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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 <random>
#include <iostream>
#include <algorithm>
#include <vector>

int main()
{
    // create default engine as source of randomness
    std::default_random_engine dre;

    // use engine to generate integral numbers between 10 and 20 (both included)
    std::uniform_int_distribution<int> di(10,20);
    for (int i=0; i<20; ++i) {
        std::cout << di(dre) << " ";
    }
    std::cout << std::endl;

    // use engine to generate floating-point numbers between 10.0 and 20.0
    // (10.0 included, 20.0 not included)
    std::uniform_real_distribution<double> dr(10,20);
    for (int i=0; i<8; ++i) {
        std::cout << dr(dre) << " ";
    }
    std::cout << std::endl;

    // use engine to shuffle elements
    std::vector<int> v = { 1, 2, 3, 4, 5, 6, 7, 8, 9 };
    //...
    std::shuffle (v.begin(), v.end(), // range
                  dre);               // source of randomness
    for (int i=0; i<v.size(); ++i) {
        std::cout << v[i] << " ";
    }
    std::cout << std::endl;
}

```