Advanced Data Modelling – a three day workshop with Alec Sharp, Clariteq Systems Consulting Ltd.

Advanced Data Modelling:
Communication, Consistency, and Complexity ***3 days***

Overview:

After gaining some practical experience, data modellers encounter situations such as the enforcement of complex business rules, handling recurring patterns, dealing with existing databases or packaged applications, and other issues not covered in introductory data modelling classes. This intense, participative workshop provides approaches for many advanced data modelling situations, as well as techniques for improving communication between data modellers, business analysts, designer/developers, and subject matter experts.

Description:

There are experienced data modellers out there who somehow develop accurate and stable models that are actually used, often in non-typical or high-pressure situations. They get the job done without wasted effort, maintain the involvement and respect of the subject matter experts, and – worst of all! – make it look easy. Others modellers might have great technical skills, but fare poorly, maintaining tense relationships with content experts and developers who "just don't get it," and watching in dismay as their models are continually undone by "new" requirements.

What accounts for the difference? Magic? Luck? Better tools? No – it's having a concrete set of frameworks, methods, techniques, scripts, heuristics, and other tools that they draw on to keep the process moving, with everyone engaged, even when complex, difficult situations are encountered. And that's what we'll cover in this full, but fun, three-day workshop – specific, repeatable techniques that you can use to drive your data modelling skills to the next level.

Three main themes will be explored:

1. The technical side of data modelling - getting better at modelling difficult, complex situations
2. Developing and using data models in new ways, and in conjunction with other techniques
3. The human side of data modelling - improving processes and communication skills

Topics will be covered with a discussion of the issue, a review of techniques, guidelines and examples, a *brief* workshop exercise, and a group solution and debriefing. The emphasis is on maximizing the delivery of content while keeping everyone engaged - the workshop has recently been extensively redesigned to focus on the topics that data modelling professionals have continually rated as the most concrete and useful.

Instructor – Alec Sharp:

With close to 30 years of consulting experience, Alec has provided hands-on data modelling expertise throughout North America, Asia, and Europe – this workshop is based on real-world experience, not textbook theory. Alec has also delivered hundreds of Data Modelling and Advanced Data Modelling workshops, and top-rated presentations at international conferences, including "The Seven Deadly Sins of Data Modelling," "Data Modelling – New Uses for New Times," "The Lost Art of Conceptual Modelling," "Getting Traction for Data Modelling – Winning Over the Masses," "Adventures in Reverse Engineering," and "The Human Side of Data Modelling." Alec is the author of the completely rewritten second edition of "Workflow Modelling" (Artech House, 2009) which is widely used as a university text and is a best-seller in the field. Contact Alec at asharp@clariteq.com.

Target Audience:

Specialist data modellers, data architects, and DBAs who wish to hone their skills. Also business analysts, application developers, and anyone else with substantial data modelling experience who needs additional skills.

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Course Topics:

- A quick recap – level-setting on terms, concepts, conventions, and structures
  - Conventions for the essential components: entities, relationships, attributes, and identifiers
  - Effective naming and definition
  - E-R Diagramming – symbol sets and their problems, rules for readability and comprehension
  - Types of data models - contextual, conceptual, logical, and physical
  - *Three* types of data models before the physical database – contextual, conceptual, and logical
  - The four Ds of data modelling – definition, dependency, detail, and demonstration

- Working with higher-level models
  - Contextual, conceptual, logical models – what they are, who they're for, when we need them
  - Definitions for each type of model, and common sources of confusion
  - How the different kinds of data models relate to process, use case, and service models
  - Avoiding the "deep dive into detail" – a three-phase method for data modelling
  - How to start a large project with a contextual data model
  - Guidelines for staying at the conceptual level, and how to tell when you've gone too far

- Modelling time, history, and time-dependent business rules
  - Historical vs. audit data, and when to show them on a data model
  - "Do you need history?" – how to tell when your client is misleading you
  - Four variations on capturing history in a data model
  - Modelling time – special considerations for recording past, present, and future values
  - Six questions you should always ask when a date range appears
  - Thanks, Sarbanes-Oxley! Why we need "as-of reporting" and how to model data corrections

- Correctly handling attributes
  - The basic patterns – handling multi-valued, redundant, and constrained attributes
  - Granularity – dealing with non-atomic and semantically overloaded attributes
  - Dealing with reference data and the "classification vs. specification vs. instances" problem
  - Three attributes that always need a qualifier
  - Vector modelling – entity or attribute?

- Modelling rules on relationships and associations
  - Using multi-way associations to handle complex rules
  - "Use your words" – how assertions, scenarios, and other techniques will improve your modelling
  - Associative entities – circular relationships, shared parentage, and other issues
  - Alternatives for modelling constraints across relationships
  - Advanced normal forms – how to quickly recognize potential 4NF and 5NF issues
  - A simpler view – why the five normal forms could be reduced to three

- Interesting structures – generalisation, recursion, and the two together
  - Generalisation (subtyping) – when to use it, and when not to
  - Generalisation with and without specification
  - Guidelines for using recursive relationships
  - Generalisation and recursion working hand-in-hand as a cure for literalism
  - Recognizing lists, trees, and networks, and modelling them with recursive relationships
  - Modelling difficult rules by combining generalisation (subtyping) and recursion
  - Staying clear on generalisation vs. roles, states, and aggregation

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- Bridging the "E-R vs. Dimensional" divide – the world's shortest course on dimensional modelling
  - The perils of dimensional modelling without understanding the underlying E-R model
  - Spotting facts and dimensions – the relationship between dimensional models and E-R models
  - Saving time – building a first-cut dimensional model from an ER model

- Better models through using data modelling in conjunction with other techniques
  - Things, events, services, use cases, and processes – how they fit together and synergize
  - The Weasel's Guide to doing data modelling without anyone knowing it
  - Event analysis as a rapid way to gather requirements
  - Use Cases and Service Specifications, and their role in data modelling
  - Process Modelling, and the vital role data models play

- Interesting approaches and uses
  - Developing a first-cut data model from business artifacts (forms, reports, screens, etc.)
  - Living with legacy – the role of reverse-engineering and data profiling
  - "Shock and dismay" – showing the business their current data model, and what it's doing to them
  - Where and how data modelling fits into selecting and implementing packaged applications
  - The role of generic data models

- Effectiveness skills for data modellers – communication, facilitation, presentation and consistency
  - Preparing and delivering a data model review presentation
  - Facilitation techniques specifically for the data modeller
  - "The Magical Number Seven" and what it has to do with modelling
  - Repeatable methods for discovering, assessing, and meeting new requirements
  - A consistent approach – "scripts" to use while building a data model
  - "Challenges" to use when validating a data model
  - "Future-proofing" – what you can do to improve the lifespan of your model
  - Seven techniques for "humanizing" data modelling and making data models more accessible