Database Management Systems II (DBMS-2004)
Final Project

Introduction

This is the final project in course DBMS-2004. This assignment works in a similar way as a traditional project in industry would. You are the DBA assigned to the project. There are a variety of DB related tasks that must be completed in a certain order for the project to complete successfully. You must complete the projects in the correct order to ensure project success. As in industry, you will not be delivering everything on the project due date, rather you will have a series of milestones to meet. These milestones put the work required into order so the first task feeds into the second and so on.

Each milestone lists the deliverables that are required at a certain point in time. Once the assignment is available, start working on the deliverables for the first milestone and submit them to the appropriate milestone drop box in LEARN. The second milestone may take the deliverables completed in the first milestone and use them as input to create more deliverables, or brand new deliverables may be required that do not use deliverables from previous milestones.

You will be required to hand in the deliverables you have done by the milestone due date. That part of the final project is then eligible for marking. If a submission is missing a deliverable or a milestone due date is missed then those deliverable(s) will be considered to have missed their deadline and will be given a grade of zero. The deliverable must still be completed though as it might be required for subsequent deliverables.

It is important to note that the first deliverables should not have to change as a result of completing the second and subsequent deliverables. If there are changes required in earlier deliverables then you have errors in your project. You will be required to make corrections, however the deliverable handed in will be marked as is.

Standards as discussed in class are expected. These standards include (but are not limited to):

- Supplying file names and folder names according to instructions
- Adequate documentation of *all* files produced (DOS batch files, SQL Scripts, Stored Procedures, Functions, Triggers, etc)
- Proper use of case (keywords in UPPERCASE, names in TitleCase or camelCase as applicable)
- Clauses on separate lines to help improve readability
- Blank lines to improve readability
- Meaningful variable names that use proper prefixes when needed

Marks will not be released for individual milestones until after the final deliverable (the entire project) is completed.

NOTE:

Run the 'setup' script (provided at the beginning of the course) before beginning the assignment. It will rebuild the JR Rentals database which is required for the final project. Run this script ONCE before starting the first milestone. If you need to rerun this script remember it resets the database to before the first milestone, so you may need to rerun some of the SQL you have written for the project…

Database Management Systems II (DBMS-2004)
Final Project

Project Description

JR Rentals has had many customers contact them with requests to rent electronic books in addition to videos. JR Rentals management has contacted an on-line e-book seller (http://www.ebooks.com/) and made arrangements to offer books for rent through the JR Rentals site. As a result of this agreement a new project has been started to implement the database changes to make book rentals possible. The changes that need to be made include

1. Revising the JR Rental database to accommodate books and movies;
2. Importing data from ebooks.com into the JR Rental database;
3. Creation of stored procedures, functions and triggers to help maintain the book component of the JR Rental database;
4. Creating users and permissions for the new staff to be hired for the e-book part of the company.

A business analyst team has already done analysis of requirements and come up with the list of deliverables. You are being given the first deliverable now (see below). Once you complete a deliverable and submit it (to LEARN) the next one will be made available to you. There are 5 deliverables in total for this project (each deliverable corresponding to the five points listed above). The deliverables must be completed in the order given and must be submitted by that milestone due date. The due date is available from the LEARN drop box.

Database Management Systems II (DBMS-2004)
Final Project

Milestone 1 – Database Additions and Revisions

The analysts have identified the tables, columns and data types required for some new tables. Below is a description of the changes:

Table Name: eBook

Notes: This is a brand new table that will contain the information on the books available for rent from JR Rental.

Columns	Data Type	Size	Required	Description
BookID	Number	5 digits	Y	A meaningless number used to identify the book for JR Rentals
ISBN	Character	13		The ISBN Number provided by the publisher
Title	Character	Up to 100	Y	The books title
Publisher	Character	Up to 100		The name of the publisher
Published	Date			When the book was published.
NoOfPages	Number	4 digits		How many pages in the book
RentalCost	Number	5 digits, 2 decimals	Y	Rental cost for the book

Table Name: BookAuthor

Notes: Books often have multiple authors. Author names will be stored in the existing table named 'Contributors'. The bookAuthor table will be the link between The Book and Contributor tables.

Columns	Data Type	Size	Required	Description
BookID	Number	5 digits	Y	A meaningless number used to identify the book for JR Rentals
ContributorID	Number	5 digits	Y	The identifier for a book contributor

Database Management Systems II (DBMS-2004)
Final Project

Table Name: BookRented

        Notes: This table will contain information on the books rented by JR Rental customers.

Columns	Data Type	Size	Required	Description
BookID	Number	5 digits	Y	A meaningless number used to identify the book for JR Rentals
AgreementID	Number	5 digits	Y	The Rental Agreement Number
RentalAmount	Number	5 digits, 2 decimals	Y	How much the customer paid for this book rental
RentalExpiry	Date		Y	When the rental will stop functioning (if not completed by this date the customer needs to re-rent the book)

The analysts have also identified the need to change an existing table for the 'Books Project'. These changes are:

Table Name: RentalAgreement

The fourth column 'MovieCount' lists how many movies are rented per agreement. Since this table will now contain rental agreements for books and movies, this column name needs to be changed. It should be renamed to ItemCount.

A new field must be added to the RentalAgreement table. This field is called 'RentalType'. The field will be used to identify what type of rental the current row represents, either a movie or a book. It is a one character field that can contain either an 'M' (for movie) or a 'B' (for book). This is a required field on the table. (DO NOT create a CHECK constraint on this column, data validation will be accomplished through other means).

Database Management Systems II (DBMS-2004)
Final Project

Deliverable 1

Write the SQL to create and alter all the tables' necessary (file name 'Alter_Tables.sql').

1. The first statements must drop any new tables to be created.
2. Following the drops are the create table statements to create the new tables. The tables should be created with primary keys added. Additional information on the tables include:
    a. Table eBook:
        i. The ISBN number cannot be duplicated
        ii. Rental Cost must be greater than zero
3. Alter on any foreign keys as needed on the new tables. These must be added with alter table statements.
4. Alter the RentalAgreement table to rename the column MovieCount and add the column RentalType.
5. Since all the current rows on the RentalAgreement table are movie rentals, set the RentalType column to 'M' for all movies.

Deliverable 2

Run the SQL written above (file name 'Alter_Tables.sql') against your schema.

Deliverables:

A single .zip archive named *'yourlastname,firstinitial.zip'.* This zip file contains the SQL file Alter_Tables.sql which contains the code to create and alter required tables. Submit this .zip archive to the 'Final Project – Milestone 1' drop box.

Your schema with the new tables created within it.

WARNING: You may only submit this milestone deliverable once, so make sure you are satisfied with what you have done before submitting. Submitting in error is NOT a valid excuse.

Submitting to the drop box will automatically release the next milestone deliverable(s) to you. You must submit *something* to receive the next milestone deliverable(s).