DACUM Research Chart for Database Specialist

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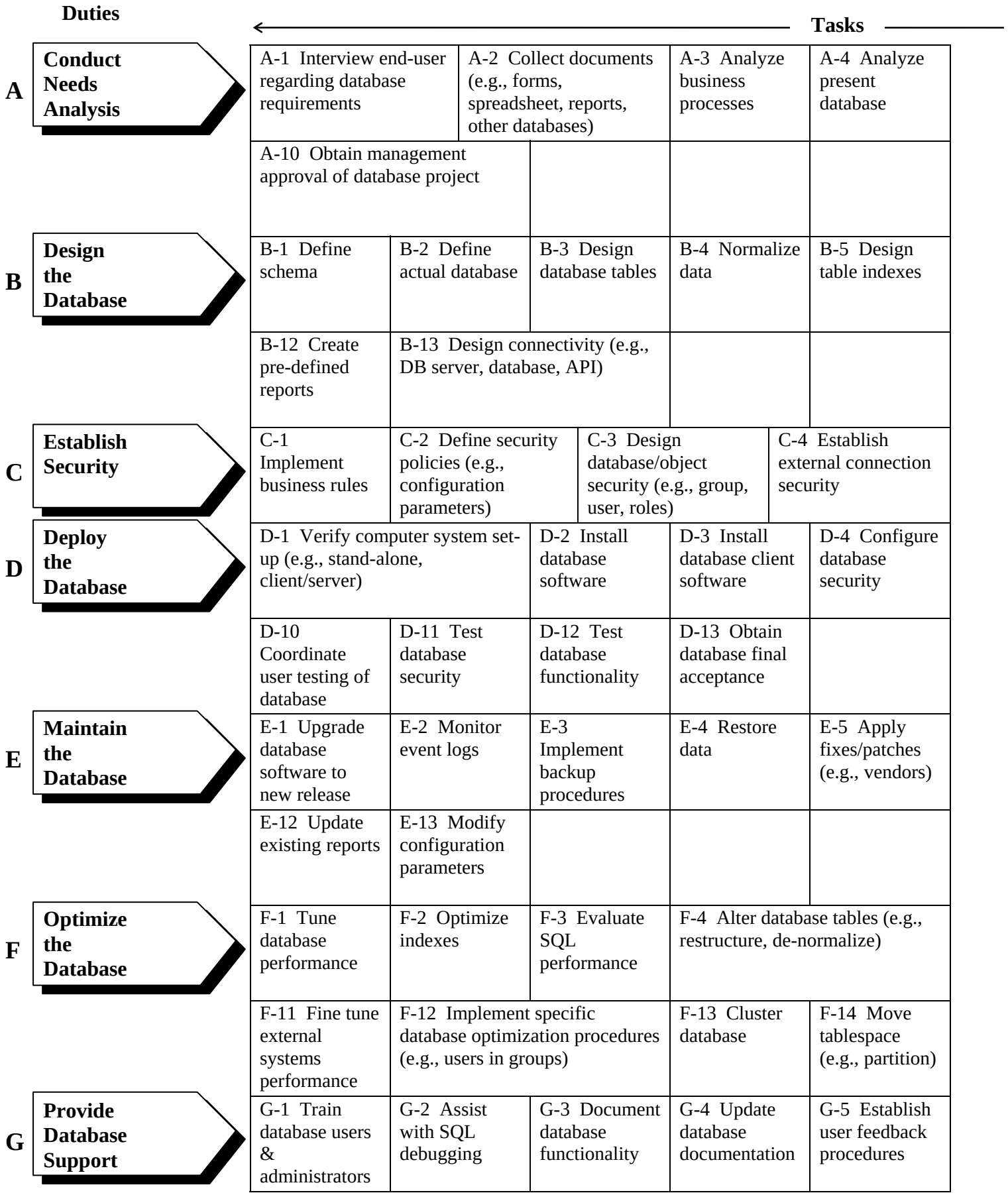
Duties
Tasks
A
Conduct Needs Analysis
A-1 Interview end-user regarding database requirements
A-2 Collect documents (e.g., forms, spreadsheet, reports, other databases)
A-3 Analyze business processes
A-4 Analyze present database
A-10 Obtain management approval of database project
B
Design the Database
B-1 Define schema
B-2 Define actual database
B-3 Design database tables
B-4 Normalize data
B-5 Design table indexes
B-12 Create pre-defined reports
B-13 Design connectivity (e.g., DB server, database, API)
C
Establish Security
C-1 Implement business rules
C-2 Define security policies (e.g., configuration parameters)
C-3 Design database/object security (e.g., group, user, roles)
C-4 Establish external connection security
D
Deploy the Database
D-1 Verify computer system set-up (e.g., stand-alone, client/server)
D-2 Install database software
D-3 Install database client software
D-4 Configure database security
D-10 Coordinate user testing of database
D-11 Test database security
D-12 Test database functionality
D-13 Obtain database final acceptance
E
Maintain the Database
E-1 Upgrade database software to new release
E-2 Monitor event logs
E-3 Implement backup procedures
E-4 Restore data
E-5 Apply fixes/patches (e.g., vendors)
E-12 Update existing reports
E-13 Modify configuration parameters
F
Optimize the Database
F-1 Tune database performance
F-2 Optimize indexes
F-3 Evaluate SQL performance
F-4 Alter database tables (e.g., restructure, de-normalize)
F-11 Fine tune external systems performance
F-12 Implement specific database optimization procedures (e.g., users in groups)
F-13 Cluster database
F-14 Move tablespace (e.g., partition)
G
Provide Database Support
G-1 Train database users & administrators
G-2 Assist with SQL debugging
G-3 Document database functionality
G-4 Update database documentation
G-5 Establish user feedback procedures

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A-5 Review analysis of hardware, software, & networking needs	A-6 Determine database performance requirements	A-7 Estimate database project cost (e.g., licensing)	A-8 Prepare database functional specification documents	A-9 Determine personnel requirements (e.g., support, program		
B-6 Establish table relationships	B-7 Design database system configuration	B-8 Design database backup/restore system	B-9 Program business rules (e.g., data integrity)	B-10 Create database interfaces (e.g., queries, SQL, trigger, stored procedures)	B-11 Design data entry forms (e.g., layout, workflow)	
C-5 Establish dataset encryption						
D-5 Migrate database structures from development to production		D-6 Load live data (e.g., load, restore, import)	D-7 Implement backup database procedures (e.g., redundancy)		D-8 Test data recovery procedures	D-9 Develop data replication
E-6 Troubleshoot database problems	E-7 Troubleshoot bad data (e.g., corrupt, duplicate, inaccurate)	E-8 Modify database structure	E-9 Administer database security	E-10 Archive historical data	E-11 Manipulate data (e.g., corrupt, duplicate, inaccurate)	
F-5 Configure view & procedures (e.g., stored procedure, trigger)		F-6 Analyze performance data	F-7 Define benchmarks	F-8 Document database performance	F-9 Evaluate concurrency issues	F-10 Flag data for archiving
G-6 Practice disaster recovery	G-7 Setup database help desk	G-8 Create ad hoc queries (e.g., reports, data files, views)				

Duties ← **Tasks** →

H Continue Professional Development

H-1 Build a reference library	H-2 Review professional journals	H-3 Participate in SIGs	H-4 Participate in professional organizations	H-5 Network with professionals (e.g., PAC)
H-6 Obtain professional certifications	H-7 Research emerging technologies	H-8 Participate in workshops/ seminars/ conferences	H-9 Participate in training opportunities	H-10 Develop career plan

General Knowledge and Skills

Flow charting
Communication skills
People skills
Training skills
Troubleshooting skills
Organizational skills
Operating systems
Data conversion skills
Problem-solving skills
Critical thinking skills
Programming concepts
SQL
UML
Knowledge of database types
Knowledge of database vendors

Worker Behaviors

Logical
Procedural
Multi-tasking
Good listener
Good trainer
Patient
Able to work independently and on a team
Responsive
Responsible
Mentally alert
Hard working
Detail oriented
Adaptable
Proactive
Good troubleshooter
Quick learner
Visualizer

Tools, Equipment, Supplies and Materials

Computer system
S/W manuals
Internet access
Database s/w
Backup storage device
Tool kit (screwdriver, pliers)
Beeper
Text editor
Monitoring tool
Cell phone
Applications s/w:
- word processing
- spreadsheets
- diagramming
- email
- user interface

Future Trends and Concerns

Greater need for database specialists to understand web technologies
Greater emphasis on disaster recovery technology
XML technology will be more widely used in databases
Data security
Data grids/clusters

Acronyms

S/W software
H/W hardware
DB database
SIG Special Interest Group
XML Extended Mark-up Language
SQL Structured Query Language
UML Unified Markup Language
API Application Program Interface
PAC Program Advisory Committee