

Laboratory 1

Rhys Olsen and Jessica Petty

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1 Simulating Random Permutations

1.1

The following algorithm will simulate a random permutation of values $\{1, \dots, n\}$:

STEP 1: Simulate and store n random variables $U \sim \text{Uniform}(0, 1)$

STEP 2: Define some f that maps the $\text{Uniform}(0, 1)$ random variable to the index at which it was created

STEP 3: Order the $\text{Uniform}(0, 1)$ random variables in decreasing order

STEP 4: Apply f to each U to produce the permutation of integers

1.2

1.3

1.4

1.5

2 Computing Performance of Retrieving Algorithms

2.1

2.2

2.3

2.4

2.5