Data Trust Framework Using Blockchain Technology and Adaptive Transaction Validation

**CHAPTER-1**

**ABSTRACT**

Trust is the main barrier preventing widespread data sharing. The lack of transparent infrastructures for implementing data trust prevents many data owners from sharing their data and concerns data users regarding the quality of the shared data. Data trust is a paradigm that facilitates data sharing by forcing data users to be transparent about the process of sharing and reusing data. Block chain technology proposes a distributed and transparent administration by employing multiple parties to maintain consensus on an immutable ledger. This paper presents an end-to-end framework for data trust to enhance trustworthy data sharing utilizing block chain technology. The framework promotes data quality by assessing input data sets, effectively manages access control, and presents data provenance and activity monitoring. We introduce an assessment model that includes reputation, endorsement, and confidence factors to evaluate data quality. We also suggest an adaptive solution to determine the number of transaction validators based on the computed trust value. The proposed data trust framework addresses both data owners’ and data users’ concerns by ensuring the trustworthiness and quality of the data at origin and ethical and secure usage of the data at the end. A comprehensive experimental study indicates the presented system effectively handles a large number of transactions with low latency.