

MATRICES

Version 0.2

Reference Manual

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February 14, 2010

Contents

1	Introduction	1
1.1	What Matrices is	1
1.2	What Matrices is not	1
1.3	Licence	1
1.4	History	1
2	Function set	2
2.1	Workspace related functions	2
2.2	Mathematical functions	3
3	Scripts	4
3.1	Scripts execution	4

1 Introduction

1.1 What Matrices is

MATRICES is a simple program that aims at being able to interpret MATLAB scripts.

1.2 What Matrices is not

MATRICES is not a MATLAB clone, and probly never will be.

1.3 Licence

1. This program is provided with no warranty of any kind - use at your own risk.
2. You may redistribute this program, but no fee can be charged.
3. You may not disassemble or interfere in any other way into the program.

1.4 History

The idea of creating a MATLAB-like program appeared in June 2009, and the first release was announced in February 2010.

2 Function set

2.1 Workspace related functions

list

list displays all available functions, including mathematical operators (+ - * / .* ./ .* ./).

who

lists all variables available in the workspace.

whos

lists all variables available in the workspace together with their values.

clear

removes all user-defined variables and resets built-in variables (like *pi*) to their original value.

tic

resets an internal stopwatch

toc

displays the time elapsed from last *tic* (or from the program start if no *tic* was used). The output format is: minutes:seconds:milliseconds_microseconds.

disp(M)

disp(M) displays value of a matrix *M*.

delayms(m)

delayms(m) pauses program for *m* milliseconds.

history

displays recently used commands.

version

displays program version information.

quit

exits the program

2.2 Mathematical functions

operators

$+$ $-$ $*$ $/$ do what they do in a matrix-wise way, while $.+$ $.-$ $.*$ $./$ operate in the element-wise way.

zeroes(rows,columns)

returns a rows-by-columns matrix filled with all zeroes

ones(rows,columns)

returns a rows-by-columns matrix filled with all ones

sum(M)

returns a sum of all elements in a matrix M .

mean(M)

returns an average value of all elements in a matrix M .

size(M)

returns a size of a matrix M .

random(a,b)

returns a (pseudo)random number in a range from a to b (both inclusive).

sqrt(M)

calculates a square root for each element in a matrix M .

transpose(M)

returns a transpose of a matrix M .

sub(M,rb,re,cb,ce)

returns a submatrix consisting of rows from rb to re and columns from cb to ce (all inclusive) from a matrix M .

det(M)

calculates a determinant of a matrix M .

3 Scripts

3.1 Scripts execution

There are two ways of executing scripts:

- from system command line
- from program

system command line

If program is executed with an argument being a valid file name, then the file is loaded and executed as a script. Then program exits.

program command line

There are two requirements that must be satisfied to run a script from a program command line. First, the script must have an extension of *.m* and, second, it must be located in directory *scripts*. To run such a script, write its name in the program command line.