CSS490D: Special Topics – Web Programming & Applications

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Final Project: Online Book Store

Important Dates:

Proposal Due: January 27, 2015 11:59 PM
Presentation Due: March 10 or March 12, 2015

Purpose of the Project:

You are to analyze the requirements for designing, implementing, demonstrating and documenting an online book store.

Application Overview:

Introduction

In this project, you design and implement an online book store. The system largely consists of two parts. First, the operational part is to run day-to-day transactions of the store. It is also referred to as on-line transaction processing (OLTP) system, which is updated continually throughout the day. The operational system enables users to explore and purchase products and add ratings to their favorite books. Second, analytical part provides information used for analyzing a problem or situation, which is typically done by analyzing patterns and trends in operational data. The analytical system does not hold up-to-the-minute information, but generates information as of a specific point in time (a snapshot of data). Thus, data in the operational system may be changed throughout the day as the business progresses, while information in analytical system should be updated according to a predefined scheduler.

Application Requirements

Data

- **Customers**: customer ID, password, name, email address.
- **Books**: product id, title, inventory amount, price, product metadata information (such as book category, author(s), published year, etc.).
- **Transactions**: record of book purchased, including order number, date, product information (product id, price, quantity, etc.).
- **Customer-to-Book Ratings**: rater's information, product id of book, date, rating, etc.

You system must maintain a current record of inventory that is updated to reflect the transaction performed. You must keep track of customers, for instance, their purchase history and rating history. A catalog of books for sale should be maintained in a way that is browsable and searchable by customers.

Operation

- **Customer Browsing**: Users must be able to search the databases for particular items based on various attributes and must also be able to be browsing (put more emphasis on browsing).
- **Update Transactions**: The system must be able to handle customer purchases, new inventory, new users, etc. and other changes to the operational system that is necessary for the day-to-date running of the business.
- **Error Checking**: The system must be robust. For instance, items should not be sold if they are not currently in stock, etc.
- **Decision Support**: The analytical part must provide the following decision support queries:

- Maintain the aggregate sales and profit of the store weekly and monthly. Then, compare the value change (i.e. increase/decrease) of sales and profit with the previous week and month.
- Maintain weekly the top 10 bestsellers of the entire store and the top 5 bestsellers of each category. Also main the list of the most favorite books bi-weekly.
- Develop a direct marketing data; for each product category, a list of customers that buy the product more than 2 times per month.
- Other interesting summary data that you will come up with.

Rules of the Game

- **Implementation Tools**: All projects are expected to be runnable from a Web browser and local Web server. The choice of your database system is up to you.
- **Assumptions:** in case where the above description of the application is incomplete, it is acceptable to make assumptions about the application providing that: 1) they are explicitly stated in the final presentation, 2) they don't conflict with any of the requirements specified above, and 3) they are 'reasonable'. If you have any question about the acceptability of any of your assumptions, check with the instructor.
- **Report**: No separate report. However, you should include all of the report requirements described the below in your presentation file, even in the situation when you will not be able to explain them during your presentation due to the lack of time.
- **Implementation**: The project requires using JSP, JavaBean and Servlet at the server side. No other Web programming languages (e.g. PHP, CGI, ASP, Python, Ruby, etc.) will be allowed.

Report Requirements

The final presentation file must contain:

1. **A short overview of the system including identification of the various types of system users, administrators, etc. who will be accessing the system in various ways.**
2. **Some exemplary scenarios of how various types of users will interact with the system.**
3. **A list of assumptions that you have made about the system**
4. **A description of the data that will be maintained in the operational system.**
5. **A graphical schema of the operational database using the E-R modeling.**
6. **A brief overview of the system implementation with example screen shots**
7. **A description of the system's limitations and the possibilities for improvements.**

In addition, all members of the group must attend the presentation, and must be prepared to explain and demonstrate those aspects of the project for which they were responsible. The course code for the project should be available on-line during the demonstration.