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CERTIFIED BUSINESS DATA MODELER (CBDM)

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Individuals or groups can use this CBDM Course Series for personal, self-study training in Business Data Modeling. It comprises two courses and a case study workshop. The courses can all be delivered for self-study using PowerPoint, or via a Corporate Intranet. A brief summary of each course and the workshop is provided in the following pages.

- [Data Modeling Concepts Course](#)
- [Business Normalization Concepts Course](#)
- [Data Modeling Case Study Workshop](#)

Completion of each of these two courses is required to qualify as a Certified Business Data Modeler (CBDM). The Case Study Workshop applies the skills learned to a real-life problem. Your case study solution then becomes your exam solution, which we will subsequently assess for certification as a CBDM.

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Audience

These two courses and workshop are designed for personal self-study education by business managers and their staff, as well as IT managers and their staff. Each course includes many business examples, Course Exercises and Sample Solutions that are understood by all. The workshop is based on a real-life problem; each student can select a business area of the case study organization for detailed solution, based on the student's own experience and interests.

The target audience includes business and IT staff who must define data and information requirements for data bases to be developed for applications, for use across the Internet, or via Corporate Intranets. When trained by these self-study courses, business and IT staff can work together in a highly-effective design partnership: *business staff know the business, while IT staff know computers.*

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DATA MODELING CONCEPTS COURSE

This course teaches business managers and their staff ("business experts") as well as analysts, data administrators and data base administrators ("IT experts") how to work together in a design partnership to develop a data model for their organization. This data model provides a blueprint of the data needed to support business processes, and the information needed by management for decision-making. A data

model is a prerequisite for:

- Development of integrated data bases to be used for Applications and for redevelopment of Legacy Systems
- Development of a Corporate Repository for Data and Information Warehouses
- Identification of re-engineered business process opportunities

Objectives

On completion of the course, both business experts and IT experts will understand:

- How data modeling and data mapping are used to represent expert business knowledge.
- How data entities, attributes and associations are used to represent business meaning in a design partnership with business and IT staff.
- How data modeling can be used to represent management information needs and the underlying data in data models that enable rapid business change.
- How data modeling can identify business requirements for Internet / Intranet Applications and Data Warehousing projects.
- How data modeling can be used for Forward Engineering, Reverse Engineering and Business Reengineering projects.

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Course Outline

- *Data Modeling Concepts*: Introduces and defines the components of a data model - data entities, attributes and associations, and their representation in data maps and entity lists.
- *Data Entity Types*: Defines and illustrates use of each data entity type - principal (supertype) entities, secondary (subtype) entities, type entities, role entities, intersecting entities that are used to represent business activities, processes and systems, and structure entities used to capture expert knowledge for development of dynamically-updated expert data bases.
- *Data Mapping Conventions*: Introduces conventions used to document data maps, and represent business strategies for strategic analysis of business alternatives.
- *Strategies and Associations*: Shows how data maps can be used for rapid feedback to

management for refinement of strategic alternatives.

- *Data Attribute Types*: Defines and illustrates the use of primary and foreign keys, compound keys and candidate keys. Defines and illustrates non-key attributes including secondary keys (ie. selection attributes), derived attributes, elemental attributes, group attributes and repeating groups.
- *Course Exercises*: Twelve course exercises of increasing difficulty are included for student completion throughout the course, together with sample solutions.

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Duration

- The course material, when presented as PDF of PowerPoint visuals and Instructor Notes, will take approximately 4 - 6 hours to complete. With completion of the twelve included course exercises, a total of 8 - 10 hours will be required depending on each student's progress.

Prerequisites

- This course has no prerequisites.

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BUSINESS NORMALIZATION CONCEPTS COURSE

This course teaches business managers and their staff ("business experts") as well as analysts, data administrators and data base administrators ("IT experts") the steps and rules of Business Normalization for data modeling. A data model is a blueprint of the data needed to support business processes, and information that is needed by management for decision-making. Data models are used for:

- Development of integrated data bases to be used for Applications and for redevelopment of Legacy Systems
- Development of a Corporate Repository for Data and Information Warehouses
- Identification of re-engineered business process opportunities

Objectives

On completion of the course, both business experts and IT experts will understand:

- How to develop a normalized entity list from any unnormalized data source.
- How business normalization can be used to identify current business needs.
- How business normalization eliminates redundant data versions, to implement integrated data bases that can be used more effectively.
- How business normalization can be used to identify future business needs and cross-check the accuracy of business meaning to design for the future.
- How expert knowledge can be captured in fifth business normal form (5BNF) Structure entities to manage knowledge as a valuable business asset.
- How business normalization and data mapping both support each other, and how they can be used iteratively in data modeling to uncover business meaning.

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Course Outline

- *Introduction to Business Normalization*: Provides business examples that illustrate the benefits and advantages of business normalization.
- *Reasons for Business Normalization*: Uses typical business problems that show how business normalization is used to structure data so that data redundancy is eliminated, and data maintenance problems that arise from redundant data are also eliminated.
- *First, Second and Third Business Normal Form*: Contrasts business normalization with traditional normalization. Covers the rules of First Business Normal Form (1BNF), Second Business Normal Form (2BNF) and Third Business Normal Form (3BNF). Shows how business normalization cross-checks are used to uncover business meaning, identify homonyms and synonyms, and identify potential future business needs.
- *Fourth and Fifth Business Normal Form*: Shows the rule and use of Fourth Business Normal Form (4BNF) to identify supertypes and subtypes. Covers the identification and capture of business expertise in Fifth Business Normal Form (5BNF) Structure entities, as dynamically-updated knowledge defined by business experts.
- *Business Normalization Examples*: Uses progressively completed course exercises, plus many business examples, to illustrate application of the five business normal form rules. Shows how these rules can help identify additional business needs that may have been missed earlier, so that systems and data bases that are later developed do address the business requirements.

- *Course Exercises:* Twelve course exercises of increasing difficulty are included for completion throughout the course, with sample solutions.

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Duration

- The course material, when presented as PowerPoint visuals, will take approximately 4 - 6 hours to complete. With completion of the twelve included course exercises, a total of 8 - 10 hours will be required depending on each student's progress.

Prerequisites

- This course assumes that the student has previously completed the Data modeling Concepts course.

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DATA MODELING CASE STUDY WORKSHOP

The Data Modeling Case Study Workshop is designed so that students can apply their Data Modeling and Business Normalization skills to a real-life case study problem. They check their solution for correctness and quality using a supplied modeling tool, Visible Advantage. This is used to capture each student's solution to the case study problem, so that it can later be emailed to assess the student for qualification as a Certified Business Data Modeler (CBDM).

Objectives

This Case Study Workshop shows the student how to apply the learned skills to a real-life case study problem, so that :

- Data modeling represents business meaning for real-life problems.
- Business normalization identifies future business needs.
- These concepts apply to real-life problems within an organization.
- Modeling tools capture data models, to check for accuracy and quality.

- Data bases are generated for any target RDBMS.

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Workshop Outline [8-10 hours]

- *Guided Tour:* of the Visible Advantage modeling tool.
- *Workshop Introduction:* provides an overview of the case study organization and its planning statements.
- *Initial Data Modeling:* develops an initial data model from planning statements and enters it into Visible Advantage.
- *Tactical Data Modeling:* focuses on one business area with problems for that area, and enters your solution.
- *Operational Data Modeling:* uses documents from the area for business normalization to add to the data model, then enters your solution into Visible Advantage.
- *Quality Assurance:* checks the correctness and quality of your solution. You then email your case study solution for CBDM assessment as a Certified Business Data Modeler.

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Prerequisites

- The Data Modeling Concepts Course and the Business Normalization Concepts Course are both prerequisites for the Data Modeling Case Study Workshop, which must be completed and submitted for assessment to qualify as a Certified Business Data Modeler.

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CBDM CERTIFICATION EXAM

To register for the CBDM Certification Exam, please complete and submit the online [Registration Form](#) as described next - or instead print and fax the Registration Form - with your email address. We will email to you a password and further details so that you can download and install the courses and workshop

materials.

A student edition of the [Visible Advantage](#) modeling tool is supplied to each student. This is a limited capacity, but full-function modeling tool that you will use for the case study workshop. The solution that you develop for the workshop and enter into Visible Advantage comprises your CBDM Certification Exam solution. The workshop manual has laboratory exercises and instructions for entering your case study solution into Visible Advantage so that you can check the validity of your exam solution before its submission.

The Visible Advantage encyclopedia must be returned to us by email, for CBDM Exam Assessment. If required, we will set additional remedial study and exercises until each student demonstrates a full understanding of the relevant Data Modeling and Business Normalization concepts.

Following completion of the workshop, the student edition of Visible Advantage can be retained by each student and can later be used for small projects, if required.

The encyclopedia from each small project can also be automatically merged into larger project encyclopedias - if your organization also uses the enterprise edition of Visible Advantage. This enables students to apply data modeling, business normalization and modeling tool analysis skills they have learned to specific areas of your enterprise where they have particular expertise.

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CBDM for Purchasers of Enterprise Architecture for Integration Book

Purchasers of the book by Clive Finkelstein, "*Enterprise Architecture for Integration: Rapid Delivery Methods and Technologies*", Artech House, Norwood, MA (published March 2006) qualify for a discounted option of the CBDM Course. Chapter 6 of the book (plus all problems and sample solutions) covers the material in the [Data Modeling Concepts Course](#) course, while Chapter 9 of the book (plus all problems and sample solutions) covers the material in the [Business Normalization Concepts Course](#). Book students will receive the [Data Modeling Case Study Workshop](#), which they must complete using the Student Edition of Visible Advantage supplied with the book. Their solution to this workshop becomes their [CBDM Certification Exam](#) Solution, which is emailed to us and assessed to determine whether the student has correctly applied the Data Modelling and Business Normalization concepts within the student's case study solution.

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Individual or Small Group Training

This delivery option is used to train individuals or small groups. Each course is supplied electronically in PDF files of Microsoft PowerPoint Instructor Notes with *Course Exercises* and *Sample Solutions*. A *Student Notes Reference Manual* in Microsoft Word is keyed to each slide in the course material. To qualify as a Certified Business Data Modeler (CBDM), each student must complete the:

- Data Modeling Concepts Course
- Business Normalization Concepts Course
- Data Modeling Case Study Workshop

The workshop includes a real-life case study that requires each student to demonstrate full understanding of the self-study Concepts Courses. A Student Edition of the *Visible Advantage* modeling tool is supplied for use with the Data Modeling Case Study Workshop, as discussed later. Your case study solution becomes the certification exam solution.

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Large Group Training via Corporate Intranet

This delivery option applies for training large groups of 20 or more students. For large corporations each course can be presented across a Corporate Intranet using any Web browser. Students can take courses and the workshop at any time of their choosing, with slides available for online reading using a browser rather than PowerPoint. Student Notes can be printed for online and offline reference. This is a very economical option to train hundreds of staff, for a single Corporate Intranet License Fee.

A case study can also be supplied that is tailored uniquely to your organization's own enterprise environment. This is used to train your own instructors and help desk staff, so they are qualified to certify your subsequent business and IT students. The tailored case study problem is also used for inhouse *Training for Internal Certification* of instructors and help desk staff and is presented on-site by the author of the Data Modeling Course Series, Clive Finkelstein.

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Training for Internal Certification

Instructor Training in each course is on a Teach the Teacher basis, to train your Instructors and Help

Desk staff so they can provide inhouse Classroom Training for your own staff, or Help Desk support for Intranet delivery to self-study staff students.

A Case Study, tailored to your organization for *Internal Certification*, can be provided. A quote to tailor each course, develop a Certification case study, and on-site instructor training by Clive Finkelstein can be requested when you register for the Intranet Version of the course.

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REGISTRATION INSTRUCTIONS

[Visit the Online Store](#) for:

- [Pricing and to Purchase the CBDM Course online.](#)
- [Self-Study Courses in IES Online Store](#)

On placing an order, an email message will be sent to you with instructions that detail how to download the password-protected courses and workshop file, together with a password to extract the courses and workshop from that file. Using the supplied password, you can expand and install these courses and the workshop for the specified number of students that you register from the Online Store. You will receive instructions to download the Visible Advantage Student Edition. Further information can also be obtained by contacting:

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INSTRUCTOR

Clive Finkelstein

Clive Finkelstein is acknowledged worldwide as the "Father" of Information Engineering, and is Managing Director of Information Engineering Services Pty Ltd in Australia. He has over 43 years' experience in the Computer Industry. He has published many books and papers, and contributed Chapters and Forewords to books published by McGraw-Hill and Springer-Verlag. Clive has authored the following books:

- *"Information Engineering"*, James Martin and Clive Finkelstein, Savant Institute, Carnforth: Lancs UK (1981). This was the book that started the Information Engineering Revolution in the 1980's.
- *"An Introduction to Information Engineering"*, Clive Finkelstein, Addison-Wesley, Sydney: Australia (1989). This book covers the history and evolution of Information Engineering.
- *"Information Engineering: Strategic Systems Development"*, Clive Finkelstein, Addison-Wesley, Sydney: Australia (1992). This is the "how-to" book on using Information Engineering.
- *"Building Corporate Portals with XML"*, Clive Finkelstein and Peter Aiken, McGraw-Hill New York: NY (2000). This book covers methodologies and technologies for Enterprise Portals.
- *"Enterprise Architecture for Integration: Rapid Delivery Methods and Technologies"*, Clive Finkelstein, Artech House, Norwood, MA (March 2006). This book brings together the methods and technologies for rapid delivery of Enterprise Architecture in 3-month increments. [Read the Book Review.](#)

Clive Finkelstein is an internationally renowned consultant and instructor, and has completed projects for Defense, Government and Commercial organizations throughout the world and in most industries. Many projects have involved the *Zachman Framework for Enterprise Architecture*, using the latest methods and technologies for rapid delivery of priority areas into implementation. These methods use Enterprise Engineering for rapid definition of Enterprise Architecture. His technology focus addresses Enterprise Integration technologies using XML, Enterprise Application Integration (EAI), Enterprise Portals, Web Services and Service-Oriented Architecture (SOA) for Business Process Management (BPM) using XML-based BPM languages.

He provides training and consulting in all aspects of the Zachman Framework for Enterprise Architecture, with rapid delivery of priority areas using Enterprise Engineering. His application of these methods in large and medium Government, Defense and Commercial enterprises results in *Business Transformation Enablement*, so that business and IT managers and their staffs can plan for and achieve rapid business change. Enterprise Architecture provides a Governance Analysis Framework that supports Sarbanes-Oxley and other Governance Audit requirements. It provides direct support and linkage to Balanced Scorecard for Strategy-Focused Organizations, to ensure that IT systems and databases support defined Scorecard Measures, Strategy Maps and Governance requirements.

Clive writes a monthly column, *"The Enterprise"* for DM Review magazine. Past issues are at <http://www.dmreview.com/>. He publishes a free, quarterly technology newsletter via email: *"The Enterprise Newsletter (TEN)"*. Past issues of TEN are at: <http://www.ies.aust.com/>. His books and papers are at <http://www.ies.aust.com/cbfindex.htm>. He can be contacted at cfink@ies.aust.com. Many in-house skills-

transfer courses and seminars presented by Clive Finkelstein are at <http://svc004.bne009i.server-web.com/catalogue/visible/default.shtml>.



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