Assignment 1

➽ Read the assignment carefully! Remember that the first line of a script must be the call to the script preamble.

A. Mandatory

Write a MATLAB script Assignment01A_IDxx.m[1] that that solves the following exercise:

Compute the ordered list of all divisors of a natural number n by checking all integers between 1 and $n/2$ whether they divide n with zero remainder. Check that your results is identical to the one given by the function divisors. Test the script with $n = 108927$ and display the results in the command window. *(2 pt)*

☞ Useful functions: mod,all,assert

☞ No loops are allowed. Remember that mod, like most MATLAB functions, accepts vector arguments!

B. Mandatory Write a MATLAB script Assignment01B_IDxx.m[1] that solves the following exercise:

Create a magic square matrix M of dimension n (see function magic). Create two matrices Meven/Modd by replacing the odd/even elements of M by 0. Check that Meven+Modd is equal to M. Check that the nonzero entries of Meven are the even integers from 2 to n^2 and that the nonzero entries of Modd are the odd integers from 1 to n^2. Run the script with $n = 6$. *(2 pt)*

☞ Useful functions: nonzeros,sort,all,assert

➽ Please make sure that the relevant results and *only* those are shown in the output to the command window, so that I can check the correctness quickly and without digging into the code.

➽ Submit the scripts to rudolf.fruehwirth@oeaw.ac.at until 5pm on March 17. Any violation of the naming convention will lead to the rejection of the submission! If I ask for a correction, please submit the corrected version until 5pm on March 21.

[1] xx is your 2-digit ID number, see TISS for the list.