

databases and will implement a prototype to be used to perform a series of experiments to measure the performance cost for applying the concurrency control in multilevel relational databases.

This book will also define the implementation of the data manipulation operations for the instance-based multilevel security model (IBMSM) since the IBMSM proposes two layers: the instance layer and the class layer.

1.5 Book Organization

- In Chapter 2, the basic concept of multilevel relational database security will be discussed. This chapter will explain the models that support multilevel database security and will introduce a comparative study between the multilevel database security models.
- In Chapter 3, the implementation of multilevel relational database security models will be illustrated and the performance study will be instrumented to compare the multilevel secure database (MLS/DBMS) models.
- In Chapter 4, an overview of the encryption algorithms that are applied will be presented.
- In Chapter 5, the encryption-based multilevel security database model will be described and the implementation of a working prototype to be used as a research tool for studying principles and mechanisms of the model will be explored.
- In Chapter 6, the formal model for the data manipulation operations in the encryption-based multilevel security database model will be presented and the mathematical proofs of soundness, completeness, and security will be proved.
- In Chapter 7, the concept of concurrency control in multilevel security for relational databases will be introduced.
- In Chapter 8, the implementation of the data manipulation operations for the instance-based multilevel security model (IBMSM) will be defined.
- In Chapter 9, the C# and Microsoft SQL server source codes for the implementation of multilevel relational database security models will be presented.