

Data Modelling: A Business-oriented Approach to Entity-Relationship Modelling

Two day workshop by Alec Sharp

by Alec Sharp

AdeptEvents

- Benefit from the skill and expertise of internationally acclaimed teacher Alec Sharp
- Use entity-relationship modelling to depict facts and rules about business entities at different levels of detail, including conceptual (overview) and logical (detailed) models
- Four common errors in identifying entities, and how to avoid them
- Learn how to eliminate confusion and misunderstanding with well-structured entity definitions
- Learn to use top-down and bottom-up approaches to initiating development of a data model
- Recognize the four basic patterns in data modelling, and when to use them

This course is a natural companion to the *Advanced Data Modelling* workshop by Alec Sharp.

VENUE

Area Utrecht/Hilversum, The Netherlands

TIME

9.30 - 17.00 hours

REGISTRATION

www.adeptevents.nl





Data Modelling: A Business-oriented Approach to Entity-Relationship Modelling

Data modelling is critical to the design of quality databases, but is also essential to other requirements specification techniques such as workflow modelling, use cases, and service definition because it ensures a common understanding of the things – the entities – that processes and applications deal with. This workshop introduces entity-relationship modelling from a non-technical perspective, and explores contextual, conceptual, and detailed modelling techniques that maximize user involvement.

Description

Data modelling was originally developed as a tool for improving database design, but has become a fundamental requirements definition technique for all business analysts, whether they are primarily concerned with data structures, application logic, user interface behavior, or business processes.

A key driver is that applying data modelling early in requirements definition allows analysts and clients to develop a common understanding of the business entities (e.g., Customer, Order, Product, Part, etc.) that business processes and information systems deal with, their interrelationships, and the rules that govern them. This eliminates the problems of inconsistent terminology and conflicting assumptions that otherwise plague application development, package selection and implementation, system integration, and process redesign projects.

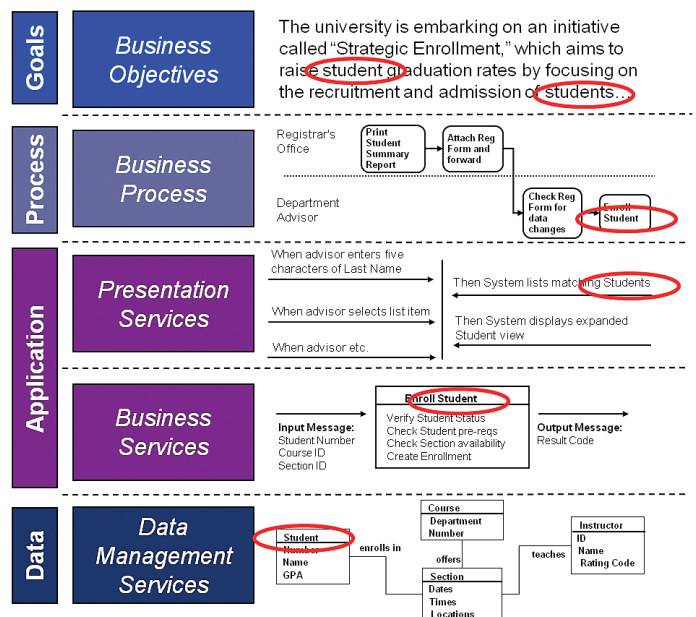
This workshop introduces entity-relationship modelling from a non-technical perspective, thoroughly covering the basic components of a data model - entities, relationships, attributes, and identifiers. In addition to showing how and when to use these components in developing a data model, it includes far more advice on the process of developing a data model than other courses, including specific methods for getting subject matter experts involved and maintaining their commitment. The content is presented within the context of a clearly-defined, three-phase data modelling methodology that supports progressive detail and precision.

Two points are worth emphasizing:

- This workshop is packed with practical tips, techniques, "scripts," checklists, and guidelines for the analyst. All of the material is based on years of project experience; abstract theory is avoided.
- The emphasis is on "business-friendly" techniques which support and encourage the full involvement of non-technical subject matter experts, which is essential for quality data models.

Course Topics

- Overview of data modelling: terminology, types of models, and key concepts
- The essential data model components - entities, relationships, attributes, and identifiers
- A three-phase approach to completing a data model
- Initiating a conceptual data model using a bottom-up approach
- Four common errors in identifying entities, and how to avoid them





- Eliminating confusion and misunderstanding with well-structured entity definitions
- Four entity types, and rules and guidelines for dealing with them
- Adding detail and rigor - evolving the conceptual model into a logical data model
- Patterns for common situations - multi-valued attributes, redundant data, and reference data
- The world's simplest guide to normalization
- Primary and foreign keys in logical data models
- Meaningless primary keys – rationale and limitations
- Specifying assertions and constraints – rules that can't be shown on the E-R diagram
- Drawing the Entity-Relationship Diagram for maximum readability
- Techniques for discovering, assessing, and meeting new requirements
- Wrap-up – summaries and resources

Objectives

On workshop completion, participants will be able to:

- Use entity-relationship modelling to depict facts and rules about business entities at different levels of detail, including conceptual (overview) and logical (detailed) models
- Use top-down and bottom-up approaches to initiating development of a data model

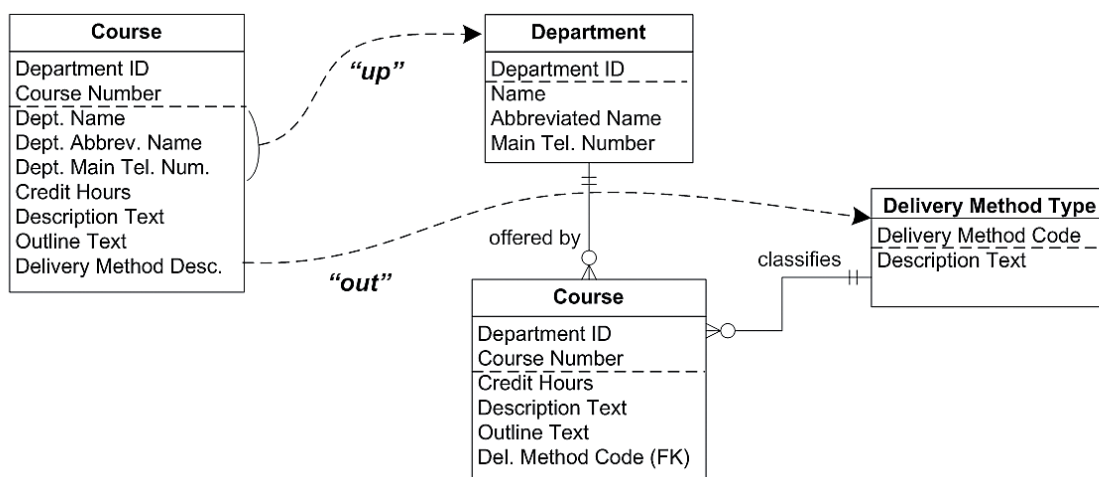
- Recognize the four basic patterns in data modelling, and when to use them
- Effectively use definitions and assertions ("rules") as part of data modelling
- Use an intuitive approach to data normalization within an entity-relationship model
- Apply various techniques for discovering and meeting additional requirements
- Read a data model, and communicate with specialists using the appropriate terminology

Prerequisites

None. However, business analysts who expect to do extensive workflow modelling will find that some understanding of information systems concepts may be helpful in establishing context.

Target Audience

New or experienced data modelers, data analysts, and DBAs will benefit from the workshop's practical methods and guidelines. The workshop is also very popular with business analysts and application designers/developers needing to understand data modelling and how it supports requirements definition or process analysis. As well, it's suitable for business professionals and managers needing to understand how this technique can uncover and resolve inconsistency in business terminology, policy, and rules.

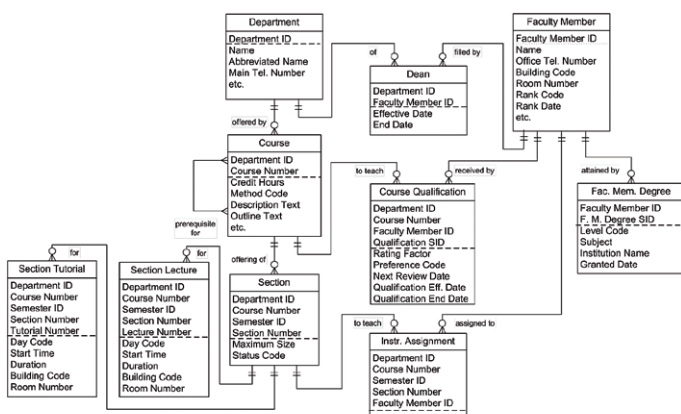


Essentials of Data Modeling

- What really is a data model?
- Essential components – entities, relationships, and attributes
- The basics of diagramming – Entity-Relationship Diagrams (“ERDs”)
- The narrative parts of a data model – definitions and assertions
- Group exercise – getting started on a data model, then refining it
- Common misconceptions about data models and data modeling
- The real purpose of a data model
- Three types of data models – different levels of details for different purposes
- Contextual, Conceptual, and Logical Data Models – purpose, audience, definition, and examples
- How data models help in process improvement, requirements definition, and reporting
- Forward- and reverse-engineering uses of data modeling
- Overview of a three-phase methodology for developing a data model
- References – books and useful web sites

Phase 1 – Establish the initial conceptual data model

- Top down vs. bottom up approaches to beginning a data model – when is each appropriate?
- Advantages of a bottom-up approach
- A bottom-up approach focusing on collecting and analyzing terminology



- A structure for sorting terms and discovering entities
- Exercise – developing an initial conceptual data model
- Entities – what they are and are not
- Guidelines for naming and defining entities
- Three questions to help you quickly develop clear, useful entity definitions
- Five criteria that entities must satisfy, and four common errors in identifying entities
- Exercise – identifying flawed entities
- Identifying relationships
- Fundamental vs. irrelevant or transitive relationships
- Good and bad relationship names
- Multiplicity or cardinality – 1:1, 1:M, and M:M relationships, and useful facts about each
- Common errors and special cases – recursive, multiple, and supertype-subtype relationships
- Attributes – guidelines and types
- Attributes in conceptual models vs. logical models

Phase 2 – Develop the initial logical data model by adding rigor, structure, and detail

- What’s involved in developing a logical model – shifting the focus from entities to attributes
- Multi-valued, redundant, and constrained attributes, with simple patterns for dealing with each
- An understandable guide to normalization – first, second, and third normal forms
- Higher order (fourth and fifth) and Boyce-Codd normal forms
- Guidelines for a smooth progression from conceptual to logical
- Exercise – developing the initial logical data model
- Four types of entities – kernel, characteristic, associative, and reference
- Guidelines and patterns for dealing with each type of entity
- How to draw your E-R Diagram for maximum readability and correctness
- Optional and mandatory relationships
- Considering time and history when looking at relationships
- Six questions to ask whenever a data range appears in a data model
- Identifying and dealing with transitive relationships – clues and proof



Course description

Phase 3 – Refine and extend the logical data model by discovering and meeting new requirements

- Attribute granularity – definitions of non-atomic and semantically overloaded attributes
- Guidelines for making non-atomic attributes atomic
- The perils of semantic overload, and what to do about it
- Dealing with derived attributes, and when to show them on the model
- A classword-based approach to attribute naming
- Typical attribute documentation
- A common source of confusion and disagreement – primary keys
- What primary keys are, what they're really for, and three essential criteria
- Alternate and foreign keys
- Why meaningless primary keys are used, and guidelines for creating them
- Guidelines for reference data
- Pulling it together – key techniques and guidelines covered in the class so far
- Using event analysis to discover additional requirements
- Exercise – using event analysis and extending a data model
- Presentation by teams of their solutions
- How data modeling relates to process modeling, use cases, and services
- A layered framework for business analysts
- How other techniques (e.g., workflow modeling) support data modeling
- A three-step procedure for meeting new requirements
- Advice on extending the model in an orderly fashion
- Exercise – meeting new requirements on the data model
- Recap – contextual, conceptual, and logical data models
- Different skills and participants for conceptual vs. logical modeling
- How the modeler/analysts's role changes as a project progresses
- A little philosophy for effective data modeling
- The four Ds of data modeling – definition, dependency, detail, and demonstration
- Wrap-up – the approach we followed throughout the class

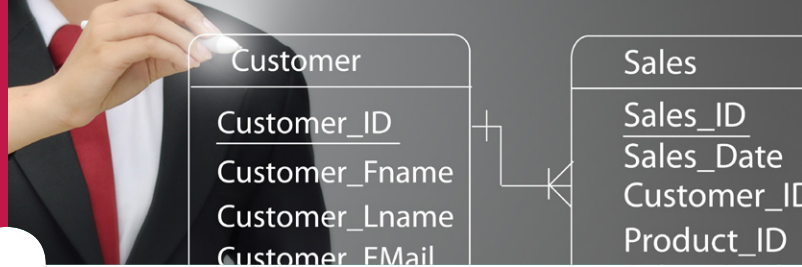


ALEC SHARP

ALEC SHARP, a senior consultant with Clarteq Systems Consulting, has deep expertise in a rare combination of fields – business analysis and requirements specification, data modelling, strategy development, facilitation, and, of course, business process modelling, analysis, and design. His 30+ years of hands-on consulting experience, practical approaches, and global reputation in model-driven methods have made him a sought-after resource in locations as diverse as Ireland, Illinois, and India.

He is also a popular conference speaker on the Business Process Management, Business Analysis, and Data Management circuits, mixing content and insight with irreverence and humor. Among his many “top-rated of the conference” presentations are “The Lost Art of Conceptual Modelling,” “The Human Side of Data Modelling,” “Getting Traction for ‘Process’ – What the Experts Forget,” “Mind the Gap! – Integrating Process, Data, and Requirements Modelling,” and “Adventures in Reverse-Engineering – What You’ve Got and Why You Don’t Like It.” At Enterprise Data World 2010, Alec was awarded DAMA’s 2010 Professional Achievement Award, a global award given to one professional a year for contributions to the Data Management profession. At the Building Business Capability 2012 and 2013 conferences, and several other recent events, Alec was the highest-rated speaker. Alec literally wrote the book on business process modelling – he is the author of “Workflow Modelling: Tools for Process Improvement and Application Development – second edition.” Popular with process improvement professionals, business analysts, and consultants, it is consistently a top-selling title on business process modelling, analysis, and design, and is widely used as an MBA textbook. The completely rewritten second edition was published in 2009. His quarterly column “A Practitioner’s Perspective” appears at BPTrends.com. Alec’s popular workshops on Working with Business Processes, Data Modelling (introductory and advanced,) Requirements Modelling (with Use Cases and Business Services,) and Facilitation and Presentation Skills are conducted at many of the world’s best-known organs. Conducted on five continents in the last year alone, his classes are practical, energetic, and fun, consistently earning “excellent” ratings.

INFORMATION



DATE AND TIME

The workshop is organised twice a year, in Spring and in Fall. You can find the exact dates on our website and the workshop starts at 9:30 am and ends at 5:00 pm on both days. Registration commences at 8:30 am and we recommend that you arrive early.

VENUE

Adept Events works with several accommodations in the area of Utrecht/Hilversum. Once the accommodation is confirmed, the information will be visible on the website. Please check the website prior to your departure.

HOW TO REGISTER

Please register online at www.adeptevents.nl. For registering by print, please scan the completed registration form and send this to customerservice@adeptevents.nl. You can also fax the completed form to +31 (0)172 742680. We will confirm your registration and invoice your company by e-mail therefore please do not omit your e-mail address when registering.

REGISTRATION FEE

Taking part in this two-day workshop will only cost € 1305,- when registering 30 days beforehand and € 1450,- per person afterwards (excl. 21% Dutch VAT). This also covers documentation, lunch, tea/coffee.

If you register for the workshop *Advanced Data Modelling* by Alec Sharp at the same time, you will receive discount and pay € 2479.50 for both workshops and € 2755,- after expiration of the early bird registration.



Members of the DAMA NL, Belux or UK Chapter are eligible for 10 percent discount on the registration fee.

In completing your registration form you declare that you agree with our **Terms and Conditions**.

Team discounts

Discounts are available for group bookings of two or more delegates representing the same organization made at the same time. Ten percent off when registering 2 – 3 delegates and fifteen percent off for all delegates when registering four or more delegates (all delegates must be listed on the same invoice). This cannot be used in conjunction with other discounts.

All prices are VAT excluded.

PAYMENT

Full payment is due prior to the workshop. An invoice will be sent to you containing our full bank details including BIC and IBAN. Your payment should always include the invoice number as well as the name of your company and the delegate name. For Credit Card payment please contact our office by e-mail mentioning your phone number so that we can obtain your credit card information.

Cancellation Policy

Cancellations must be received in writing at least three weeks before the commencement of the workshop and will be subject to a € 75,- administration fee. It is regretted that cancellations received within three weeks of the workshop date will be liable for the full workshop fee. Substitutions can be made at any time and at no extra charge.

Cancellation Liability

In the unlikely event of cancellation of the workshop for any reason, Adept Events' liability is limited to the return of the registration fee only. Adept Events will not reimburse delegates for any travel or hotel cancellation fees or penalties. It may be necessary, for reasons beyond the control of Adept Events, to change the content, timings, speakers, date and venue of the workshop.

MORE INFORMATION



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In-House Training

Would you like to run this course in-company for a group of persons? We can provide a quote for running an in-house course, if you offer the following details. Estimated number of delegates, location (town, country), number of days required (if different from the public course) and the preferred date/period (month).