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Chapter 1 : Elmasri & Navathe, Fundamentals of Database Systems, 7th Edition | Pearson

Our presentation stresses the fundamentals of database modeling and design, the languages and models provided by the database management systems, and database system implementation techniques. The book is meant to be used as a textbook for a one- or two-semester course in database systems at the junior, senior, or graduate level, and as a.

For database systems courses in Computer Science This book introduces the fundamental concepts necessary for designing, using, and implementing database systems and database applications. Our presentation stresses the fundamentals of database modeling and design, the languages and models provided by the database management systems, and database system implementation techniques. The book is meant to be used as a textbook for a one- or two-semester course in database systems at the junior, senior, or graduate level, and as a reference book. The goal is to provide an in-depth and up-to-date presentation of the most important aspects of database systems and applications, and related technologies. It is assumed that readers are familiar with elementary programming and data-structuring concepts and that they have had some exposure to the basics of computer organization. Table of Contents Part 1: Introduction to Databases Chapter 1: Databases and Database Users Chapter 2: Database Systems Concepts and Architecture Part 2: Basic SQL Chapter 7: Database Programming Techniques Chapter Concepts, Models, Languages, and Standards Chapter Object and Object-Relational Databases Chapter Extensible Markup Language Part 6: Database Design Theory and Normalization Chapter Query Processing and Optimization Chapter Strategies for Query Processing Chapter Query Optimization Part 9: Concurrency Control Techniques Chapter Database Recovery Techniques Part Distributed Database Concepts Chapter Data Mining Concepts Chapter Database Security Appendix A: Parameters of Disks Appendix C:

Chapter 2 : Shamkant Navathe - Wikipedia

Description. For database systems courses in Computer Science This book introduces the fundamental concepts necessary for designing, using, and implementing database systems and database applications. Our presentation stresses the fundamentals of database modeling and design, the languages and models provided by the database management systems, and databa.

The system is to manage all savings, checking, and pocket accounts at the bank for customers of DebtsRus. This includes the following tasks. You have to demonstrate your system to the teaching staff of this course on CSIL computers running the Linux operating system. Associated with each account is a unique account ID number an integer , and a list of transactions made during the month. Also associated with each account is a bank branch name in which the account is held. Accounts come in three flavors: There are two sub-flavors of checking accounts: There is only one kind of savings accounts and one kind of pocket accounts. The following rules apply to all accounts: When a checking or savings account is first created, it must have a positive amount of money in its balance this should be recorded in the transaction history as a deposit. When a pocket account is created the customer must already have a checking or savings account with a positive balance. The customer also selects the account checking or savings to be linked to the pocket account. Any transaction that removes more than the available balance must fail. When an account is closed, the account is not removed from the database until after a final statement is generated at the end of the month. No transactions including deposits are permitted on a closed account. At the end of each month, all open accounts earn interest on their balances. The rate of interest varies with the type of account. Student checking has an initial 0. It should be simple to change these values in your prototype system bank policies change quite often. The following transactions are valid on a checking account: The initial annual interest rate is 7. The following transactions are valid on a savings account: Note that no checks can be written for a savings account. The general account rules and the follow rules apply: The interest rate is 0. If there is no transaction in a month, the monthly fee is waived. Every customer has a set of owned or jointly owned accounts. A customer should be only kept in the system if she or he owns one or more accounts. The PIN is used by the customer to access the accounts she owns. The PIN should be private data: When a new customer is created in the system, the PIN is initialized to A transaction can be generated by interaction of a customer with an ATM-App, or by an action taken by a bank teller. The following transaction types are allowed in the system: Add money to the checking or savings account balance. Subtract money from the checking or savings account balance. Subtract money from the pocket account balance. Subtract money from one savings or checking account and add it to another. A transfer can only occur between two accounts that have at least one owner in common. If the transfer was requested by a customer, she or he must be an owner of both accounts. The customer that requests this action must be an owner of the account from which the money is subtracted. Subtract money from the checking account. Associated with a check transaction is a check number. Note that a check cannot be written from all account types. Add money to the checking or savings account. The amount added is the monthly interest rate times the average daily balance for the month e. Interest is added at the end of each month. Associated with every transaction is the date of the transaction and the account s involved in addition to any information specific to the transaction; e. This information will be included in the monthly statement for each account. Transactions may fail for various reasons. For example, a transaction fails if any of the accounts involved are closed or if more money is deducted than is available in the account. All successful transactions on an account should be recorded for the account and printed in the monthly statement for the account. For simplicity, these two interfaces are combined for this project. If the customer owns more than one account, she should be prompted for the account s the transaction should access. If there is no pre-selected amount or account, no withdrawal should occur. The following options should be available: Submit a check transaction for an account. Given a customer, do the following for each account she owns including accounts which have closed but have not been deleted: This statement should list the names and addresses of all owners of the account. The initial and final account balance is to be included. Generate a list of all accounts which have closed in the

last month. How to handle joint accounts? Generate a list of all accounts associated with a particular customer and indicate whether the accounts are open or closed. For all open accounts, add the appropriate amount of monthly interest to the balance. There should be a record in your database that interest has been added this month. Given an account type and other necessary information e. Note that this operation may introduce new customers to the bank. You may consider a create customer operation, but as far as the bank operations are concerned, customer creation is a part of account creation. Delete Closed Accounts and Customers: Remove from the database all closed accounts and remove all customers who do not own any accounts because their accounts have closed. Delete the list of transactions from each of the accounts, in preparation for a new month of processing. They are not a functional part of your system but they are needed to test and debug your system and also needed for the demo. You may choose any particular ways these operations are done. You may also assume that the bank is open every day. It is not necessary to have your interfaces accessible from a web browser, even though access through the web seems logical and desirable. You will not earn extra credits with fancy GUIs. On the contrary, if your system does not function as specified, you will lose points. That is when your system is not running, all data are in the database and nothing is stored in any files. During the demo, your system may be asked to shut down and restart. All previous actions done on your system must be remembered. Again, you should not use files. The course project is to be completed by each group consisting of 1 or 2 students. Although both the difficulty and amount of work are suitable for one or two students, it is strongly encouraged that you work with another student in a group. In case of completion by two students, every one in the group is expected to know all details of the implementation up to the level of being able to answer questions concerning design decisions. An early project design report see Section 5 due on Friday, November 2, and A demonstration of your prototype system to the teaching staff of this course. The project deadline is at the time of your system demo. The regular demos will be scheduled during the last week of instruction the 10th week, i. As an option, demos can be scheduled during the week before the final instruction week i. You have to choose in advance between regular and early demos, and no group will be allowed to have two demos. Each group must give the instructor or either teaching assistants an advance indication that an early or regular demo should be scheduled. The details about the demos will be announced at a later time. The report has to address the issues in making major design decisions. In particular, you should discuss the following points that will help understanding the requirements of the project and main steps towards completing the project. Identify as many integrity constraints as you can on your initial ER diagram. You may describe the constraints in English. Design an ER diagram for the application described in the project and express as many integrity con- straints you have identified as possible. Translate the ER diagram into relation schemas and do not forget the integrity constraints you have identified. Indicate which integrity constraints that your relational database schema is able to incorporate; identify additional integrity constraints if possible. Discuss briefly how you will deal with a violation of each of the integrity constraints identified. Provide an initial system design.

Chapter 3 : databaseæ•°æ•®å°"ä»£å†™ CSA Fundamentals of Database Systems â€" PowCoder

focuses on database recovery protocols, and gives an overview of the concepts and techniques that are used in recovery. Parts 10 and 11 cover a number of advanced topics.

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He is an author of the book, Fundamentals of Database Systems, with R. Elmasri (Addison Wesley) which is currently the leading database text-book worldwide. He also co-authored the book Conceptual Design: An Entity Relationship

Approach (Addison Wesley,) with Carlo Batini and Stefano Ceri.

Chapter 6 : Fundamentals of Database Systems, 6th Edition

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Fundamentals of Database Systems combines clear explanations of theory and design, broad coverage of models and real systems, and excellent examples with up-to-date introductions to modern database technologies.