

Course : Star modeling, design and implementation

Practical course - 3d - 21h00 - Ref. AMT

Price : 2310 CHF E.T.



This training course, built around a number of practical case studies, will give you a precise idea of the hub-and-spoke modeling approach used in data warehouse projects. You'll see why this approach is the very expression of the project owner's needs, and how it enables operational staff, analysts and pilots to converge in their vision of the company's activities.

Teaching objectives

At the end of the training, the participant will be able to:

- ✓ Conduct interviews to gather analysis requirements from the business lines
- ✓ Define data warehouse quality criteria
- ✓ Based on an analysis specification, identify the dimensions and facts to be included in the model.
- ✓ Designing and describing a star macro-model
- ✓ Optimize the star model to take into account volume and reporting issues
- ✓ Describe a data loading architecture in the star model described.

Intended audience

Project owners and prime contractors, business intelligence system managers, IT managers, design managers, information systems architects, project managers.

Prerequisites

Basic knowledge of decision analysis and relational DBMS.

Course schedule

1 Introduction and reminders

- What is a business intelligence information system?
- Evolving decision-making requirements in the current context.
- Infocentres, SIAD, EIS, data warehouse, definition and positioning.
- Understand the purpose of the data warehouse approach.

PARTICIPANTS

Project owners and prime contractors, business intelligence system managers, IT managers, design managers, information systems architects, project managers.

PREREQUISITES

Basic knowledge of decision analysis and relational DBMS.

TRAINER QUALIFICATIONS

The experts leading the training are specialists in the covered subjects. They have been approved by our instructional teams for both their professional knowledge and their teaching ability, for each course they teach. They have at least five to ten years of experience in their field and hold (or have held) decision-making positions in companies.

ASSESSMENT TERMS

The trainer evaluates each participant's academic progress throughout the training using multiple choice, scenarios, hands-on work and more. Participants also complete a placement test before and after the course to measure the skills they've developed.

2 Architectures to meet decision-making needs

- The main components, data warehouse, ODS or "staging area", datamarts.
- Architectures proposed by Kimball and Inmon. Advantages and disadvantages.
- Positioning the star model in the data warehouse according to the architecture.
- Phases in the life cycle of a data warehouse.
- Data warehouse quality criteria.
- The notion of metadata and repository.

Group discussion

Definition of data warehouse quality criteria.

3 Basic principles and definitions of star modeling

- Review of operational database modeling.
- Differences between Online Transactional Processing (OLTP) and Online Analytical Processing (OLAP).
- Entities, attributes, cardinalities, normal forms.
- The denormalization principle for designing a star model.
- Understand the concepts of fact, dimension and axis of analysis.
- Modeling alternatives: flake model, galaxy model.
- Star modeling rules and best practices. Alternative proposal by Kortink and Moody.

Case study

From an analysis specification, identify the main dimensions and facts of a model.

4 Star model design

- Organization and synthesis of user interviews to gather requirements.
- Understanding and identifying the business processes to be modeled.
- Choice of analysis dimensions.
- Creation of dimension hierarchies.
- Measurement identification and cross-referencing with dimensions.
- Definition of analysis granularity.
- Definition of aggregation rules.
- Use of modeling tools.

Exercise

Based on the objectives provided by the project owner, create a macro-model, linking the dimensions.

5 Functional optimization of the star model

- Management of repository evolution and nomenclature changes.
- Management of slow- and fast-moving dimensions.
- Substitution keys.
- Quality management, data reliability.
- Unknown or uninformed context management.
- Degenerate dimensions.

Storyboarding workshops

Describe the impact of a given change based on a proposed model. Optimize the model for its evolution.

TEACHING AIDS AND TECHNICAL RESOURCES

- The main teaching aids and instructional methods used in the training are audiovisual aids, documentation and course material, hands-on application exercises and corrected exercises for practical training courses, case studies and coverage of real cases for training seminars.
- At the end of each course or seminar, ORSYS provides participants with a course evaluation questionnaire that is analysed by our instructional teams.
- A check-in sheet for each half-day of attendance is provided at the end of the training, along with a course completion certificate if the trainee attended the entire session.

TERMS AND DEADLINES

Registration must be completed 24 hours before the start of the training.

ACCESSIBILITY FOR PEOPLE WITH DISABILITIES

Do you need special accessibility accommodations? Contact Mrs. Fosse, Disability Manager, at psh-accueil@orsys.fr to review your request and its feasibility.

6 Putting modeling back into the decision-making project framework

- Presentation of the Kimball and Inmon method for project organization.
- Project players and deliverables.
- Collection of business requirements. Formalize technical and organizational requirements.
- Identification of priorities and pilot scope.
- Information modeling.
- Choice of infrastructure. Implementation and acceptance.
- Deployment and maintenance of the model.
- History management.

Role-playing

Conducting interviews to gather requirements for analysis.

7 Physical model optimization

- Query performance management.
- Estimated disk space required for the model.
- Limits the size occupied by a dimension.
- Direct aggregation of certain elements in tables.
- Technical dimensions to ensure traceability.

Exercise

Average volumetry estimates for some analysis cases.

8 Star model power supply

- Source operational system constraints.
- The role of ODS in nutrition.
- Organization of processing in the DSA (Data Staging Area).
- Different types of feed (delta, stock, complete).
- Feeding stages, rules and prerequisites.
- Discharge management.
- Manage different sources to feed a dimension or fact.
- Extraction, Transformation and Loading (ETL), feeding solutions available on the market.

Exercise

Based on a case study, propose a loading architecture: ODS/Staging area.

9 Rendering information from a star model

- The different types of tools used for restitution.
- The market for restitution tools.
- Model optimization for data mining.
- Index optimization.
- Use table partitioning.

Storyboarding workshops

Presentation of best practices for optimizing the model for reporting purposes.

10 Conclusion

- Things to remember.
- Pitfalls to avoid.
- To find out more.

Dates and locations

REMOTE CLASS

2026 : 17 June, 30 Sep., 2 Dec.