In the presented bachelor's thesis we study behavior of dynamical systems. Some interesting attributes of dynamical systems are presented using programs written by the author. For computational part of the programs MATLAB was used and for presentation of output data MATLAB in combination with GNUPLLOT were used.

Basic terms in chaos theory are explained with examples. In one-dimensional case we focus on the logistic map and we demonstrate a transition to chaos on it. In two-dimensional space we study the Hénon map and in three-dimensional space we take a closer look at some interesting attributes of the famous Lorenz system.