Introduction to Statistics and Data Science using *eStat*

Chapter 6 Sampling Distribution and Estimation

6.1 Simple Random Sampling

Jung Jin Lee
Professor of Soongsil University, Korea
Visiting Professor of ADA University, Azerbaijan

6.1 Simple Random Sampling

- **Inferential statistics :**

  ⇨ **Estimate population characteristics using samples**

- **Some difference between population characteristics and sample characteristics.**
- **To reduce these differences, sampling methods have been developed.**

  ⇨ **Simple random sampling : all elements of population have the same probability of being selected.**

6.1 Simple Random Sampling

- Tools to ensure that each element of the population is selected equally.
  ⇨ random number table : numbers from 0 to 9 without special regularity
  ⇨ computer random number generator : uniform [0,1] distribution

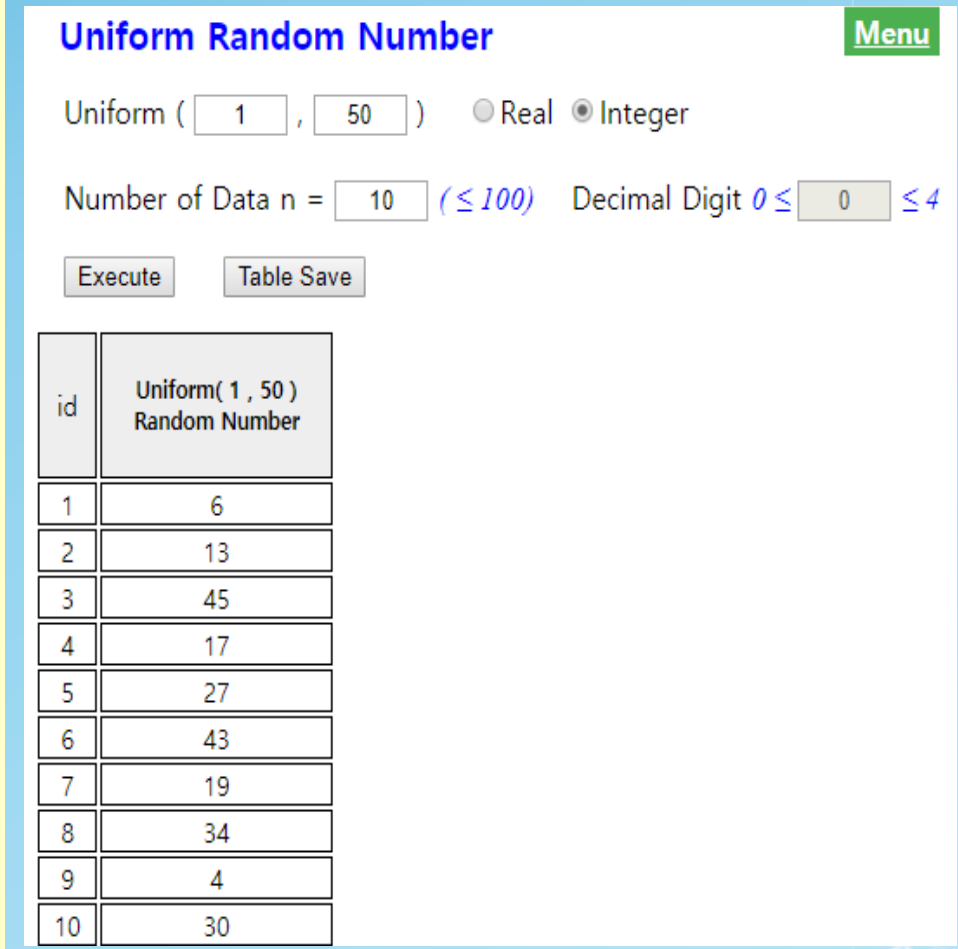
- With replacement sampling : Include an element extracted once again
- Without replacement sampling : does not include the extracted elements
  => in practice, almost all sampling is made without replacement.

6.1 Simple Random Sampling

[Ex 6.1.1] A class has 50 students. Select three of these students as a sample without replacement by using 『eStatU』.

<Answer>

- **A student's list must first be made and serial numbers must be assigned from one to fifty.**
- **To extract students, select 'Uniform Random Number' in 『eStatU』. Enter (1 and 50) at the box of 'Uniform', check 'Integer', enter 10 at the box of 'Number of Data' and click [Execute].**
- **Since there is no overlap of 6, 13 and 45, and you will choose these student numbers as a sample.**
- **The generated random number may have the same numbers. If it is a sampling without replacement, discard the following same number.**



id	Uniform(1 , 50) Random Number
1	6
2	13
3	45
4	17
5	27
6	43
7	19
8	34
9	4
10	30

Thank you