Term Project - Market Place for File Sharing

SWE3003 Database Systems - Spring 2020

Due date: June 12 (Fri) 11:59pm

1 Purpose of the Project

You are requested to analyze the requirements for, the design, implementation, documentation and testing of a database system that could automate the administrative functions of a simplified web database system.

2 Requirement

The specifications in this handout represent a basic outline of requirements. Additional features could and should be added. Make sure that these additions are appropriately documented and demonstrated.

Your system should be implemented using MySQL (MariaDB) on 'swin' node using embedded SQL with C/C++, Java, or JavaScript. If you wish to use another database or programming language, you must get approval from the instructor.

A description of the major functions and data items follow.

2.1 Data

The system should include information that permits the running of a web server system. The basic concept is that people who have something to provide, pay a fee to you every month and present to you the item or items that will be provided. The fee they pay is a function of the amount of local storage required to store the information or pointers to the information. Providers receive money every month based on the number of downloads of their items that occurred. Users subscribe to the system and pay a fixed fee every month for usage. They log into the system, browse the database, and download to their site whatever items are desired. It might be programs, images, video clips, sound clips or whatever else you can think of. You are to design the database and also provide functionality for examining the database to do billing and to understand usage patterns. The kinds of data that should be included are:

- **User Data**

  name, address, account number, phone number, birthday, access history, subscription fee, amount due, data joined, etc

- **Provider Data**

  name, address, phone number, birthday, account number, joining fee, amount due you, amount still to be paid to you, amount to be paid to provider, date joined, etc

- **Item Data**

  This includes at least the following: programs, images, video clips, sound clips, and documents. The kinds of data that should be kept on the items include: Id, name, type of item (program, video, etc), author, subject category (can be used for keyword searching), size, machine architecture required (e.g., mac, pc, workstation type, all, etc), operating systems required, language written in (if relevant), local storage requirements, short description of the item, address of where item can be retrieved, type of viewer needed, last updated, etc.

2.2 Functions

The following types of events should be handled by the system.

- Both users and providers submit forms containing the appropriate data.
- Providers, users and items are then entered into the database with the appropriate information.
- Items are placed in an appropriate category.
- Items may be updated any time.
- People may cancel their subscription on a monthly basis.
- Items associated with dropped providers are appropriately removed.
- Bills must be submitted on a monthly basis and collected with appropriate recordings of information.
- Access to an item should be simulated (actual web access is not required).
- Statistics should be kept on what is accessed, how often, and by whom.
- Payments to providers should be based on some formula of the number or times their items are downloaded.
- Items that are not accessed above a given threshold amount are purged from the system with appropriate cancellation of providers account and removal of their items.
- Some itme,s such as a video clip, may require other items. In this case, besides the clip, a viewer program and an audio program may be needed and may be downloaded separately.

2.3 Queries

- A user can request information on available programs, documents, images, video clips etc. that might be available in general or for a given hardware and operating system configuration. Information should be available based on category if so desired.
- A user can request a download a desired item. When this is done since an actual download will not be performed, a print out of the locations from which the desired item or items are being retrieved should be indicated. Also appropriate statistics should be updated.
- A provider should be allowed to view the statistics on his submitted items.
- Bills are to be sent out once a month to users and providers. In addition, money should be sent to the providers based on usage statistics. Also, general statistics on profits and losses should be obtainable.
- Information should be retrievable as to the most accessed items and the least accessed items as well as items that have been dropped because they did not pass the monthly threshold. Also, reports that indicate the main users and those that hardly use the system should be retrievable as well as what items they are using or not using.

3 Report

A well-formatted report should be handed in for grading at the end of semester. The report should consist of the followings.

- Schema diagram using E-R model
- List of attributes of each entity and relationship
- DDL statements
- DML statements for queries
- Screen shots of your system and user manual for each function
- URL of your project, e.g., http://swin.skku.edu/~2012345678/db_proj

4 How to Submit

Submit your source code files using db_submit command in 'swin' node as follows.

```
$ db_submit term project.tar.gz
```

You should compress your source codes using 'tar czvf project.tar.gz {source_code_directory}' command. Note that you can submit multiple times. But only the last submission will be graded. Using the following command, you can check whether your file has been correctly submitted.

```
$ db_check_submission term
```

For any questions, please post them in Piazza so that we can share your questions and answers with other students and TAs. Please feel free to raise any issues and post any questions. Also, if you can answer other students' questions, you are welcome to do so.