std::rand

Defined in header <cstdlib>

```
int rand();
```

Returns a pseudo-random integral value between `0` and RAND_MAX (`0` and RAND_MAX included).

std::srand() seeds the pseudo-random number generator used by rand(). If rand() is used before any calls to std::srand(), rand() behaves as if it was seeded with `std::srand(1)`.

Each time rand() is seeded with std::srand(), it must produce the same sequence of values on successive calls.

Other functions in the standard library may call rand. It is implementation-defined which functions do so.

It is implementation-defined whether rand() is thread-safe.

Parameters

(none)

Return value

Pseudo-random integral value between `0` and RAND_MAX.

Notes

There are no guarantees as to the quality of the random sequence produced. In the past, some implementations of rand() have had serious shortcomings in the randomness, distribution and period of the sequence produced (in one well-known example, the low-order bit simply alternated between 1 and 0 between calls).

rand() is not recommended for serious random-number generation needs. It is recommended to use C++11's random number generation facilities to replace rand(). (since C++11)

Example

Run this code

```
#include <cstdlib>
#include <iostream>
#include <ctime>

int main()
{
    std::srand(std::time(nullptr)); // use current time as seed for random generator
    int random_variable = std::rand();
    std::cout << "Random value on [0 " << RAND_MAX << "]: "
              << random_variable << '\n';

    // roll 6-sided dice 20 times
    for (int n=0; n != 20; ++n) {
        int x = 7;
        while(x > 6)
            x = 1 + std::rand()/((RAND_MAX + 1u)/6);  // Note: 1+rand()%6 is biased
        std::cout << x << ' ';
    }
}
```

Possible output:

```
Random value on [0 2147483647]: 726295113
6 3 6 2 6 5 6 3 1 1 1 6 6 6 4 1 3 6 4 2
```

See also

uniform_int_distribution (C++11)	produces integer values evenly distributed across a range

	(class template)
srand	seeds pseudo-random number generator (function)
RAND_MAX	maximum possible value generated by **std::rand** (macro constant)
randint	generates a random integer in the specified range (function template)

C documentation for **rand**

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