Abstractions for Concurrent Consensus - Go Implementation

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Consensus is a problem in any system using concurrency, such as systems distributed over a network, multi-core machines, or single-core machines with multi threading. This dissertation utilizes the theoretical foundations provided for abstractions of Concurrent Communicating processes and proposes a library designed to support consensus among communicating processes. The library is implemented in Go programming language, which supports communication over channels and shared memory between threads. The library is designed to provide an abstraction where a user can easily design the processes while the library handles communication needed for the transactional nature of these processes. The challenges and design approach of the library is discussed. Further, the analysis of implementation is performed in terms of its correctness, performance and usability.