Toward a `<random>` Technical Specification

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Contents

1 **Introduction and proposal** 1
2 **Acknowledgments** 2
3 **Bibliography** 2
4 **Document history** 2

Abstract

In light of recent proposals for enhancements to `<random>`, this paper outlines a possible future Technical Specification that harmonizes and consolidates these ideas, merges them with existing wording, and that provides a vehicle for exploring anticipated further improvements to the random number facility that has been such a successful part of the Standard Library since C++11.

> *To the extent that anyone cares about C++11's random-number facility at all, the C++ community is polarized between two views. . . .*
> - *It's amazingly elegant, a shining example of separation of concerns [with] a pluggable and extensible architecture [that's] comprehensive and flexible.*
> - *It's horrible to use, . . . unnecessarily overengineered. . . . It's completely unsuitable for beginners, and even seasoned programmers hate it.*
> *Both camps are right.*
>
> — MELISSA E. O'NEILL
>
> *Nop^Hbody is perfect.*
>
> — GCC BUGZILLA QUIP

1 Introduction and proposal

Since C++11, the `<random>` header has been a stable component of the Standard Library; there have been no significant additions or deletions. However, we have recently begun to see proposals for enhancements of several kinds. These include:

- [N3742], which proposed (in part) to incorporate a "modest toolkit of novice-friendly functions";

- [N4531], a successor to the above, now incorporated in [N4600].

- [P0205R0], which proposes to simplify seeding random number engines; and

- [P0347R0], which proposes a "wrapper over an underlying URNG" that, among other features, encompasses "the most common tasks used with a random number generator."

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We believe some or all of these proposals are of significant interest, as they have the potential to improve the user experience for non-experts.

We are also aware of other, not yet formalized, suggestions to improve **`<random>`** by replacing certain components (e.g., **`seed_seq`**) and making other breaking interface changes. Such adjustments are more difficult to accommodate via the usual process of editing the Working Draft.

To allow fuller exploration of these and other related ideas, and to gain additional experience and feedback with the resulting specification, **we recommend undertaking a "Technical Specification on `<random>` and Related C++ Functionality,"** with initial content taken from the relevant parts of [N4606] as amended by the above-cited papers pursuant to SG6 and/or LEWG guidance.

2   Acknowledgments

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3   Bibliography

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4   Document history

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