Mariia Shyian
ID: 756283

Semestral Project user documentation

The program is constructed to help compute different operations with matrices (such as addition, multiplication, finding inverse, and determinant).

Getting started

The program is written in c# language.
To run the program it will need to install .NET 7.0 framework and IDE.

Welcoming window

First, it is necessary to type the command which you want to execute. At this step, one should choose from five existing options and type (without quotes):

- «add» — for adding two matrices together
- «mult» — for multiplying the first matrix with the second one
- «inversre» — to compute the inverse of the matrix
- «det» — to compute the determinant of the matrix
- «exit» — to terminate the program

Section: Matrix addition

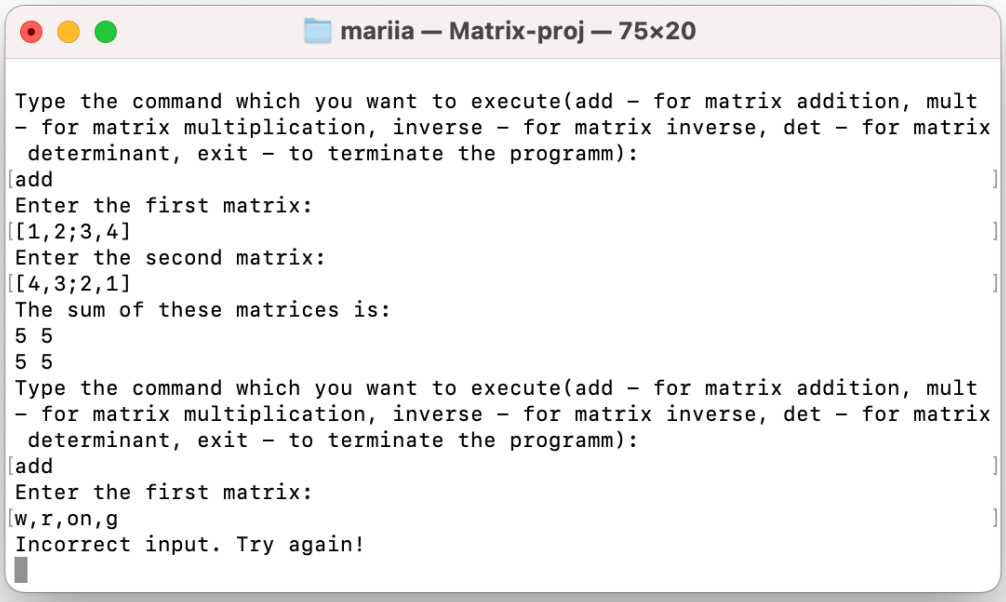
After choosing the «add» option and pressing *Enter*, one can start to insert both matrices one by one using the Mathlab notation (i.e. [a,b,c;d,e,f] — matrix of two rows and three columns with entries a-f).

The program will give the answer and go back to the starting window.

example of an operation result

If it is been a mistake in inserting data, one will receive a hint «Incorrect input. Try again!»

example of incorrect input below

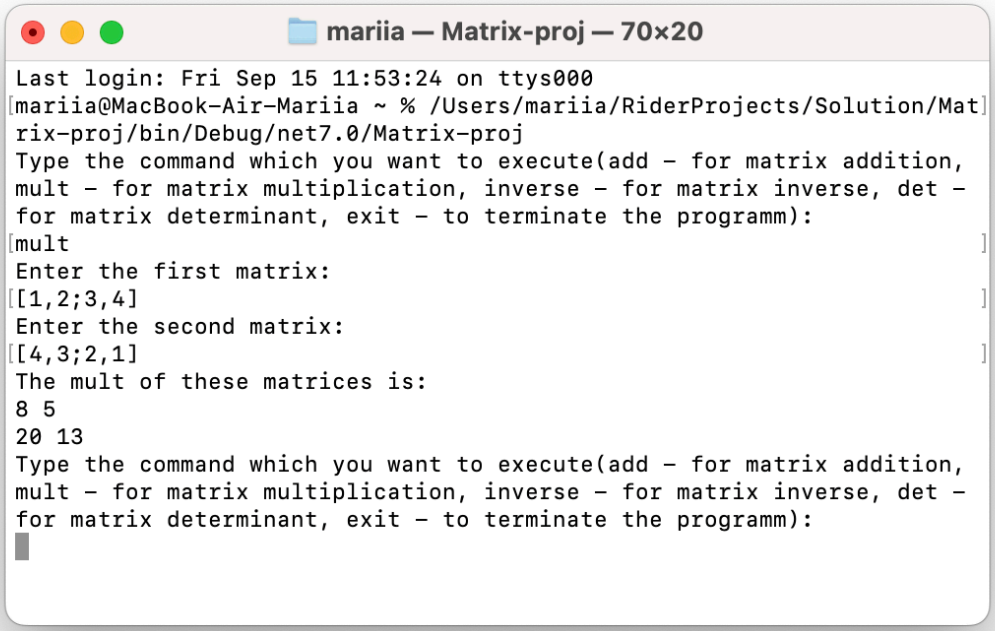


Section: Matrix multiplication

After choosing the «mult» option and pressing *Enter*, one can start to insert both matrices one by one using the Mathlab notation (i.e. [a,b,c;d,e,f] — matrix of two rows and three columns with entries a-f).

The program will give the answer and go back to the starting window.

example of an operation result



If it is been a mistake in inserting data, one will receive a hint «Incorrect input. Try again!»

FUN FACT:
It is only possible to multiply matrices with a proper size (the number of rows in the first matrix corresponds to the number of columns in the second one)

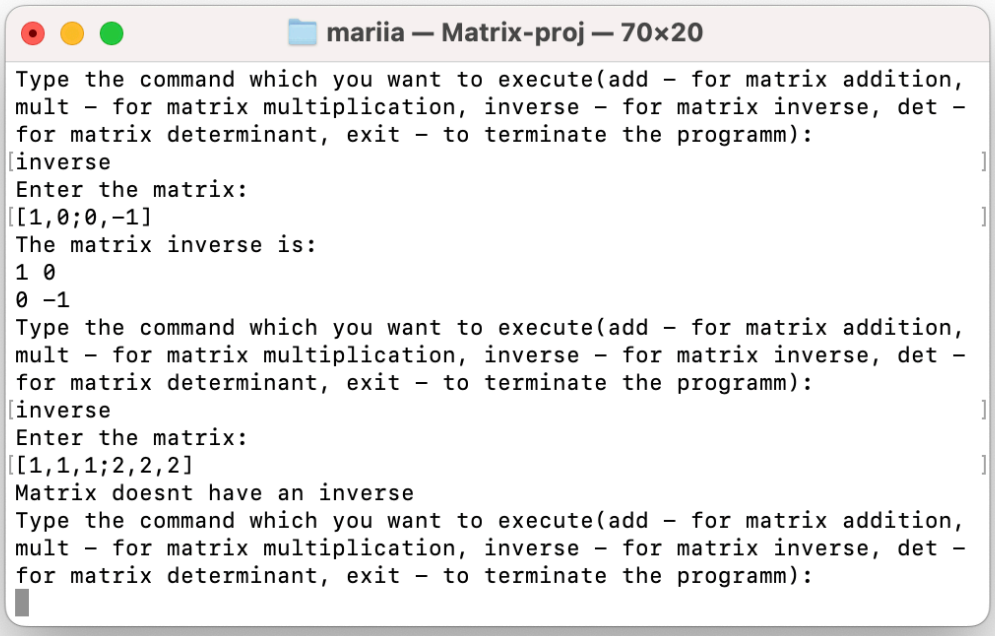
Section: Matrix inverse

After choosing the «inverse» option and pressing *Enter*, one can start to insert the matrix using the Mathlab notation (i.e. [a,b,c;d,e,f] — matrix of two rows and three columns with entries a-f).

The program will give the answer and go back to the starting window.

If it is been a mistake in inserting data, one will receive a hint «Incorrect input. Try again!»

example of an operation result



FUN FACT:
Not all matrices are invertible. It is only applied to the square matrices with n pivot columns.

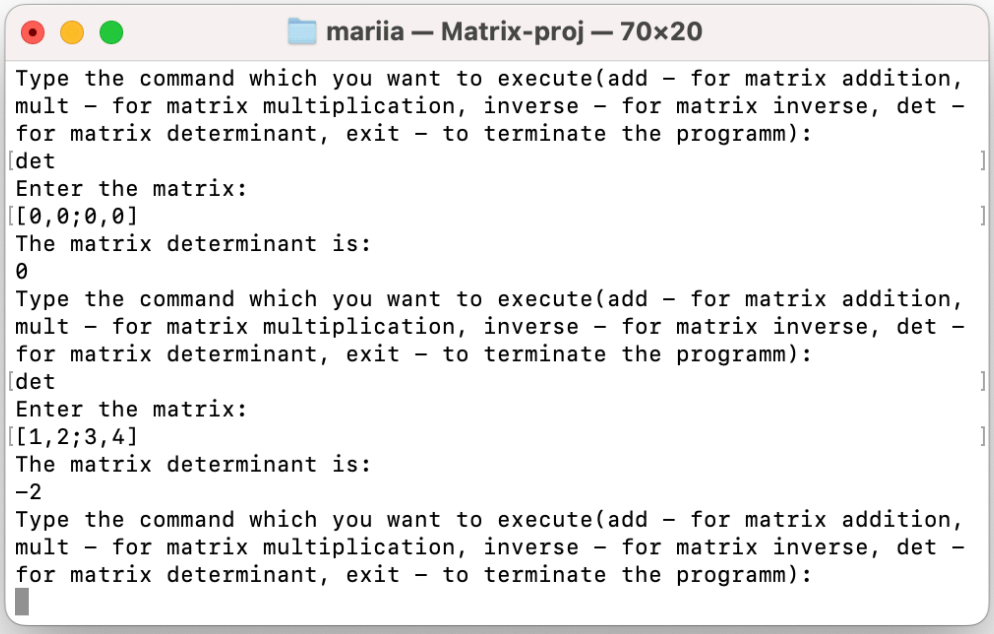
Section: Determinant of the matrix

After choosing the «det» option and pressing *Enter*, one can start to insert the matrix using the Mathlab notation (i.e. [a,b,c;d,e,f] — matrix of two rows and three columns with entries a-f).

The program will give the answer and go back to the starting window.

If it is been a mistake in inserting data, one will receive a hint
«Incorrect input. Try again!» Or «The determinant can't be calculated. Try again!»

example of an operation result



FUN FACT:
Not all matrices have a determinant. It is only applied to the square matrices.