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Unit	Description	from
I	The Extended Entity Relationship Model and Object Model: The ER model revisited, Motivation for complex data types, User defined abstract data types and structured types, Subclasses, Super classes, Inheritance, Specialization and Generalization, Constraints and characteristics of specialization and Generalization, Relationship types of degree higher than two.	rk ch 25 25.1-25.3 en ch3 3.2 to 3.5 en ch 4 4.1 to 4.5, 4.7
II	Object-Oriented Databases: Overview of Object-Oriented concepts, Object identity, Object structure, and type constructors, Encapsulation of operations, Methods, and Persistence, Type hierarchies and Inheritance, Type extents and queries, Complex objects; Database schema design for OODBMS; OQL, Persistent programming languages; OODBMS architecture and storage issues; Transactions and Concurrency control, Example of ODBMS	en ch 11 11.1 to 11.6
III	Object Relational and Extended Relational Databases: Database design for an ORDBMS - Nested relations and collections; Storage and access methods, Query processing and Optimization; An overview of SQL3, Implementation issues for extended type; Systems comparison of RDBMS, OODBMS, ORDBMS	rk ch 25 25.6 - 25.9 en ch 13 13.4 - 13.5
IV	Parallel and Distributed Databases and Client-Server Architecture: Architectures for parallel databases, Parallel query evaluation; Parallelizing individual operations, Sorting, Joins; Distributed database concepts, Data fragmentation, Replication, and allocation techniques for distributed database design; Query processing in distributed databases; Concurrency control and Recovery in distributed databases. An overview of Client-Server architecture	RK ch 21 21.1 - 21.3 En ch 24 24.1 - 24.6
V	Databases on the Web and Semi Structured Data: Web interfaces to the Web, Overview of XML; Structure of XML data, DTD, XML Schema, XQuery, XSLT, Storage of XML data, XML applications, XML DOM, The semi structured data model, Implementation issues, Indexes for text data Enhanced Data Models for Advanced Applications: Active database concepts. Temporal database concepts.; Spatial databases, Concepts and architecture; Deductive databases and Query processing; Mobile databases, Geographic information systems.	RK ch 22 22.3.5 - 22.3.6, 22.4 SK ch 10 10.1 - 10.7 EN ch 23 23.1 - 23.3 EN ch 25 EN Ch 27 27.2 - 27.4