Institute of Scientific Computing   Winter Term 2018/19

Technische Universität Braunschweig   Assignment 5

Dr. Thilo Moshagen   Due date: 23.11.2018

Dr. Hanna Veselovska

Introduction to Scientific Computing

Exercise 1:   **25 points**

Read slides from lecture 5 from homepage. Implement Jacobi and Gauss-Seidel-Method using the files provided in the svn and fulfilling the unit tests given also there. Make convergence plot (Log scale). To get the code for templates and test, make a directory, checkout *svn checkout --username [yNumber] https://svnstud.sc.cs.tu-bs.de/svn/teaching/ode1/Feedback/Group01/project01* there. Then checkout

svn   checkout   --username   group##   https://svnstud.sc.cs.tu-bs.de/svn/teaching/ode1/Group01/project01

into another repository. Copy all Mfiles to it and type

svn add *.m

svn commit

(In brief: If you type

svn update

(nothing more) in *project01*, then everything on the server comes down, if you type *svn commit*, then all local changes are written to the server.

The log message editor might be a problem. Control-O saves the commit message to some arbitrary file (and to log file), control -x leaves the editor and finishes the commit.

There is a little manual in studIp also.

Exercise 2: *Stability and Jacobi–matrix*   **11 points**

Using the eigen values of the Jacobi–matrix investigate the stability of these difference and differential systems you had before:

(1) Assignment 3, Exercise 1 a), b), c);   (11 points)