Main topic of this thesis is solving interval linear systems. At first, we
describe the structure of the solution set, which is the basis of several algorithms
for computing interval hull of the solution set. Although computation of
the interval hull is NP-hard problem, there exist algorithms which are not apriori
exponential. One such algorithm is Jansson’s algorithm which we implemented
in MATLAB with utilisation of the interval toolbox INTLAB. We optimised the
method and compared it to related implementations. Test results show that our
implementation performs better in comparison on interval systems with solution
set that is intersecting with many orthants. The opposite holds true when
the amount of visited orthants is low. We describe a method of verified linear
programming, which is necessary for producing rigorous results.