This diploma thesis deals with short-term interest rate models. Many interest models have been developed in the last decades. They focus on accuracy of prediction. The pioneering one was developed by Vasicek in 1977 followed by the work of others. Nowadays these vary in their level of comprehensiveness and technical difficulty. The main aim of the thesis is to introduce not only a basic Vasicek's work but also more sophisticated models such as Brennan-Schwartz or Longstaff-Schwartz.