Sample Space Generator

Rachel Waldon

Language: Ada

1 Your Task

Given the definition of a sample space,

$$\Omega = \{\omega_1, \omega_2, \omega_3, \ldots, \omega_n\}$$

where ω_i represents an atomic event and Ω is a set of atomic events,

Generate a sample space selecting a number from 0 ... n-1 t times given a range of consecutive integers 0 ... n-1 and number of trials t. If input r = 1, sample without replacement, and if r = 0 sample with replacement.

** Note: Assume sampling is ascending and starts from 0. This will help you match the output files provided. You can also assume the number of trials will be less than or equal to 10.

2 Example

Input:

5 t, number of trials

7 n, select from 0 ... 6

1 r = 1, without replacement

Output:

01234

01235

01236

01243

01245

01246

01253

...

3 Testing

Use the GNAT compiler for the Ada language. You can install the GNAT compiler with the following linux terminal commands:

$ sudo apt-get install gnat-7.4
$ sudo apt-get install gnat-gps

There is no starter code. Save your source file with the extension .adb. To compile your source file, run the following linux command:

$ gnatmake main.adb

Your program will access the inputs by accepting an input file piped through the command line. The inputs occur in the file in the order of the Input example above. To run your program with an input file:

$ ./main < *inputfile*

The instructor has provided three test cases which include an input file and its corresponding output file. You can use these test cases to check your code correctness.

in1.txt	**out1.txt**
in2.txt	**out2.txt**
in3.txt	**out3.txt**

The output file should be created in your program so the sample space will be written to this file in the same directory as your source file.