

Web Contents for *Database Design Book*

Link to the Authors' Web Site

The Perpetual Technologies' web site, <http://www.perptech.com>, contains information about relational database technology, with specialization in Oracle. This web site also contains various scripts and examples of SQL and UNIX shell code that may be downloaded and customized to meet your needs.

Links for More Information on Database Models

The following web links contain additional information for the reader interested in the pursuit of concepts associated with other database models, mainly object-oriented and object-relational.

- <http://www.dwinfocenter.org>
Provides information on tools and techniques to design, build, maintain, and retrieve information from a data warehouse.
- <http://www.intelligententerprise.com>
Shows Intelligent Enterprise's Database Programming and Design online with outstanding articles for database design and development.
- <http://www.dacs.dtic.mil/techs/oodbms2/oodbms-toc.shtml>
Provides standard information and concepts on Object-Orientated Database Management Systems.
- <http://s2k-ftp.cs.berkeley.edu:8000/postgres/papers>
Contains database papers most technical reports and links to the most common database vendors and information.
- http://www.cetus-links.org/oo_data_bases.html
Explains Object-Orientated Database Design in great detail.
- <http://www.oracle.com/database/index.html>
Gives an extensive explanation of Oracle's Internet Database (Oracle8i) that incorporates Java, web-server, and file system abilities.

Links to Third Party Vendors for Automated Design Software

The following is a list of some popular automated design (AD) tools, arranged by product name, vendor, and Web site.

- Product: Oracle Designer and Developer
Vendor: Oracle Corporation
Web Site: <http://www.oracle.com>

Oracle Designer is currently the leading automated design tool available on the market. The Oracle Designer Repository records design versioning, ERDs, Process Models, and many other database design elements. Oracle Developer offers interface design tools such as forms and reports. Oracle Designer and Developer support RDBMS types other than Oracle.

- Product: Platinum Erwin
Vendor: Computer Associates
Web Site: <http://www.cai.com/products/alm/erwin.htm>

Erwin is a transactional and data warehouse database design tool used for database generation and maintenance. It supports logical and physical database design and enterprise modeling.

- Product: EasyCASE
Vendor: Aeronaut Industries
Web Site: <http://www.aeronaut.com.au>

EasyCASE is a comprehensive AD tool supporting more than 12 CASE methodologies and 6 symbol sets to generate schema, data dictionaries, and reports for nearly all SQL platforms. Reverse-engineering of schema is also supported.

- Product: Starteam Enterprise Edition
Vendor: StarBase Corporation
Web Site: <http://www.starbase.com>

Starteam offers defect tracking, change management, version control, threaded conversation, Internet transparency, and repository access via a Web browser. Features include Task Management, MS Project Integration, and Repository Customization.

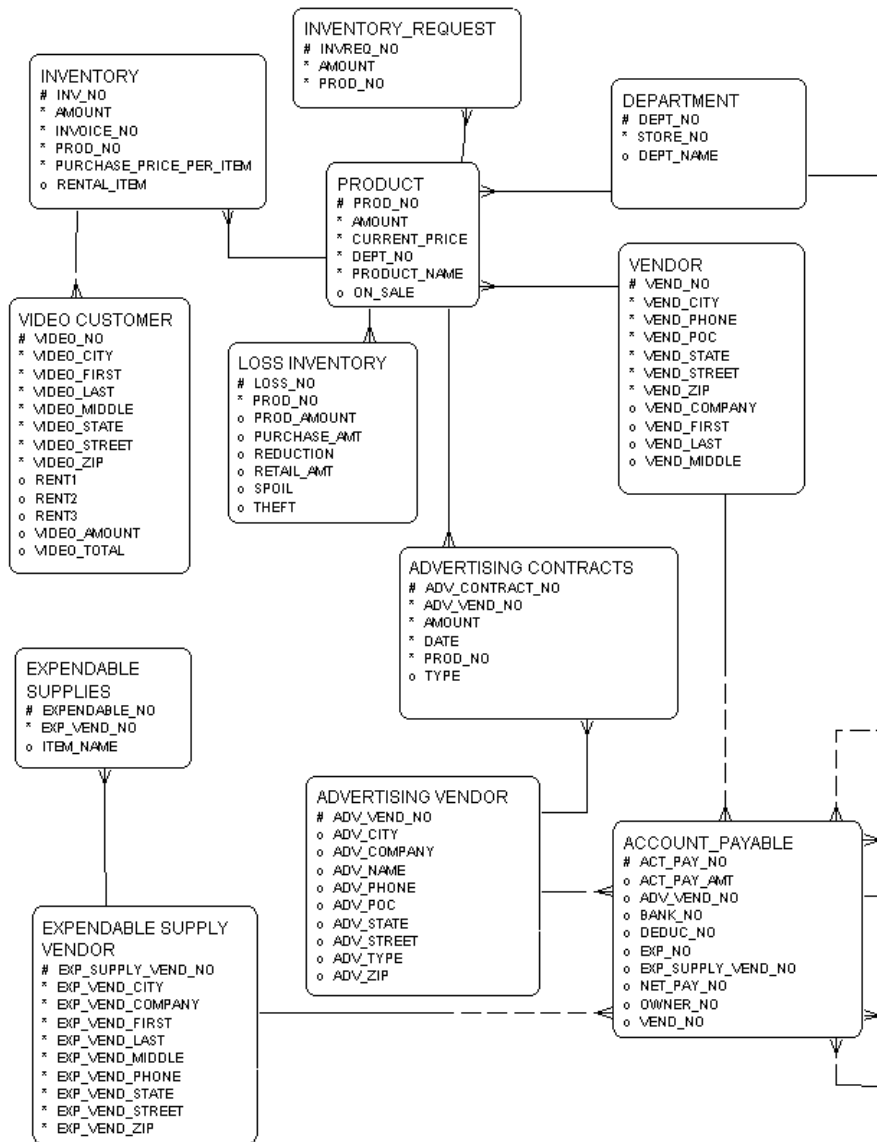
- Product: Data Junction
Vendor: Data Junction Corporation
Web Site: <http://www.datajunction.com>

Data Junction is a visual design tool for rapidly integrating and transforming data between hundreds of applications and structured data formats.

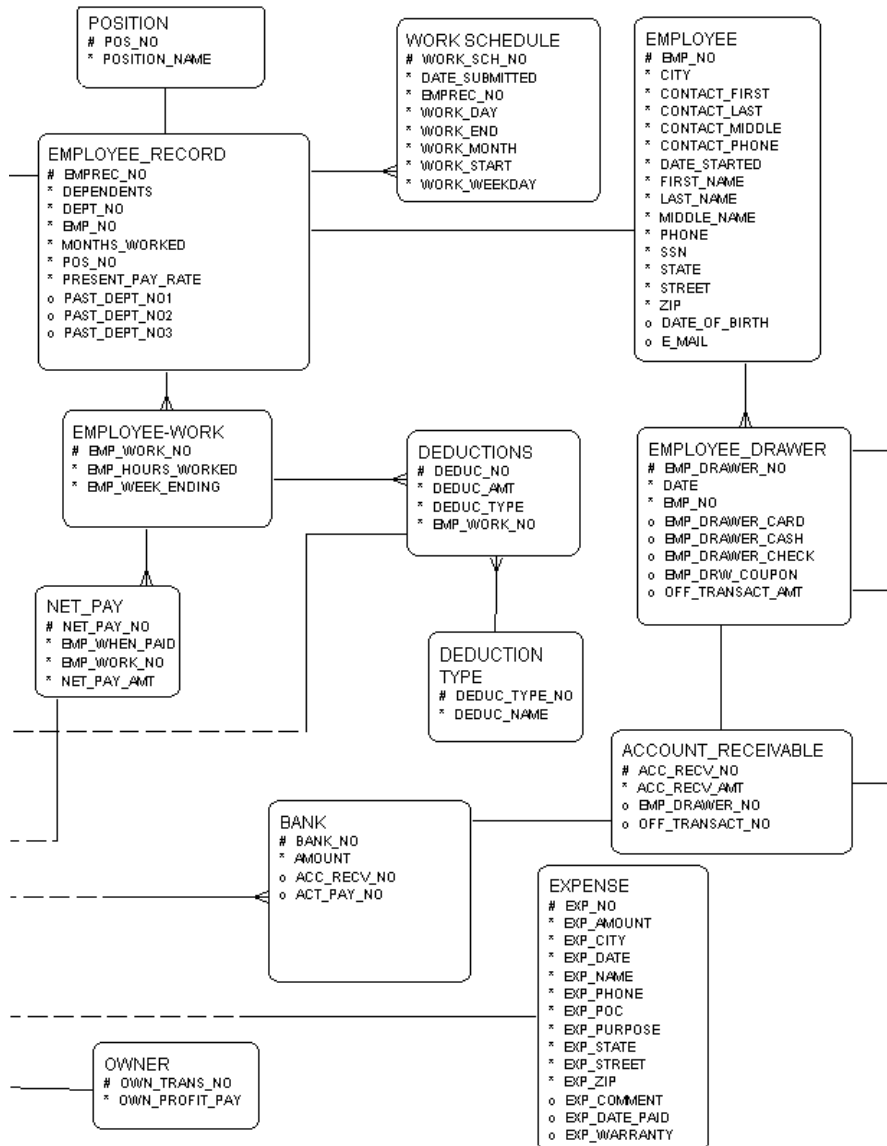
A Sample Detailed ERD from Chapter 14

The sample detailed ERD is provided to support the coverage in the section "Constructing an ERD" in Chapter 14, "Applying Database Design Concepts." The ERD shown in Chapter 14 is very basic, including all entities, but does not show attributes in each entity. The detailed ERD below could not be shown in the book due to space restrictions. Because of the size of the ERD, it has been split into three portions, which can be pieced together if printed.

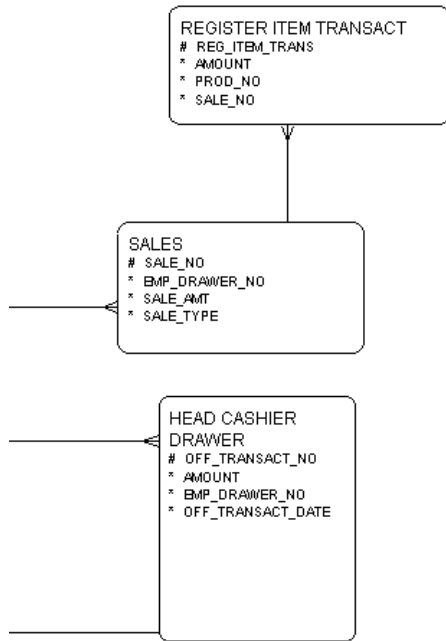
The following shows the left portion of the sample detailed ERD:



The following shows the middle portion of the sample detailed ERD:



The following shows the right portion of the sample detailed ERD:



Change Control Form as Shown in Chapter 16

This form may be printed, or copied and modified for use. This is a simple change request form, and can be used as a guideline for change propagation for organizations that do not currently have change policies in place.

PRODUCT CHANGE REQUEST/PROBLEM REPORT	
DATE:	_____
SUBMITTED BY:	_____
PRODUCT:	_____
ENVIRONMENT:	
Operating system:	_____
Standalone or network:	_____
CHANGE DESCRIPTION:	
	(include source code or data for problem reports)

STATUS (indicate date of action)	
FOR USE BY CCB ONLY	
RECEIVED:	_____
ASSIGNED:	_____
APPROVED:	_____
	(include new version number)
REJECTED:	_____
	(include issue number)

Testing Your Database Design Knowledge

Following is a comprehensive self test to help you assess your knowledge of database design. The test questions are a combination of multiple choice, true/false, and fill-in-the-blank. After taking the self test, we recommend that you check your answers, then refer back to the book to review your areas of weakness.

1. Which of the following are forms of databases?
 - A. Phone book
 - B. On-line bookstore
 - C. Address book
 - D. All of the above
2. A database presently used by a business is called
 - A. A transactional database
 - B. A hierarchical database
 - C. A legacy database
 - D. A data warehouse
3. Which of the following are affected by Business Rules?
 - A. ERD
 - B. Business operation
 - C. Employees
 - D. All of the above
4. The two types of business rules associated with the design of a database are _____ and _____.
5. What are the two types of data stored in a database? They are _____ and _____.
6. An entity becomes which of the following?
 - A. Table
 - B. Index
 - C. Column
 - D. Software owner
7. An attribute becomes which of the following?
 - A. Column
 - B. Table
 - C. Index
 - D. Table name
8. A schema is which of the following?
 - A. A group of related objects
 - B. Software owner
 - C. Flat-file database
 - D. None of the above

9. What is the primary unit of physical storage for data in a database?

- A. Index
- B. The data
- C. Business process
- D. Table

10. A data type determines the type of _____ that can be stored in a database column.

11. A row of data is the collection of all _____ in a table associated with a single occurrence.

12. Data integrity is the assurance of _____ data in the database.

13. Referential integrity is the process of ensuring that data is _____ between related _____.

14. A _____ key is the combination of one or more column values in a table that makes a row of data unique within the table.

15. A _____ key is the combination of one or more column values in a table that references a primary key in another table.

16. Design _____ is the approach taken toward the design of a database.

17. Database design is the process of converting business _____ into tables and views.

18. _____ is the process of creating smaller tables from large tables in order to eliminate redundant data, and to help ease the process of inserting, updating, and deleting data.

19. The three most basic environments for a database include the _____, _____, and _____.

20. Business modeling involves the evaluation of the business, including business _____ and _____.

21. Data modeling is the process of visually representing the data for a business, then eventually converting the business model into a data model.

True

False

22. A domain is a set of business data validation rules, data range limits, data type standards, and data format standards that will be applied to attributes of common types.

True False

23. The Entity Relationship Diagram (ERD) is a tool used in the analysis phase of development to model the initial design of your data structures in an unconstrained logical environment.

True False

24. Related data that is stored in one or more schemas is a logical database.

True False

25. Logical modeling deals with gathering business requirements and converting those requirements into a model.

True False

26. Metadata is data about _____.

27. The mission objective lists the _____ that will be performed against the data in the database.

28. The mission _____ is a summation of the overall purpose of the proposed database system.

29. The physical database consists of the _____ on the physical disk.

30. Requirements analysis is the process of analyzing the needs of a business and gathering _____ requirements from the end user, which will eventually become the building blocks for the new database.

Solutions to Testing Your Database Design Knowledge

1. D. All of the above
2. C. A legacy database
3. D. All of the above
4. Database-oriented and application-oriented
5. Static (historic) and dynamic (transactional)
6. A. Table
7. A. Column
8. A. A group of related objects
9. D. Table
10. Data
11. Columns
12. Accurate
13. Consistent, tables
14. Primary
15. Foreign
16. Methodology
17. Objects
18. Normalization
19. Mainframe, client/server, Internet
20. Process, rules
21. True
22. True
23. True
24. True
25. True
26. Data
27. Tasks
28. Statement
29. Data file
30. System