Submission Guidelines for Homework 1

VU Numerical High Performance Algorithms, WiSe 2018

due date: 22.10.2018, 18:00

1. Basics:
   - Octave users: please use *version 4.4* or higher
   - Matlab users: please use *version 9.2 (R2017a)* or higher
   - No global variables allowed.
   - Pay attention to the interface definitions (i.e., use the specified terms. In/output parameters must be in the specified order!)
   - Your routines should always check the number and types of input arguments.
   - Do not plot results in predefined routines! Plot results in scripts or self defined routines only.
2. Interface:
   - For the *blocked* and *unblocked* LU factorization routines implement the following interfaces:

$$[A, P] = plu(A, n) \qquad (blocked)$$
$$[A, P] = uplu(A, n) \qquad (unblocked)$$

     - Input: $n \times n$ matrix A, n
     - Output:
       - $n \times n$ matrices L and U stored in the array A
       - the permutation matrix P
   - Additionally, write evaluation-routines that call and evaluate your *lu* implementations:

$$[rn, foe, fae, t] = pluStats(A, n) \qquad (blocked)$$
$$[rn, foe, fae, t] = upluStats(A, n) \qquad (unblocked)$$

  - Input: $n \times n$ matrix A, n
  - Output:
    * the relative residual norm rn
    * the relative forward error foe
    * the relative factorization error fae
    * the runtime t
- Write a script *assignment1.m* to call your routines and plot your results.

3. Submission:
   - Upload a single zip archive with all your source code files and your report (as a single PDF file named *report.pdf* with all plots and discussions of results) on the course page in Moodle.
   - Name your archive `a<matriculation_number>.zip` (e.g. *a01234567.zip*)
   - Directories in the archive are not allowed.
   - A complete submission should include the following files:
     a) Routine(s): *plu.m, pluStats.m, uplu.m, upluStats.m*, self defined routines (optional)
     b) Script(s): *assignment1.m*
     c) Documentation: *report.pdf*