    cout << endl;

    // create tuple with make_tuple()
    // - auto declares t2 with type of right-hand side
    // - thus, type of t2 is tuple
    auto t2 = make_tuple(22,44,"nico");

    // assign second value in t2 to t1
    get<1>(t1) = get<1>(t2);

    // comparison and assignment
    // - including type conversion from tuple<int,int,const char*>
    //   to tuple<int,float,string>
    if (t1 < t2) { // compares value for value
        t1 = t2; // OK, assigns value for value
    }
}

```