Lab Assignment #4 – Developing a Java Application with JDBC capabilities

Due Date: 23-Nov-2018 4:00pm.

Purpose: The purpose of this Lab assignment is to:

- Practice the use of JDBC components.
- Practice the database manipulation through a Java application.

References: Read the Lecture Notes 10 and the textbook.

- This material provides the necessary information you need to complete the exercises.

Be sure to read the following general instructions carefully:

This lab should be completed individually by all the students. You will have to demonstrate your solution in a scheduled lab session and submitting the project **through the dropbox link on D2L**.

You must name your Eclipse project according to the following rule:

YourFullName_COMP228Labnumber
Example: **JohSmith_COMP228LabAssign4**

Apply the naming conventions for variables, methods, classes, and packages:
- *variable names* start with a *lowercase* character
- *classes* start with an *uppercase* character
- **packages** use only *lowercase* characters
- *methods* start with a *lowercase* character.

Instructions and Requirements:

Centennial College bookstore maintains a database to store the "books" and "book sales" information. This database is manipulated with a Java app and each book sale is recorded. All the information is stored in a database named "CENTENNIAL_BOOKSTORE_DB" with the following tables with given columns. (You can add any missing columns in both tables)

BOOKS (BOOKCODE, TITLE, AUTHOR, PRICE, TYPE, SUBJECT)
SALES (BOOKCODE, SALEDATE, QUANTITY, PRICE)

Task 1: SQL Script (20 marks)

1. Create a BookStore.sql file. (All SQL scripts go in this file). 1 mark

2. Create a new database called CENTENNIAL_BOOKSTORE_DB. 1 mark

3. To ensure the data integrity set appropriate constraints (like primary key, null etc.)
   Note: all primary keys are not null and auto incrementing 2 marks

4. Create BOOKS table with following fields(columns): 4 marks
   BOOKCODE : INT,PRIMARY KEY
   TITLE: VARCHAR(50) , NOT NULL
   AUTHOR: VARCHAR(25), NOT NULL
   PRICE: DECIMAL(7,2)
   TYPE: VARCHAR(25)
   SUBJECT: VARCHAR(25)

5. Create SALES table with following fields: 4 marks
   BOOKCODE: INT, FOREIGN KEY,
   SALESDATE: DATE, NOT NULL
   QUANTITY: INT, NOT NULL
   PRICE: DECIMAL(7,2)

6. Insert the following records into BOOKS table: 3 marks
   001, Servlets and JSP, Murach,40.75, Technology, Software Engineering
   002, Learning Android 2, Marco, 56.97, Technology, Internet
   003, Under the Sea, Johnson, 43.00, Science, Marine life

7. Insert the following records into SALES table: 3 marks
   001, 23-Sep-2018, 5, 40.75
   001, 14-Oct-2018, 10, 40.75
   002, 20-Oct-2018, 15, 56.97

8. Every tables (BOOKS and SALES) should have at least 5 rows including above given rows / records. 2 marks

Task 2: Java Applications (30 marks)

You are asked to design a Java application (Console based) that uses JDBC to query and update the database. Your application should be able to do the following tasks / functions:

1. Create a simple menu with the following options: 5 marks

   Option selection: Books / Sales

   Add Record: this will accept an input based on the option selection (example if you chose Books option, you have to get input to add a book row / record)
   View Record: will show all the records from books or sales table base on the options.
   Update Record: this will update the one or more rows for Books or Sales based on the option selected.
   Delete Record: this will delete the one or more rows for Books or Sales based on the option selected.
   Search: this will find a book based on the author or title, sales based on sales date.
   Quit: this will exit the program.

2. Define proper definition with any required private members to implement a connect() method in the your program to establish a connection to a database. It takes 3 parameters: connect(String url, String user, String pass) 2 marks

3. List / Display all Books and Sales tables information. 4 marks

4. Add, update and delete Books and Sales tables information. When a Book code is deleted, their sales information must be deleted as well. 12 marks

5. Find the books or stores details based on the search criteria: 3 marks
   For Books- Search Criteria Title or Author
   For Sales - Search Criteria Sales Date

6. Calculate the total amount sold for a given SALESDATE. 2 marks
   add this option into your menu.

7. User friendliness and code standards (include your student name and number in each files) and white spaces and exception handling. 2 marks

Submission

Submit your assignment in a **zip file** that is named according to the following rule:
YourLastName_COMP228Labnumber.zip

Example: **JohSmith_COMP228LabAssign4.zip**

Academic honesty (Plagiarism and cheating)

All students must follow the academic honesty policies regarding Plagiarism and cheating on assignments, Quizzes or Tests. Centennial college's Academic Policy will be strictly enforced. To support academic honesty at Centennial College, all academic work submitted by students may be reviewed for authenticity and originality, with utilizing software tools.

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