

Combinatorics

Arrangements, Permutations, Combinations

In this contribution, we propose an EViews add-in for computing and displaying arrangements, permutations, and combinations of a set of distinct elements.

The add-in allows users to:

- enter a list of n distinct elements;
- select the desired combinatorial operation (arrangement, permutation, or combination);
- specify the number of selected elements k ;
- generate and display all possible results in a structured table.

All calculations are performed without repetition.

1. Basic Definitions

Let n denote the number of distinct elements in the input set, and let k denote the number of selected elements, where $1 \leq k \leq n$.

The add-in performs three types of combinatorial calculations without repetition:

- Arrangement
- Permutation
- Combination

The corresponding definitions are given below.

1.1. Arrangement

An arrangement (without repetition) is an ordered selection of k elements chosen from a set of n distinct elements, where $1 \leq k \leq n$. The order of the selected elements is **important**, so different orderings are counted as different arrangements.

The number of possible arrangements is given by:

$$A_n^k = \frac{n!}{(n-k)!}$$

1.2. Permutation

A permutation (without repetition) is an ordered arrangement of all n distinct elements of a set. The order of the elements is **important**, so different orderings are counted as different permutations.

The number of possible permutations is given by:

$$P_n = A_n^n = n!$$

1.3. Combination

A combination (without repetition) is an unordered selection of k elements chosen from a set of n distinct elements, where $1 \leq k \leq n$. The order of the selected elements is **not important**, so different orderings are considered the same combination.

The number of possible combinations is given by:

$$C_n^k = \frac{n!}{k! (n - k)!}$$

2. EViews implementation

EViews (Econometric Views), developed by (IHS Global Inc, 2022), is a powerful software package for statistical and econometric analysis.

The Combinatorics add-in is implemented in EViews to provide a user interface for computing and displaying arrangements, permutations, and combinations.

References

IHS Global Inc, 2022. *EViews 13 [Software]*. [Online]
Available at: www.eviews.com
[Accessed 20 July 2026].

Interface : Add-ins and commend line

Package Name: SmidaCombinatorics

Author: Smida Houcine L.

Date: July 2026.

Description:

The add-in is designed to generate and display all possible arrangements, permutations, and combinations of a set of distinct elements. It allows users to select the desired combinatorial operation, specify the required parameters, and obtain the complete set of generated results in a results table.

Add-in Name: SmidaCombinatorics

Add-in Type: Global

Default Proc Name: SmidaCombinatorics

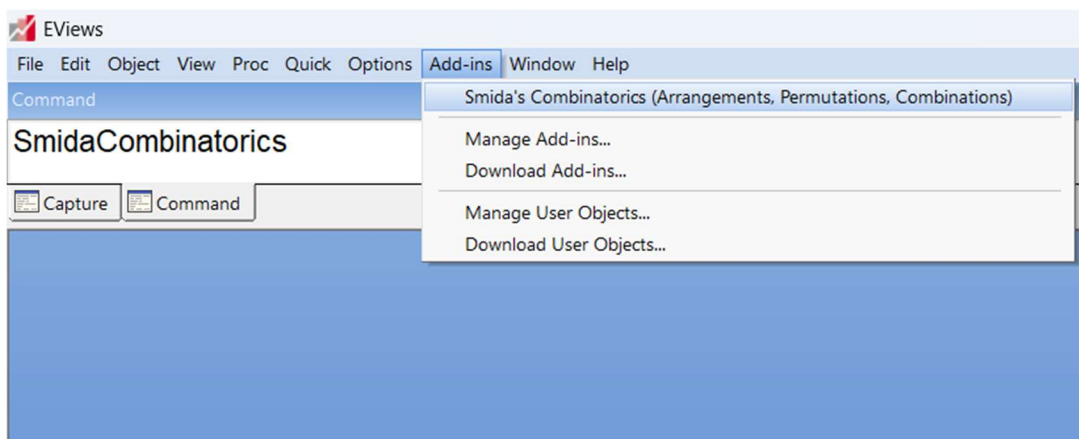
Default Menu Text: Smida's Combinatorics (Arrangements, Permutations, Combinations)

Interface: Add-ins and Commend line

Add-ins : Add-ins/Smida's Combinatorics (Arrangements, Permutations, Combinations)

Command line : SmidaCombinatorics

After installing the add-in, the user can launch it either by selecting “Add-ins/Smida's Combinatorics (Arrangements, Permutations, Combinations)” from the EViews menu or by typing “SmidaCombinatorics” in the EViews command line.



After launching the add-in from the EViews menu or the command line, the following dialog box appears:

Combinatorics : Arrangement - Permutation - Combination

Enter a list of n distinct elements, separated by spaces (e.g., 1 2 3 4, A B C D, Blue Green Red Yellow), where n is the number of entered elements

1 2 3 4

Enclose text strings in double-quotes ""

Enter the value of k ($1 \leq k \leq n$), where k is the number of elements selected from the set of n distinct elements

2

Select a method

☒ 1. Arrangement / Permutation

☐ 2. Combination

EViews program for generating all arrangements, permutations, and combinations

Add-in written by : SMIDA Houcine L. 2026

OK Cancel

The user first enters a list of n distinct elements separated by spaces. The list can contain numeric values (e.g., 1 2 3 4) or non-numeric values (e.g., A B C D or Blue Green Red Yellow). The user then selects the desired combinatorial operation (Arrangement / Permutation or Combination) and specifies the number of selected elements k .

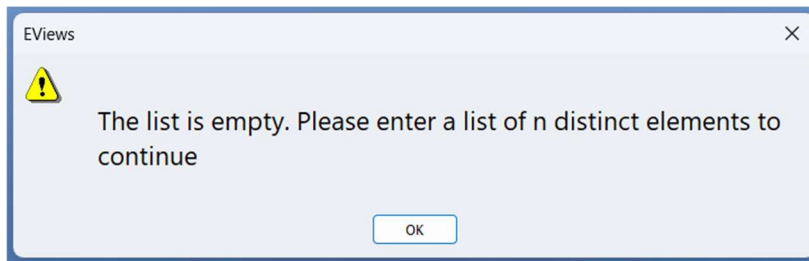
If an element appears more than once in the input list, EViews displays the following dialog box:

EViews

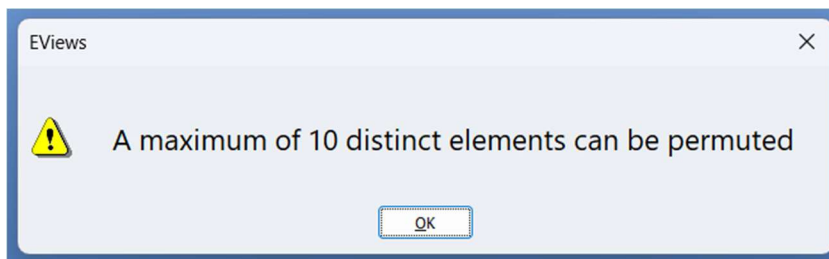
 Please enter distinct elements (without repetition)

OK

If the list is empty, EViews displays the following dialog :



If the user selects "Arrangement / Permutation" as the desired combinatorial operation, enters more than 10 input elements ($n > 10$), and specifies $k = n$ (corresponding to a permutation), a warning message will be displayed:



The maximum number of elements to permute is limited to 10.

For arrangements and combinations without repetition, the practical limits depend on both n and k , particularly on the value of k relative to n .

Example for $n=4$:

Consider the case $n = 4$ to illustrate the three methods presented previously. For each method, the corresponding results are generated and displayed in a results table.

To generate **arrangements**, select "Arrangement / Permutation" as the desired combinatorial operation and specify a value of k ($1 \leq k \leq 4$), for example $k = 2$. The arrangements generated with $n = 4$ and $k = 2$ are presented below:

Table: TABARRANGEMENT Workfile: COMBINATORICS:Unt...													
	View	Proc	Object	Print	Name	Edit+/-	CellFmt	Grid+/-	Title	Comments+/-			
					A	B	C	D	E	F	G	H	I
1					1	1	1	2	2	2	3	3	4
2					2	3	4	1	3	4	1	2	4
3													
4													

To generate **permutations**, select "Arrangement / Permutation" as the desired combinatorial operation and specify $k = 4$. The corresponding list of permutations for $n = 4$ is presented below:

Table: TABPERMUTATION Workfile: COMBINATORICS::Untitled\

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
1	4	4	4	4	4	4	3	3	2	1	2	1	3	3	2	1	2	1	3	3	2	1	2	1
2	3	3	2	1	2	1	4	4	4	4	4	2	1	3	3	1	2	2	1	3	3	1	2	
3	2	1	3	3	1	2	2	1	3	3	1	2	4	4	4	4	4	4	1	2	1	2	3	3
4	1	2	1	2	3	3	1	2	1	2	3	3	1	2	1	2	3	3	4	4	4	4	4	4
5																								
6																								

Table: TABARRANGEMENT Workfile: COMBINATORICS::Untitled\

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
1	1	1	1	1	1	1	2	2	2	2	2	2	3	3	3	3	3	3	4	4	4	4	4	4
2	2	2	3	3	4	4	1	1	3	3	4	4	1	1	2	2	4	4	1	1	2	2	3	3
3	3	4	2	4	2	3	3	4	1	4	1	3	2	4	1	4	1	2	2	3	1	3	1	2
4	4	3	4	2	3	2	4	3	4	1	3	1	4	2	4	1	2	1	3	2	3	1	2	1
5																								

To generate **combinations**, select "Combination" as the desired combinatorial operation and specify a value of k ($1 \leq k \leq 4$). The corresponding list of combinations for $n = 4$ and $k = 2$ is presented below:

Table: TABCOMBINATION Workfile: COMBINATORI...

	A	B	C	D	E	F	G
1	1	1	2	1	2	3	
2	2	3	3	4	4	4	
3							
4							

Conclusion:

In this work, we developed and implemented a combinatorics add-in for EViews and tested its performance. The results confirm the correct functioning of the implemented algorithms. All possible permutations, arrangements, and combinations are generated without repetition. This add-in allows EViews users to perform combinatorial computations directly within the software, without the need to use other statistical programs.