Assignment 1

Every group will prepare a brief presentation of maximal 5 minutes, including a
short Matlab script with simple(!) examples, about the topic in the following list
that is assigned to them. Since we didn't talk about scripts today: a script is a file
with extension .m that contains a sequence of commands, just as you would type
them on your keyboard. It is executed by typing its name. See also doc script.

The presentation is a pdf file with the name Assignment01_Groupxx.pdf, where xx is
the 2-digit group number (01,02,...,16). The script is named Assignment01_Groupxx.m.
Both files have to be packed into a zip file named Assignment01_Groupxx.zip and
sent to rudolf.fruehwirth@oeaw.ac.at until Wednesday 6pm at the latest. Submissions with names that do not conform to the rule or are late will not be accepted.

Topics:

- *Group 1*
  Vectors: Inner and outer product, norm, sum, difference, product:
  dot, cross, norm, sum, cumsum, diff, prod, cumprod

- *Group 2*
  Vectors: min, max, sort, unique

- *Group 3*
  Character vectors: char, ischar, strcat, strfind, findstr, strcmp

- *Group 4*
  Character vectors: strsplit, strrep, contains, erase

- *Group 5*
  Convert a numerical value to a character vector: num2str, possible formats;
  evaluate a character vector: eval

- *Group 6*
  Matrices: empty matrix, isempty, transposition, horizontal and vertical concatenation

- *Group 7*
  Special matrices: eye, zeros, ones, magic, rand

- *Group 8*
  Adressing of Matrix elements, submatrices, diag, extension of matrices, replication: repmat

- *Group 9*
  Matrix algebra:
  plus (+) • minus (−) • times (∗) • rdivide (/) • ldivide (\) • power (^)

- *Group 10*
  Pointwise operations on matrices: pointwise multiplication, division and power

- *Group 11*
  Matrices: Determinant, trace, rank, inverse, condition, pseudoinverse: det, rank, inv, cond, pinv

- *Group 12*
  Matrices: norm, column sum, row sum, eigenvalues, eigenvectors: norm, sum, eig

- *Group 13*
  Branches: if, else, elseif, end, switch

- *Group 14*
  Loops: for, while, break, continue

- *Group 15*
  Error handling: error, try, catch

- *Group 16*
  Scripts: workspace, debugging: dbstop, dbclear, dbstep, dbcont, dbquit