nag_random_init_repeatable (g05cbc)

1. Purpose

nag_random_init_repeatable (g05cbc) sets the seed used by the basic generator in the g05 Chapter to a repeatable initial value.

2. Specification

```
#include <nag.h>
#include <nagg05.h>

void nag_random_init_repeatable(Integer seed)
```

3. Description

This function sets the internal seed used by the basic generator nag_random_continuous_uniform (g05cac) to a value n_0 calculated from the parameter **seed**:

$$n_0 = 2\,\mathbf{seed} + 1.$$

It then generates the value n_1 and discards it, i.e., the first available value is n_2.

This function will yield different subsequent sequences of random numbers if called with different values of **seed**, but the sequences will be repeatable in different runs of the calling program. It should be noted that there is no guarantee of statistical properties between sequences, only within sequences.

4. Parameters

seed
Input: a number from which the new seed is to be calculated.

5. Error Indications and Warnings

None.

6. Further Comments

None.

7. See Also

nag_random_continuous_uniform (g05cac)
nag_random_init_nonrepeatable (g05ccc)

8. Example

The example program prints the first five pseudo-random real numbers from a uniform distribution between 0 and 1, generated by nag_random_continuous_uniform (g05cac) after initialisation by nag_random_init_repeatable.

8.1. Program Text

```
/* nag_random_init_repeatable(g05cbc) Example Program
 *
 * Copyright 1990 Numerical Algorithms Group.
 *
 * Mark 1, 1990.
 */

#include <nag.h>
#include <stdio.h>
#include <nag_stdlib.h>
#include <nagg05.h>

main()
{
  Integer i;
  Integer seed = 0;

  Vprintf("g05cbc Example Program Results\n");
  g05cbc(seed);
  for (i=1; i<=5; i++)
    Vprintf("%10.4f\n",g05cac());
  exit(EXIT_SUCCESS);
}
```

8.2. Program Data

None.

8.3. Program Results

```
g05cbc Example Program Results
    0.7951
    0.2257
    0.3713
    0.2250
    0.8787
```