HPC - Lab # 1 - HPC notions
& Beginning of Home Work - Preparation of a short survey

1. Presentation of scientific publications – Ranking & assessment of research production (Ex: French AERES Classification: ACL, ACLN, OS, ACTI, ACTN, OV, DO, INV, AFF, AP…) + patents & APPS – (done on the white board).

2. Discover some research mining tools :

   - Google Scholar : https://scholar.google.fr/
   - In France HAL – Biblio STIC – Biblio Vie (or Biblio Something… when in a CNRS Laboratory)
   - Business site : Science Direct : www.sciencedirect.com
   - Microsoft Academic Search : https://academic.microsoft.com/

   - Home page of researchers: google “First-Name Last-Name Home Page”
     i. not always available,
     ii. not always up to date (ex: updated once a year with a new reference list)
     iii. web design style doesn’t care – see Makoto Mastumoto Home Page
   - Wiki like information

3. HOME WORK: Look for terms & acronyms in the HPC domain. Propose definitions and give if you can 2 scientific references for your definition (hard bibliography references are preferred to ephemeral Web-based urls).

    - Supercomputer – see “top 500”
    - Computing cluster
    - Computing grid
    - Constellations
    - SMP
    - Distributed Memory
    - Shared Memory
    - Granularity
    - Scalability
    - Speedup
    - GP-GPU
    - BigData
    - MapReduce
    - Hadoop

4. Keep your lab notebook on the previous points for the final exam.

5. Prepare a 3 pages short “research” paper that will be a small survey on an HPC domain/concept/technique of your choice. This takes time, organize yourself to meet the following hard deadline: **a printed version is expected for November 8th 2018.** The first thing to do is to select an HPC domain or concept to survey.

    - At your disposal: examples of surveys to understand what they are. A short one on Grid-Computing for Life Science is proposed, it was scientific conference paper. Another longer survey example is given for the parallelization of random streams – in a Scientific Journal. A longer example in French is given dealing with reproducibility.
    - Guides on how to write papers (including correct reference citations with names [Name YYYY] using a Chicago like style guide (numbered references are also in use depending on Journals or Conferences.
    - **Follow strictly a research paper style**. Example format are given : either an IEEE or WSC paper style (but always use Chicago style for references and not numbered references).

Additional documents for this first Lab can be found at: www.isima.fr/~hill/HPC