MATLAB Important Commands

# To get information or help about specific command

doc <function\_name>

# For Loop

for v = 1.0:-0.2:0.0

disp(v)

end

# Concatenate Matrix

## horzcat

Create a 3-by-5 matrix, A.

A = magic(5);

A(4:5,:) = []

A =

17 24 1 8 15

23 5 7 14 16

4 6 13 20 22

Create a 3-by-3 matrix, B.

B = magic(3)\*100

B =

800 100 600

300 500 700

400 900 200

Horizontally concatenate A and B.

C = horzcat(A,B)

C =

17 24 1 8 15 800 100 600

23 5 7 14 16 300 500 700

4 6 13 20 22 400 900 200

# Data Conversion

(https://de.mathworks.com/help/matlab/data-type-conversion.html)

|  |  |
| --- | --- |
| [char](https://de.mathworks.com/help/matlab/ref/char.html) | Convert to character array |
| [cellstr](https://de.mathworks.com/help/matlab/ref/cellstr.html) | Convert to cell array of character vectors |
| [int2str](https://de.mathworks.com/help/matlab/ref/int2str.html) | Convert integers to character array |
| [mat2str](https://de.mathworks.com/help/matlab/ref/mat2str.html) | Convert matrix to character vector |
| [num2str](https://de.mathworks.com/help/matlab/ref/num2str.html) | Convert numbers to character array |
| [str2double](https://de.mathworks.com/help/matlab/ref/str2double.html) | Convert string to double precision value |
| [str2num](https://de.mathworks.com/help/matlab/ref/str2num.html) | Convert character array to numeric array |
| [native2unicode](https://de.mathworks.com/help/matlab/ref/native2unicode.html) | Convert numeric bytes to Unicode character representation |
| [unicode2native](https://de.mathworks.com/help/matlab/ref/unicode2native.html) | Convert Unicode character representation to numeric bytes |
| [base2dec](https://de.mathworks.com/help/matlab/ref/base2dec.html) | Convert text representing number in base N to decimal number |
| [bin2dec](https://de.mathworks.com/help/matlab/ref/bin2dec.html) | Convert text representation of binary number to decimal number |
| [dec2base](https://de.mathworks.com/help/matlab/ref/dec2base.html) | Convert decimal number to character vector representing base N number |
| [dec2bin](https://de.mathworks.com/help/matlab/ref/dec2bin.html) | Convert decimal number to character vector representing binary number |
| [dec2hex](https://de.mathworks.com/help/matlab/ref/dec2hex.html) | Convert decimal number to character vector representing hexadecimal number |
| [hex2dec](https://de.mathworks.com/help/matlab/ref/hex2dec.html) | Convert text representation of hexadecimal number to decimal number |
| [hex2num](https://de.mathworks.com/help/matlab/ref/hex2num.html) | Convert IEEE hexadecimal string to double-precision number |
| [num2hex](https://de.mathworks.com/help/matlab/ref/num2hex.html) | Convert singles and doubles to IEEE hexadecimal strings |
| [table2array](https://de.mathworks.com/help/matlab/ref/table2array.html) | Convert table to homogeneous array |
| [table2cell](https://de.mathworks.com/help/matlab/ref/table2cell.html) | Convert table to cell array |
| [table2struct](https://de.mathworks.com/help/matlab/ref/table2struct.html) | Convert table to structure array |
| [array2table](https://de.mathworks.com/help/matlab/ref/array2table.html) | Convert homogeneous array to table |
| [cell2table](https://de.mathworks.com/help/matlab/ref/cell2table.html) | Convert cell array to table |
| [struct2table](https://de.mathworks.com/help/matlab/ref/struct2table.html) | Convert structure array to table |
| [cell2mat](https://de.mathworks.com/help/matlab/ref/cell2mat.html) | Convert cell array to ordinary array of the underlying data type |
| [cell2struct](https://de.mathworks.com/help/matlab/ref/cell2struct.html) | Convert cell array to structure array |
| [mat2cell](https://de.mathworks.com/help/matlab/ref/mat2cell.html) | Convert array to cell array with potentially different sized cells |
| [num2cell](https://de.mathworks.com/help/matlab/ref/num2cell.html) | Convert array to cell array with consistently sized cells |
| [struct2cell](https://de.mathworks.com/help/matlab/ref/struct2cell.html) | Convert structure to cell array |

(https://de.mathworks.com/help/daq/functionlist.html?s\_cid=doc\_ftr)

|  |  |
| --- | --- |
| [decimalToBinaryVector](https://de.mathworks.com/help/daq/ref/decimaltobinaryvector.html) | Convert decimal value to binary vector |
| [binaryVectorToDecimal](https://de.mathworks.com/help/daq/ref/binaryvectortodecimal.html) | Convert binary vector value to decimal value |
| [hexToBinaryVector](https://de.mathworks.com/help/daq/ref/hextobinaryvector.html) | Convert hexadecimal value to binary vector |
| [binaryVectorToHex](https://de.mathworks.com/help/daq/ref/binaryvectortohex.html) | Convert binary vector value to hexadecimal |

# Open/Read/Write/Close Text Files

in\_filename='in\_file.txt';

out\_filename='out\_file.txt';

% open input file and read

in\_fid=fopen(in\_filename, 'r');

Data\_Original=fscanf(in\_fid, '%d', [1 Inf]);

fclose(in\_fid);

% open output file and write

out\_fid=fopen(out\_filename, 'w+');

fprintf(out\_fid, '%c', Data\_Original (:));

fclose(out\_fid);

**Read Data from Excel file and plot it**

%if package io is not installed, install it using

% pkg install -forge io

pkg load io

for idx = 6:19

printf("processing graph data, please wait ... year %02d\r", idx)

sheet\_i = sprintf('%02d\_%02d', idx, idx+1);

[d\_num, d\_str, raw] = xlsread('combined.xlsx', sheet\_i);

officedate = d\_num(1:end,1);

octavedate = officedate+datenum('30-Dec-1899');

val = d\_num(1:end,3);

plot(octavedate, val)

hold on

end

datetick('x','dd.mm.yyyy','keeplimits')

hold off

printf("\n done successfully\n")

EOF