

This diploma thesis deals with the design and implementation of a highly efficient universal index of textual documents. Universal stands for an opportunity to configure structures of index records and methods of the index data processing (without recompiling an application). Furthermore, it means that the index library can be used even for other purposes, for example to implement a thesaurus, to represent bibliographic relationships or even for generic representation of a specific class of functions in other areas than documentographic systems. The index is implemented using the dynamic inverted file which can be efficiently updated without need of the data structure rebuilding. Specific issue is on-line index compression and failure recovery via the transactional log. It is shown that the amortized complexity of the data structure is linear. This fact is afterwards experimentally verified. Other experiments address the compression methods and the impact of the data structure parameters on its efficiency. The diploma thesis contains the implementation of the universal index in C/C++. It has been tested in the Linux and Windows XP environments.