Release notes for the "Simulator"

Version 1

Providing the general classes and testing the concepts, especially the graphical representation.

Version 2

Implementation of the growth models. Concept of the interface for the implementation of concrete dynamic systems.

Version 3

Implementation of mathematical billiards. Transition to the parallel languages D/E. Provision of the Language Manager and the corresponding resource files for the individual languages.

Version 4

Implementation of numerical methods and coupled pendulums. Extension of the graphical representations for the numerical methods.

Version 5

Implementation of the iteration in the complex level. Optimization of performance through asynchronous implementation of the iteration in a separate thread.

Version 6

Version 6.0

Complete revision of the architecture. Outsourcing of the logic from the Windows forms to a controller between Windows form and interface. Introduction of abstract classes between the interface and the individual dynamic systems. Outsourcing of code copies to separate classes (e.g. ClsDiagramAreaSelector). Comprehensive testing and stabilization of the program.

Version 6.1

The FrmPopulation, which shows the size of a population in a circle diagram, has been added to the growth models. This is intended for presentations that do not require a great deal of prior mathematical knowledge.

Version 6.2

The FrmMandelbrotMap has been added for generating Julia sets. You can mark a point in the Mandelbrot set with the mouse and then see the corresponding Julya quantity on the right side.

Version 7

Version 7.0

Implementation of the simulation of the Newtonian universe, including our planetary system. In addition, implementation of the ‘normalised universe’, which should support the study of stable periodic orbits with three or more stars.

Version 7.1

Implementation of the iteration of linear mappings. Implementation of strange attractors: Lorenz attractor, Roessler attractor, Thomas attractor. Furthermore, Hopf bifurcation diagram of the same, which is only interesting for the Lorenz attractor.

Version 7.2

All forms are resizable.

Version 8

Version 8.0

Lindenmayer systems were implemented as an example of fractal sets.

In order to better explain Newton iteration during demonstrations, the *SingleNewtonIteration* was also implemented, in which a starting point can be selected in the complex plane, which is then iterated point by point.