Sentiment analysis is concerned with automatic extraction of subjective information from text. The goal of this thesis is to predict the intensity of attitude in Czech texts. In order to solve this task, we prepared a dataset of movie reviews by users of Czech-Slovak Film Database. We compare several machine learning methods, focusing on feature extraction from text data. Using convolutional neural networks and corpus-dependent training of word embeddings, we surpassed basic models and achieved accuracy similar to the most recent results in this field. We also analyze the logistic regression model in order to compare the vocabulary used in reviews with different ratings.