The purpose of this bachelor thesis is to summarize the most important results on bidirectional heuristic search and to bring some new thoughts. Two algorithms are described which attempt to improve the best algorithms in this field. The algorithms were experimentally compared with a unidirectional algorithm. According to the result of the comparison, we can state that bidirectional heuristic algorithms can be much faster than unidirectional heuristic algorithms. The text also describes how to solve some problems by shortest-path algorithms and how to make a good heuristic. A program which can solve a generalized puzzle was created as a demonstration.