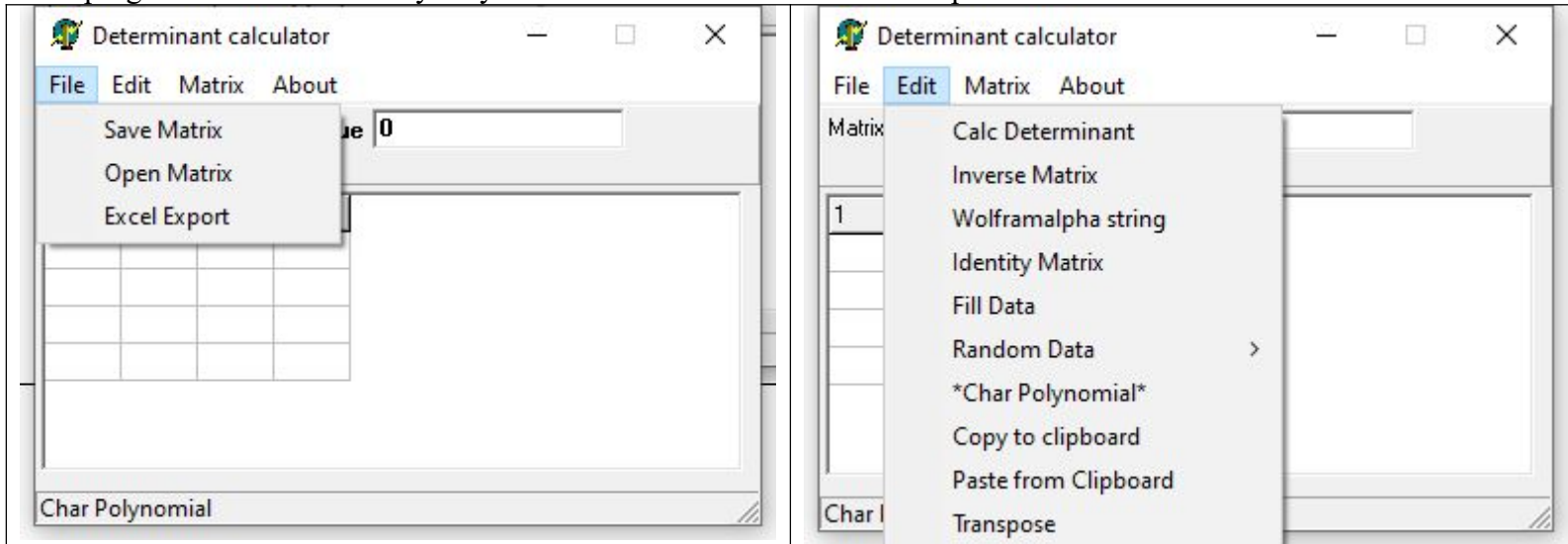


LinearAlgebra.Exe is a freeware educational software that allows you doing square Matrix calculation easy way by using a simple GUI interface . Currently as far as I know there are no software for matrix calculations using GUI interface . This software is very useful for students who are new in studying *Linear Algebra* allows you easily create a large matrix and find its **Determinant**, **Characteristic Polynomial** and its **Inverse** .

You can Save and Open any matrix , copy and paste supported , export to Excel as CSV file is also supported but can not read Excel files . In this version all matrix data must be a real number, no symbolic processing is supported.

This program is made to be very easy to use and intuitive to minimize help files



By clicking on Edit menu the Matrix the more extensive calculations shows up



In the main menu you see **Wolfram String(WS)** . The main purpose of it was for debugging during development to make sure my calculations match WolframAlpha calculations. I have decided to keep it there in case you doubt the

accuracy of calculations use WolframAlpha to double check.

Maximum size of Matrix is set to 12 . Calculations of Determinants exponentially takes time and my computer many take several minutes for 12x12 determinant calculation.

This is the screenshot of a 12x12 random data determinant, took around 220 msec

Determinant calculator

File Edit Matrix About

Matrix size Det value

1	2	3	4	5	6	7	8	9	10	11	12
0	11	9	5	-5	8	11	5	-3	10	5	6
6	3	-2	11	5	6	1	9	4	-7	11	-7
10	3	4	-6	-4	-4	-5	6	6	-5	6	3
-6	11	5	4	11	9	5	10	-1	9	-7	-5
-1	-1	1	12	6	10	10	-2	-4	3	10	6
11	12	6	-3	5	5	6	-6	-6	0	-6	-6
-2	10	0	10	3	10	-3	11	11	7	-5	1
6	12	-4	5	12	4	-6	9	1	-2	-5	2
1	6	12	10	9	-2	8	3	10	8	-7	7
3	-1	9	3	7	-6	7	8	5	11	9	-1
1	8	3	-1	4	7	0	4	12	7	-3	8
12	11	4	7	0	12	-6	-6	4	7	11	-6

Muls=239500800 T= msec 219546

The calculations. I have decided to keep it there in case you doubt the
The Characteristic Polynomial of this 10x10 matrix is shown on the bottom status line

Determinant calculator

File Edit Matrix About

Matrix size Det value

1	2	3	4	5	6	7	8	9	10						
3	2	-4	0	3	12	-1	0	3	12	-1					
10	0	10	7	12	6	7	12	6	7	12	6				
-7	1	3	8	-5	7	9	8	-5	7	9	8				
5	-3	3	2	-6	4	-6	2	-6	4	-6	2				
8	1	2	3	-4	4	2	4	-5	12	4	-5	12			
9	4	10	-2	6	3	-3	1	1	5	-3	1	1	5		
0	8	10	12	2	8	4	-2	2	10	4	-2	2	10		
-5	8	9	0	7	9	9	-6	-6	3	-6	-6	3	-6	-6	3
8	0	-4	0	-6	-4	7	3	-3	-7	3	-3	-7	3	-3	-7
11	3	11	7	11	3	2	-4	5	3	-4	5	3	-4	5	3

Matrixalgebra

Time=2875 msec

OK

$x^{10}-6x^9-759x^8-742x^7+85587x^6-649251x^5-10942052x^4+131986868x^3$

There are other **miscellaneous** menus that can be activated by right mouse click.

If you have any questions or suggestions you can contact me

motahed1@yahoo.com
www.facebook.com/motahed

Good luck
Happy new year 2025
Omid Motahed