Part 2
Oracle Tools for Tuning and Optimization

Part 2 consists of seven chapters that cover the Oracle tools for monitoring the performance of a database and tuning and optimizing its internal and external levels, as needed. This part is specific to Oracle 8i with a glimpse into Oracle 9i in Chapter 10. The goal of Part 2 is to provide the underlying tuning principles and a repertoire of Oracle tools to implement these principles. Chapters 4 to 7 discuss the tuning of the internal level and Chapters 8 and 9 that of the external level. Chapter 10 describes several features of Oracle 8i not covered in the earlier chapters and gives an overview of several tuning features of Oracle 9i.

Chapter 4, Internal Level of an Oracle Database, introduces the structure of the internal level comprising an instance and a database. The instance consists of a set of memory-resident data structures and a set of background processes. Their tuning principles are treated in detail in Chapter 6, Tuning of Memory-Resident Data Structures. The database consists of a set of disk-resident data structures, namely, the tablespaces, tables, indices, etc. Their tuning principles are treated in detail in Chapter 5, Tuning of Disk-Resident Data Structures. Chapter 7, Oracle Utility for Tuning and Optimization, involves a detailed discussion of the two Oracle diagnostic tools UTLBSTAT and UTLESTAT.

Chapter 8, Optimization of the External Level of an Oracle Database, introduces the mathematical theory underlying the query optimization process. This is followed by a detailed treatment of Oracle’s optimization tools such as EXPLAIN PLAN, SQLTRACE and TKPROF, and AUTOTRACE. Then, Chapter 9, Query Tuning and Optimization Under Oracle 8i, discusses the rule-based and the cost-based optimizers, various joining techniques, and the use of hints in queries to suggest specific query execution plans.

Chapter 10, Special Features of Oracle 8i and a Glimpse into Oracle 9i, covers several special features of Oracle 8i pertaining to performance tuning and optimization that were not covered in the earlier chapters. It closes with an overview of some of the features of Oracle 9i.