



CONTENTS

	PREFACE TO THE THIRD EDITION	ix
PART 1	FUNDAMENTALS	1
	1 Database Systems as Abstract Machines	3
	2 Data and Information	19
	3 Database, DBMS and Data Model	30
	4 Database Systems, ICT Systems and Information Systems	48
	5 Database Systems and Electronic Business	62
	6 Data Management Layer	76
PART 2	DATA MODELS	87
	7 Relational Data Model	89
	8 Object-Oriented Data Model	113
	9 Deductive Data Model	125
	10 Post-Relational Data Model	143
PART 3	DATABASE MANAGEMENT SYSTEMS (DBMS) – INTERFACE	155
	11 SQL – Data Definition	157
	12 SQL – Data Integrity	168
	13 SQL – Data Manipulation	177
PART 4	DATABASE DEVELOPMENT	193
	14 Database Development Process	195
	15 Requirements Elicitation	208

	16	Entity-Relationship Diagramming	219
	17	Object Modelling	246
	18	Normalisation	269
	19	Physical Database Design	292
	20	Database Implementation	309
PART 5		PLANNING AND ADMINISTRATION OF DATABASE SYSTEMS	321
	21	Strategic Data Planning	323
	22	Data Administration	334
	23	Database Administration	343
PART 6		DATABASE MANAGEMENT SYSTEMS (DBMS) – TOOLKIT	355
	24	DBMS-Toolkit – End-User Tools	357
	25	DBMS-Toolkit – Application Development Tools	365
	26	DBMS-Toolkit – Database Administration Tools	375
PART 7		DATABASE MANAGEMENT SYSTEMS – KERNEL	381
	27	Data Organisation	383
	28	Access Mechanisms	395
	29	Transaction Management	403
	30	Other Kernel Functions	418
PART 8		DATABASE MANAGEMENT SYSTEMS – STANDARDS AND COMMERCIAL SYSTEMS	425
	31	Post-Relational DBMS – SQL3	427
	32	Object-Oriented DBMS – ODMG Object Model	436
	33	Microsoft Access	446
	34	ORACLE	457
	35	O ₂ DBMS	467
PART 9		TRENDS IN DATABASE TECHNOLOGY	475
	36	Distributed Processing	477
	37	Distributed Data	486
	38	Parallel Databases	498
	39	Complex Data	512

PART 10	APPLICATIONS OF DATABASE SYSTEMS	525
40	Data Warehousing	527
41	On-Line Analytical Processing	539
42	Data Mining	547
43	Databases and the Web	554
	BIBLIOGRAPHY	567
	GLOSSARY AND INDEX	572