

AGGREGATION IN ER DIAGRAM

AGGREGATION IN ER DIAGRAM: A COMPREHENSIVE GUIDE

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KEYWORDS: AGGREGATION IN ER DIAGRAM, ER DIAGRAM AGGREGATION, DATABASE DESIGN, ENTITY RELATIONSHIP DIAGRAM, UML, RELATIONSHIPS, WEAK ENTITIES, COMPOSITION, ASSOCIATION, DATABASE MODELING

SUMMARY: THIS COMPREHENSIVE GUIDE EXPLORES THE CONCEPT OF AGGREGATION IN ER DIAGRAMS, A CRUCIAL ASPECT OF DATABASE DESIGN. WE DELVE INTO THE DIFFERENT TYPES OF AGGREGATION, BEST PRACTICES FOR ITS IMPLEMENTATION, AND COMMON PITFALLS TO AVOID. THE GUIDE PROVIDES PRACTICAL EXAMPLES AND CLARIFIES THE DISTINCTIONS BETWEEN AGGREGATION AND OTHER RELATIONSHIP TYPES, LIKE COMPOSITION AND ASSOCIATION. UNDERSTANDING AGGREGATION IS CRITICAL FOR BUILDING EFFICIENT AND WELL-STRUCTURED DATABASES.

WHAT IS AGGREGATION IN ER DIAGRAM?

AGGREGATION IN AN ENTITY-RELATIONSHIP DIAGRAM (ERD) REPRESENTS A "HAS-A" RELATIONSHIP BETWEEN ENTITIES, INDICATING A "WHOLE-PART" RELATIONSHIP WHERE ONE ENTITY IS COMPOSED OF MULTIPLE OTHER ENTITIES. UNLIKE A SIMPLE ASSOCIATION, AGGREGATION IMPLIES A WEAKER FORM OF OWNERSHIP. THE "WHOLE" CAN EXIST INDEPENDENTLY OF ITS "PARTS," ALTHOUGH THE PARTS MAY OFTEN BE STRONGLY ASSOCIATED WITH THE WHOLE. THIS IS REPRESENTED GRAPHICALLY IN THE ERD USING A FILLED DIAMOND ON THE "WHOLE" ENTITY'S SIDE OF THE RELATIONSHIP LINE.

EXAMPLE: CONSIDER A UNIVERSITY AND ITS DEPARTMENTS. A UNIVERSITY HAS MANY DEPARTMENTS, BUT A DEPARTMENT CAN EXIST INDEPENDENTLY OF THE UNIVERSITY (THOUGH IT MIGHT NOT BE VERY MEANINGFUL). THIS IS AN AGGREGATION RELATIONSHIP.

TYPES OF AGGREGATION IN ER DIAGRAMS

WHILE THE FILLED DIAMOND UNIVERSALLY SIGNIFIES AGGREGATION, THE STRENGTH OF THE RELATIONSHIP CAN VARY. TWO KEY DISTINCTIONS ARE CRUCIAL:

Weak Aggregation: THE "PARTS" CAN EXIST INDEPENDENTLY OF THE "WHOLE." THIS IS THE MOST COMMON TYPE OF AGGREGATION AND IS ILLUSTRATED BY THE UNIVERSITY-DEPARTMENT EXAMPLE. THE DEPARTMENT CAN EXIST EVEN IF IT ISN'T ASSOCIATED WITH A PARTICULAR UNIVERSITY.

Strong Aggregation (Composition): THIS REPRESENTS A STRONGER FORM OF AGGREGATION WHERE THE "PARTS" CANNOT EXIST INDEPENDENTLY OF THE "WHOLE." IF THE "WHOLE" IS DELETED, THE "PARTS" ARE ALSO DELETED. FOR EXAMPLE, A CAR IS COMPOSED OF AN ENGINE, WHEELS, AND OTHER PARTS. IF THE CAR IS SCRAPPED, THE ENGINE, WHEELS, ETC., ARE ALSO DISCARDED. COMPOSITION IS OFTEN REPRESENTED BY A FILLED DIAMOND WITH A SLIGHTLY DARKER SHADE, ALTHOUGH THIS DISTINCTION ISN'T STRICTLY ENFORCED IN ALL DIAGRAMMING TOOLS.

BEST PRACTICES FOR USING AGGREGATION IN ER DIAGRAMS

CLEARLY DEFINE THE RELATIONSHIP: ENSURE THE "HAS-A" RELATIONSHIP IS ACCURATELY REPRESENTED. ANALYZE THE DEPENDENCIES BETWEEN THE ENTITIES BEFORE CHOOSING AGGREGATION.

CONSISTENCY IS KEY: MAINTAIN A CONSISTENT STYLE FOR REPRESENTING AGGREGATION THROUGHOUT YOUR ERD.

AVOID OVERUSE: AGGREGATION SHOULD ONLY BE USED WHEN APPROPRIATE. OVERUSING IT CAN COMPLICATE THE DIAGRAM AND OBSCURE THE ESSENTIAL RELATIONSHIPS.

CONSIDER CARDINALITY: SPECIFY THE CARDINALITY (ONE-TO-ONE, ONE-TO-MANY, MANY-TO-MANY) OF THE AGGREGATION RELATIONSHIP TO CLARIFY THE NUMBER OF "PARTS" ASSOCIATED WITH A "WHOLE."

USE APPROPRIATE NOTATION: EMPLOY THE STANDARD NOTATION FOR AGGREGATION (FILLED DIAMOND) CONSISTENTLY.

DOCUMENT YOUR DECISIONS: EXPLAIN YOUR REASONING FOR CHOOSING AGGREGATION OVER OTHER RELATIONSHIP TYPES.

Common Pitfalls to Avoid

CONFUSING AGGREGATION WITH ASSOCIATION: AGGREGATION IMPLIES A STRONGER RELATIONSHIP THAN SIMPLE ASSOCIATION. A SIMPLE ASSOCIATION DOES NOT IMPLY OWNERSHIP OR DEPENDENCE.

INCORRECT CARDINALITY: MISREPRESENTING THE CARDINALITY CAN LEAD TO DATABASE INCONSISTENCIES AND ERRORS.

OVER-AGGREGATION: CREATING UNNECESSARY LEVELS OF AGGREGATION COMPLICATES THE DESIGN AND MAKES IT HARDER TO UNDERSTAND.

IGNORING THE IMPLICATIONS OF DELETION: FAILING TO CONSIDER THE IMPACT OF DELETING THE "WHOLE" ENTITY ON THE "PARTS" CAN LEAD TO DATA LOSS OR INCONSISTENCIES, PARTICULARLY IN STRONG AGGREGATION (COMPOSITION).

Aggregation vs. Association vs. Composition

THE DIFFERENCES BETWEEN THESE THREE TYPES OF RELATIONSHIPS ARE FREQUENTLY A SOURCE OF CONFUSION. HERE'S A SUMMARY TABLE TO CLARIFY:

Relationship Type	Description	Diagram Symbol	"Parts" Existence Independent of "Whole"?	Deletion of "Whole" Affects "Parts"?
Association	General relationship between entities	Line	Yes	No
Aggregation	"Has-a" relationship, weaker form of ownership	Filled diamond	Yes	Usually no, but may depend on database implementation
Composition	"Has-a" relationship, stronger form of ownership	Filled, darker diamond (often)	No	Yes

Conclusion

MASTERING AGGREGATION IN ER DIAGRAMS IS ESSENTIAL FOR CREATING ROBUST AND WELL-STRUCTURED DATABASES. BY CAREFULLY CONSIDERING THE NATURE OF THE RELATIONSHIPS BETWEEN ENTITIES AND FOLLOWING BEST PRACTICES, YOU CAN DESIGN EFFECTIVE DATABASES THAT MEET THE NEEDS OF YOUR APPLICATIONS. UNDERSTANDING THE DISTINCTIONS BETWEEN AGGREGATION, ASSOCIATION, AND COMPOSITION IS CRITICAL FOR AVOIDING COMMON PITFALLS AND CREATING A CLEAR AND CONCISE ERD.

FAQs

1. WHAT IS THE DIFFERENCE BETWEEN AGGREGATION AND COMPOSITION? AGGREGATION IS A WEAKER "HAS-A" RELATIONSHIP WHERE THE PARTS CAN EXIST INDEPENDENTLY; COMPOSITION IS STRONGER, WHERE THE PARTS CANNOT EXIST WITHOUT THE WHOLE.

1. HOW IS AGGREGATION REPRESENTED GRAPHICALLY IN AN ERD? A FILLED DIAMOND ON THE "WHOLE" ENTITY'S SIDE OF THE RELATIONSHIP LINE.
1. CAN I USE A DIFFERENT SYMBOL FOR AGGREGATION IN MY ERD? WHILE A FILLED DIAMOND IS STANDARD, MAINTAINING CONSISTENCY WITHIN YOUR DIAGRAM IS CRUCIAL. AVOID DEVIATING FROM COMMON NOTATION UNLESS ABSOLUTELY NECESSARY.
1. WHAT ARE THE IMPLICATIONS OF DELETING A "WHOLE" ENTITY IN AN AGGREGATION RELATIONSHIP? IN WEAK AGGREGATION, THE PARTS USUALLY REMAIN. IN COMPOSITION, THE PARTS ARE DELETED AS WELL.
1. HOW DO I CHOOSE BETWEEN AGGREGATION AND ASSOCIATION? IF THERE'S A CLEAR OWNERSHIP OR "HAS-A" RELATIONSHIP, CONSIDER AGGREGATION. IF THE CONNECTION IS MORE GENERAL, USE ASSOCIATION.
1. WHAT IS CARDINALITY IN THE CONTEXT OF AGGREGATION? CARDINALITY SPECIFIES HOW MANY "PARTS" CAN BE ASSOCIATED WITH ONE "WHOLE" (E.G., ONE-TO-MANY, MANY-TO-MANY).
1. CAN AGGREGATION BE USED WITH WEAK ENTITIES? YES, WEAK ENTITIES CAN PARTICIPATE IN AGGREGATION RELATIONSHIPS, OFTEN AS "PARTS."
1. HOW DO I MODEL RECURSIVE AGGREGATION? RECURSIVE AGGREGATION INVOLVES AN ENTITY AGGREGATING INSTANCES OF ITSELF. THIS IS REPRESENTED BY A SELF-REFERENCING RELATIONSHIP WITH A FILLED DIAMOND.
1. WHAT TOOLS CAN I USE TO CREATE ER DIAGRAMS WITH AGGREGATION? MANY TOOLS SUPPORT ERD CREATION, INCLUDING LUCIDCHART, DRAW.IO, ERWIN DATA MODELER, AND MORE. CHOOSE A TOOL THAT SUITS YOUR NEEDS AND EXPERIENCE.

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1. ADVANCED ER DIAGRAM TECHNIQUES: COVERS MORE COMPLEX TOPICS SUCH AS GENERALIZATION/SPECIALIZATION AND INHERITANCE WITHIN ER DIAGRAMS, WHICH OFTEN INTERACT WITH AGGREGATION.

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WHAT YOU WILL LEARN ● Acquire a firm grasp of the principles of data and database management systems. ● Outlines the whole development and implementation process for databases. ● Learn how to follow step-by-step normalization rules and keep your data clean. ● MySQL operations such as DDL, DML, DCL, TCL, and embedded queries are performed. ● Develop an understanding of how the transaction management and recovery system operates.
WHO THIS BOOK IS FOR This book is ideal for anyone who is interested in learning more about Database Management Systems, whether they are undergraduate students, new database developers, or with some expertise. Programming foundations, file system ideas, and discrete structure concepts are recommended but not required.
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aggregation in er diagram: The Practice of Enterprise Modeling Anne Persson, Janis Stirna, 2009-11-16 Enterprise modeling (EM) has gained substantial popularity both in the academic community and among practitioners. A variety of EM methods, approaches, and tools are being developed and offered on the market. In practice they are used for various purposes such as business strategy development, process restructuring, as well as business and IT architecture alignment and governance. PoEM 2009 - the second IFIP WG 8.1 Working Conference on The Practice of Enterprise Modeling took place in November in Stockholm, Sweden. The conference series is a dedicated forum where the use of EM in practice is addressed by bringing together researchers, users, and practitioners in order to develop a better understanding of the practice of EM, to contribute to improved EM practice as well as to share knowledge and experiences. PoEM 2009 attracted 41 submissions from many different parts of the world, out of which the Program Committee selected 17 high-quality papers. Among the authors of these papers we find both researchers and practitioners. The resulting program reflects the fact that the topic of EM encompasses human, organizational issues, as well as more technical aspects related to the development of information systems. The program was organized in six thematic sessions: ? Experiences in EM ? The process of modeling ? EM in information systems development ? Model quality and reuse ? EM for Services modeling ? New ventures in EM The program also featured two keynotes by experienced EM practitioners. Håvard D.

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aggregation in er diagram: Entity-relationship Approach , 1992

aggregation in er diagram: Database and Expert Systems Applications A Min Tjoa, Roland Wagner, 2012-12-06 Use and development of database and expert systems can be found in all fields of computer science. The aim of this book is to present a large spectrum of already implemented or just being developed database and expert systems. Contributions cover new requirements, concepts for implementations (e.g. languages, models, storage structures), management of meta data, system architectures, and experiences gained by using traditional databases in as many areas of applications as possible (at least in the fields listed). The aim of the book is to inspire a fruitful dialogue between development in practice, users of database and expert systems, and scientists working in the field.

aggregation in er diagram: System Engineering Analysis, Design, and Development

Charles S. Wasson, 2015-11-16 Praise for the first edition: "This excellent text will be useful to every system engineer (SE) regardless of the domain. It covers ALL relevant SE material and does so in a very clear, methodical fashion. The breadth and depth of the author's presentation of SE principles and practices is outstanding." -Philip Allen This textbook presents a comprehensive, step-by-step guide to System Engineering analysis, design, and development via an integrated set of concepts, principles, practices, and methodologies. The methods presented in this text apply to any type of human system -- small, medium, and large organizational systems and system development projects delivering engineered systems or services across multiple business sectors such as medical, transportation, financial, educational, governmental, aerospace and defense, utilities, political, and charity, among others. Provides a common focal point for "bridging the gap" between and unifying System Users, System Acquirers, multi-discipline System Engineering, and Project, Functional, and Executive Management education, knowledge, and decision-making for developing systems, products, or services Each chapter provides definitions of key terms, guiding principles, examples, author's notes, real-world examples, and exercises, which highlight and reinforce key SE&D concepts and practices Addresses concepts employed in Model-Based Systems Engineering (MBSE), Model-Driven Design (MDD), Unified Modeling Language (UMLTM) / Systems Modeling Language (SysMLTM), and Agile/Spiral/V-Model Development such as user needs, stories, and use cases analysis; specification development; system architecture development; User-Centric System Design (UCSD); interface definition & control; system integration & test; and Verification & Validation (V&V) Highlights/introduces a new 21st Century Systems Engineering & Development (SE&D) paradigm that is easy to understand and implement. Provides practices that are critical staging points for technical decision making such as Technical Strategy Development; Life Cycle

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aggregation in er diagram: Database Management Systems P.S. Gill, 2010-09-30 The book is intended to provide an insight into the DBMS concepts. An effort has been made to familiarize the readers with the concepts of database normalization, concurrency control, deadlock handling and recovery etc., which are extremely vital for a clear understanding of DBMS. To familiarize the readers with the equivalence amongst Relational Algebra, Tuple Relational Calculus, and SQL, a large number of equivalent queries have been provided. The concepts of normalization have been elaborated very systematically by fully covering the underlying concepts of functional dependencies, multi-valued dependencies, join dependencies, loss-less-join decomposition, dependency-preserving decomposition etc. It is hoped that with the help of the information provided in the text, a reader will be able to design a flawless database. Also, the concepts of serializability, concurrency control, deadlock handling and log-based recovery have been covered in full detail. An overview has also been provided of the issues related to distributed-databases.

aggregation in er diagram: Graph Representation Learning William L. Hamilton, 2022-06-01 Graph-structured data is ubiquitous throughout the natural and social sciences, from telecommunication networks to quantum chemistry. Building relational inductive biases into deep learning architectures is crucial for creating systems that can learn, reason, and generalize from this kind of data. Recent years have seen a surge in research on graph representation learning, including techniques for deep graph embeddings, generalizations of convolutional neural networks to graph-structured data, and neural message-passing approaches inspired by belief propagation. These advances in graph representation learning have led to new state-of-the-art results in numerous domains, including chemical synthesis, 3D vision, recommender systems, question answering, and social network analysis. This book provides a synthesis and overview of graph representation learning. It begins with a discussion of the goals of graph representation learning as well as key methodological foundations in graph theory and network analysis. Following this, the book introduces and reviews methods for learning node embeddings, including random-walk-based methods and applications to knowledge graphs. It then provides a technical synthesis and introduction to the highly successful graph neural network (GNN) formalism, which has become a dominant and fast-growing paradigm for deep learning with graph data. The book concludes with a synthesis of recent advancements in deep generative models for graphs—a nascent but quickly growing subset of graph representation learning.

aggregation in er diagram: COMPSTAT F. de Antoni, N. Lauro, A. Rizzi, 2012-12-06 When dealing with the design or with the application of any technical system, which is not quite simple and trivial, one has to face the problem to determine the allowable deviations of the system functions and the optimal vector of system parameter tolerances. The need for the solution of this problem is stimulated with various serious economic and maintenance aspects, between them the tendency to reach the minimal production cost, the maximal system operation reliability are the most frequent. Suppose that we are dealing with a system S , consisting of N components represented by the system parameters $x_i, i = 1, 2, \dots, N$, which are arranged in certain structure so, that the K , system functions $F_k, k = 1, 2, \dots, IG$, expressing the considered system properties, fulfill the condition $F \sim AF, 1/\| \text{There } F = \{ F_k \} \in$ is the set of the actual system functions, $FO = \{ F_{Ok} \} \sim$ is the set of the nominal system functions and $AF = \{ A F_k \} \in$ is the set of the allowable deviations. The set F depends besides the system structure also on the vector $X = [X_i]_N$ of the system parameters. Suppose, that the system structure is invariant.

aggregation in er diagram: Multimedia and Imaging Databases Setrag Khoshafian, Brad Baker, 1996 Affordable and mainstream manipulation of multimedia data types will lead to

tremendous growth in imaging and multimedia data in general computing environments. Multimedia and imaging applications can now provide benefits to common business applications by integrating voice, sound, images, animation and digitized video. Ultimately, it will be possible to convert all information that is currently stored on paper, video and film into a digitized environment. This will allow users to organize, search and route multimedia objects over local and wide area networks in real time. The authors' introductory level presentation of this new class of data types supplies the database technology required for effective manipulation and storage. Multimedia and database experts, Khoshafian and Baker aptly illustrate the ability of multimedia database systems to concurrently share, access, and query large collections of multimedia information. They introduce the elemental concepts of object and relational databases and then apply them to multimedia and imaging databases. Fundamental database topics discussed include querying, transaction support, recovery, security, and storage. This book provides information essential to the incorporation of multimedia databases that will improve the quantity and quality of information manipulated by computer users in many areas including medicine, computer aided design, and information retrieval systems.

aggregation in er diagram: Sixth International Conference on Information Technology

aggregation in er diagram: Conceptual Modeling - ER 2000 Alberto H.F. Laender, Stephen W. Liddle, Veda Storey, 2000-09-20 This book constitutes the refereed proceedings of the 19th International Conference on Conceptual Modeling, ER 2000, held in Salt Lake City, Utah, USA in October 2000. The 37 revised full papers presented together with three invited papers and eight industrial abstracts were carefully reviewed and selected from a total of 140 submitted papers. The book offers topical sections on database integration, temporal and active database modeling, database and data warehouse design techniques, analysis patterns and ontologies, Web-based information systems, business process modeling, conceptual modeling and XML, engineering and multimedia application modeling, object-oriented modeling, applying object-oriented technology, quality in conceptual modeling, and application design using UML.

aggregation in er diagram: Discrete Choice Methods with Simulation Kenneth Train, 2009-07-06 This book describes the new generation of discrete choice methods, focusing on the many advances that are made possible by simulation. Researchers use these statistical methods to examine the choices that consumers, households, firms, and other agents make. Each of the major models is covered: logit, generalized extreme value, or GEV (including nested and cross-nested logits), probit, and mixed logit, plus a variety of specifications that build on these basics. Simulation-assisted estimation procedures are investigated and compared, including maximum simulated likelihood, method of simulated moments, and method of simulated scores. Procedures for drawing from densities are described, including variance reduction techniques such as antithetics and Halton draws. Recent advances in Bayesian procedures are explored, including the use of the Metropolis-Hastings algorithm and its variant Gibbs sampling. The second edition adds chapters on endogeneity and expectation-maximization (EM) algorithms. No other book incorporates all these fields, which have arisen in the past 25 years. The procedures are applicable in many fields, including energy, transportation, environmental studies, health, labor, and marketing.

aggregation in er diagram: UML and the Unified Process Favre, Liliana, 2006-10-23 Unified Modeling Language (UML), Unified Process (UP), and other information modeling methods are addressed in this scholarly consideration of the analysis, design, and development of web-based and enterprise applications. The most current research on conceptual, theoretical, and empirical issues of modeling for online business and static information is provided.

aggregation in er diagram: The Unified Modeling Language Martin Schader, Axel Korthaus, 2012-12-06 Most of the articles in this volume are revised versions of papers presented during the 1st GROOM-Workshop on the Unified Modeling Language (UML). GROOM (Grundlagen objektorientierter Modellierung) is a working group of the Gesellschaft für Informatik (GI), the German Society of Computer Science. The workshop took place at the University of Mannheim

(Germany) in October 1997; the local organizers were Martin Schader and Axel Korthaus, Department of Information Systems. The scientific program of the workshop included 21 talks, presented in German language on Friday, Oct. 10th, and Saturday, Oct. 11th, 1997. Researchers and practitioners interested in object-oriented software development, analysis and design of software systems, standardization efforts in the field of object technology, and particularly in the main topic of the workshop: "Applications, State of the Art, and Evaluation of the Unified Modeling Language had the opportunity to discuss recent developments and to establish cooperation in these fields. The workshop owed much to its sponsors and supporters - University of Mannheim - Faculty of Business Administration, University of Mannheim - Sun Microsystems GmbH - Apcon Professional Concepts GmbH. Their generous support is gratefully acknowledged. In the present proceedings volume, papers are presented in three chapters as follows.

aggregation in er diagram: *Transactions on Large-Scale Data- and Knowledge-Centered Systems I* Abdelkader Hameurlain, Josef Küng, Roland Wagner, 2009-08-24 Data management, knowledge discovery, and knowledge processing are core and hot topics in computer science. They are widely accepted as enabling technologies for modern enterprises, enhancing their performance and their decision making processes. Since the 1990s the Internet has been the outstanding driving force for application development in all domains. An increase in the demand for resource sharing (e. g. , computing resources, s- vices, metadata, data sources) across different sites connected through networks has led to an evolvement of data- and knowledge-management systems from centralized systems to decentralized systems enabling large-scale distributed applications prov- ing high scalability. Current decentralized systems still focus on data and knowledge as their main resource characterized by: heterogeneity of nodes, data, and knowledge autonomy of data and knowledge sources and services large-scale data volumes, high numbers of data sources, users, computing resources dynamicity of nodes These characteristics recognize: (i) limitations of methods and techniques developed for centralized systems (ii) requirements to extend or design new approaches and methods enhancing efficiency, dynamicity, and scalability (iii) development of large scale, experimental platforms and relevant benchmarks to evaluate and validate scaling Feasibility of these systems relies basically on P2P (peer-to-peer) techniques and agent systems supporting with scaling and decentralized control. Synergy between Grids, P2P systems and agent technologies is the key to data- and knowledge-centered systems in large-scale environments.

aggregation in er diagram: Database Systems Paolo Atzeni, 1999 Covers the important requirements of teaching databases with a modular and progressive perspective. This book can be used for a full course (or pair of courses), but its first half can be profitably used for a shorter course.

aggregation in er diagram: High-Performance Web Databases Sanjiv Purba, 2000-09-21 As Web-based systems and e-commerce carry businesses into the 21st century, databases are becoming workhorses that shoulder each and every online transaction. For organizations to have effective 24/7 Web operations, they need powerhouse databases that deliver at peak performance-all the time. High Performance Web Databases: Design, Development, and

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THE ENHANCED ENTITY- RELATIONSHIP (EER) MODEL - SEOUL ...

EER (ENHANCED ER) ER + SUBCLASS, SUPERCLASS, SPECIALIZATION, GENERALIZATION, CATEGORY, ATTRIBUTE AND RELATIONSHIP INHERITANCE SUPERCLASS / SUBCLASS RELATIONSHIP EXAMPLE: SECRETARY, ...

LS-06EN. MAPPING ER DIAGRAMS TO RELATION DATA MODEL.

1. PRACTICE PROBLEM BASED ON CONVERTING ER DIAGRAM TO TABLES 3.1. PROBLEM-01: FIND THE MINIMUM NUMBER OF TABLES REQUIRED FOR THE FOLLOWING ER DIAGRAM IN ...

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2. CONCEPTUAL MODELING USING THE ENTITY-RELATIONSHIP MODEL

BASIS FOR DERIVING A RELATIONAL DATABASE SCHEMA FROM AN ER DIAGRAM. DEPT. OF COMPUTER SCIENCE UC DAVIS 2. ENTITY-RELATIONSHIP MODEL. ECS-165A WQ'11 32 TRANSLATING ENTITY TYPES INTO ...

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CSC343--INTRODUCTION TO DATABASES ER CARDINALITY EXAMPLES ...

NOTE: THERE ARE MANY VARIATIONS ON ER MODEL BOTH GRAPHICALLY AND CONCEPTUALLY BASIC CONSTRUCTS: ENTITIES, RELATIONSHIPS, AND ATTRIBUTES (OF ENTITIES AND RELATIONSHIPS). SOME ADDITIONAL CONSTRUCTS: ...

UML-DIAGRAMME MIT PLANTUML

1.3 VERWENDUNG VON NICHT-ALPHANUMERISCHEN ZEICHEN 1 SEQUENZ-DIAGRAMM A TEND UML 1.3 VERWENDUNG VON NICHT-ALPHANUMERISCHEN ZEICHEN SOLL DIE BEZEICHNUNG EINES TEILNEHMERS ...

BINARY VS. TERNARY RELATIONSHIPS - PACIFIC UNIVERSITY

THE 2ND DIAGRAM! POLICIES POLICYID COST PNAME AGE COVERS DEPENDENTS NAME EMPLOYEES SSN LOT KEY CONSTRAINT ON POLICIES WOULD MEAN POLICY CAN ... AGGREGATION? NOTE CONSTRAINTS OF THE ER ...

DATABASE SCHEMA DESIGN USING ENTITY-RELATIONSHIP APPROACH

CONCEPTS/CONSTRUCTS IN ER APPROACH AND DIAGRAM O CARDINALITY VS. PARTICIPATION CONSTRAINT O WEAK ENTITY TYPE, EX/ID RELATIONSHIP TYPES, GENERALIZATION AND SPECIALIZATION O SOME ...

SUMMARY SO FAR THE ENTITY- RELATIONSHIP MODEL • ENTITIES AND ...

SUMMARY OF ER (CONT.) • ER DESIGN IS SUBJECTIVE. THERE ARE OFTEN MANY WAYS TO MODEL A GIVEN SCENARIO! • ANALYZING ALTERNATIVES CAN BE TRICKY, ESPECIALLY FOR A LARGE ENTERPRISE. COMMON ...

KAPITEL 12: DATENMODELLIERUNG MIT ERM UND UML - MAX ...

AGGREGATION MEHRERE ENTITIES MIT IHREN RELATIONSHIPS KÖNNEN SELBST WIEDERUM ZU EINEM ZUSAMMENGESETZTEN ENTITY (KOMPLEXEN OBJEKT) ZUSAMMENGEFASST WERDEN. DIE ENTSPRECHENDE ...

CHAPTER 5 ENTITY-RELATIONSHIP (E-R) MODEL - HNDIT.VERCEL.APP

DIAGRAMS VERY SIMILAR TO STANDARD ER DIAGRAMS. ENHANCED ER MODEL ENHANCED ENTITY-RELATIONSHIP DIAGRAMS ARE ADVANCED DATABASE DIAGRAMS VERY SIMILAR TO REGULAR ER DIAGRAMS WHICH ...

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CONVERSION OF ER MODEL TO RELATIONAL MODEL

A DATABASE THAT CONFORMS TO AN ER DIAGRAM SCHEMA CAN BE REPRESENTED BY A COLLECTION OF RELATIONAL SCHEMAS. BOTH THE ER ... TO REPRESENT AGGREGATION, CREATE A SCHEMA CONTAINING THE ...

CH. 4 ENHANCED E-R MODEL • TERNARY RELATIONSHIPS • SUB ...

E-R DIAGRAM WITH AGGREGATION. E-R DESIGN DECISIONS • THE USE OF AN ATTRIBUTE OR ENTITY TYPE TO REPRESENT AN OBJECT. • WHETHER A REAL-WORLD CONCEPT IS BEST EXPRESSED BY AN ENTITY TYPE OR A ...

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EXTENDING THE ER MODEL •CREATED TO DESIGN MORE ACCURATE DATABASE SCHEMAS •REFLECT THE DATA PROPERTIES AND CONSTRAINTS MORE PRECISELY •ADDRESS MORE COMPLEX REQUIREMENTS •SUBCLASSES, ...

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UML CLASS DIAGRAM OR ENTITY RELATIONSHIP ...

BLAHA, M [15], DESCRIBES THE UML CLASS DIAGRAM AS A DIALECT OF CHEN'S ORIGINAL ER DIAGRAM. BOTH OF THE NOTATIONS ARE USED TO DEPICT REAL WORLD OBJECTS IN TERMS OF A STATIC VIEW OF THE SYSTEM. ...

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7.19 - CONSIDER THE ER DIAGRAM OF FIGURE 7.20, WHICH SHOWS A SIMPLIFIED SCHEMA FOR AN AIRLINE RESERVATIONS SYSTEM. EXTRACT FROM THE ER DIAGRAM THE REQUIREMENTS AND CONSTRAINTS THAT ...

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ENTITY-RELATIONSHIP (ER) MODEL - CSIT.UDC.EDU

1. EXTENDED ER FEATURE #2: AGGREGATION EXAMPLE: E1 AND E2 PARTICIPATE IN R1. EACH RELATIONSHIP IN R1 HAS ZERO OR MORE ASSOCIATED ENTITIES IN E3. DESIGN #1: PROBLEM: EACH RELATIONSHIP IN R1 ...

AGGREGATION IN ER DIAGRAM

AGGREGATION IN ER DIAGRAM CHOPRA RAJIV. AGGREGATION IN ER DIAGRAM ENTITY-RELATIONSHIP APPROACH - ER '93 RAMEZ A. ELMASRI, 1994-07-28 THIS MONOGRAPH IS DEVOTED TO COMPUTATIONAL ...

EXTENDED E-R FEATURES

- AGGREGATION * THESE EXTENSIONS CAN ALSO BE CONVERTED TO RELATIONAL MODEL - INTRODUCE A FEW MORE DESIGN CHOICES. SPECIALIZATION ... * FINAL BANK ACCOUNT DIAGRAM: * WOULD ALSO CREATE ...

UNIVERSITY MANAGEMENT SYSTEM ER DIAGRAM

IT WORKS BEST WITH DFD (DATA FLOW DIAGRAM), WHICH IS RESPONSIBLE FOR DATA MOVEMENT. DEVELOPING THE DATABASE DESIGN FOR UNIVERSITY MANAGEMENT SYSTEM WOULD BE MUCH EASIER WITH THE HELP OF ...

ENHANCED ER-MODEL CHITTARANJAN PRADHAN DATABASE ...

AGGREGATION 8.1 DATABASE MANAGEMENT SYSTEM 8 ENHANCED ER-MODEL CHITTARANJAN PRADHAN SCHOOL OF COMPUTER ENGINEERING, KIIT UNIVERSITY. ENHANCED ER-MODEL ... AN ER DIAGRAM CAN ...

CHAPTER 6: ENTITY-RELATIONSHIP MODEL - DATABASE SYSTEM ...

DATABASE SYSTEM CONCEPTS - 5TH EDITION, OCT 5, 2006 6.3 ©SILBERSCHATZ, KORTH AND SUDARSHAN MODELING A DATABASE CAN BE MODELED AS: ZA COLLECTION OF ENTITIES, ZRELATIONSHIP AMONG ...

ER & EER TO RELATIONAL MAPPING - GEORGIA STATE UNIVERSITY

ER SCHEMA DIAGRAM FOR THE COMPANY DATABASE. CHAPTER 9 2 STEP 1: FOR EACH REGULAR ENTITY TYPE E * CREATE A RELATION R THAT INCLUDES ALL THE SIMPLE ATTRIBUTES OF E. * INCLUDE ALL THE SIMPLE ...

CHAPTER 7: RELATIONAL DATABASE DESIGN - DATABASE SYSTEM ...

DATABASE SYSTEM CONCEPTS - 7TH EDITION 6.5 ©SILBERSCHATZ, KORTH AND SUDARSHAN DESIGN PHASES (CONT.) FINAL PHASE -- MOVING FROM AN ABSTRACT DATA MODEL TO THE IMPLEMENTATION OF THE ...

THE ENTITY-RELATIONSHIP (ER) MODEL 3 - GEORGE MASON ...

EXTENDED ER FEATURES: GENERALIZATION * A BOTTOM-UP DESIGN PROCESS - COMBINE A NUMBER OF ENTITY SETS THAT SHARE THE SAME FEATURES INTO A HIGHER-LEVEL ENTITY SET. * SPECIALIZATION AND ...

ERDBUILDER: ENTITY RELATIONSHIP DIAGRAMS BUILDER - THE ...

THIS FUNCTION SERVES AS A CONSTRUCTOR FOR AN ENTITY-RELATIONSHIP DIAGRAM (ERD) OBJECT. THIS OBJECT

ENCAPSULATES BOTH THE DATA FRAMES REPRESENTING THE ENTITIES AND THE RELATIONSHIPS BETWEEN ...

CHAPTER 3 THE ENHANCED E-R MODEL - VILLANOVA

EER DIAGRAM SEGMENT FOR EACH OF THE FOLLOWING SITUATIONS: A) AT A GIVEN TIME, A PERSON MUST BE EXACTLY ONE OF THESE SUBTYPES. B) A PERSON MAY OR MAY NOT BE ONE OF THESE SUBTYPES. HOWEVER, ...

ENTITY-RELATIONSHIP MODEL - STANFORD UNIVERSITY

IN THE E/R DIAGRAM MANFS BEST- BEERS SELLER A MANUFACTURER HAS EXACTLY ONE BEST SELLER. A BEER IS THE BEST-SELLER FOR 0 OR 1 MANUFACTURER. 25 ATTRIBUTES ON RELATIONSHIPS SOMETIMES IT IS USEFUL TO ...

ENTITY RELATIONSHIP MODEL - KHOURY COLLEGE OF COMPUTER ...

THAT SHOULD BE REPRESENTED IN THE ER DIAGRAM. DESCRIBE THE WACKY MOVIE WORLD . MOVIE . ACTOR MOVIE ACTOR . MOVIE • AGGREGATION: GROUPING PART OF A SCHEMA INTO A LARGER UNIT. 34 . IN ...

FOLLOW A SEVEN-STEP ALGORITHM TO CONVERT THE BASIC ER MODEL ...

ER-TO-RELATIONAL MAPPING ALGORITHM (CONT'D.) • STEP 3: MAPPING OF BINARY 1:1 RELATIONSHIP TYPES FOR EACH BINARY 1:1 RELATIONSHIP TYPE • IDENTIFY RELATIONS THAT CORRESPOND TO ENTITY TYPES ...

THE ENTITY-RELATIONSHIP MODEL AND EXTENSIONS

THE ER MODEL AND ITS EXTENSIONS • MAIN PHASES OF DB DESIGN • ER DIAGRAMS-NOTATION • EXAMPLE DATABASE APPLICATION (COMPANY) • ER MODEL CONCEPTS -ENTITIES AND ATTRIBUTES -ENTITY ...

REDUCING ER DIAGRAMS TO RELATIONAL SCHEMAS - GITHUB PAGES

STEP 1: FIRST MAP THE AGGREGATION RELATIONSHIP R. FIRSTLY MAP THE DIAGRAM INSIDE THE BOX. STEP 2 :TO MAP RELATIONSHIP SET INVOLVING AGGREGATION OF R, TREAT THE AGGREGATION LIKE AN ENTITY SET ...

AGGREGATION IN ER DIAGRAM - X-PLANE.COM

AGGREGATION IN ER DIAGRAM: ENTITY-RELATIONSHIP APPROACH, THE CORE OF CONCEPTUAL MODELLING HANNU KANGASSALO, 1991 IN THIS VOLUME RESEARCHERS AND PRACTITIONERS SHARE DEVELOPMENTS ...

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REDUCING ER SCHEMA TO RELATIONAL SCHEMA - UNIVERSITY OF ...

1/30/2008 USC - CSCI585 - SPRING 2008 - FARNOUSH BANAEI-KASHANI 5 TRANSLATING ER DIAGRAMS WITH KEY CONSTRAINTS MAP RELATIONSHIP TO A TABLE: NOTE THAT DID IS THE KEY NOW! SEPARATE TABLES ...

LECTURE 12: ENTITY RELATIONSHIP MODELLING - DEPARTMENT OF ...

ER DIAGRAMS EMPHASIZE RELATIONSHIPS AND IDENTITY BUT YOU ONLY NEED ONE FOR ANY GIVEN PROBLEM ANALYSIS! ER PROVIDES RICHER NOTATION FOR DATABASE CONCEPTS: ER DIAGRAMS ALLOW N-ARY ...

CHAPTER 6: ENTITY-RELATIONSHIP MODEL - YALE UNIVERSITY

DATABASE SYSTEM CONCEPTS - 5TH EDITION, OCT 5, 2006 6.3 ©SILBERSCHATZ, KORTH AND SUDARSHAN MODELING A DATABASE CAN BE MODELED AS: A COLLECTION OF ENTITIES, A RELATIONSHIP AMONG ...

1 CLASS DIAGRAMS AND ENTITY RELATIONSHIP DIAGRAMS (ERD)

5.1.7 REVIEW YOUR DIAGRAM AND FINE TUNE IT. LOOK FOR INCONSISTENCIES AND ERRORS. FIX THEM. MAKE SURE YOU HAVE CAPTURED EVERYTHING REQUIRED FROM THE DOMAIN YOU ARE STUDYING - THAT YOUR ...

Aggregation In Er Diagram

Aggregation In Er Diagram

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