

DBMSs - Practical Exam  
Subject 4

You are asked to create a MiniFacebook system that records users and their online social activity. Each user has a name, a current city and age (in years). A user can like multiple pages. The system stores the date of each like. A page has a name and a category, e.g., sports, movies, music, etc. A category also has a category description. Users write posts and comment existing posts. A user's post has a date, text and the number of shares. A comment is anonymous, it has a text, a date, and a flag indicating whether it's a top comment for the corresponding post.

Your tasks are to:

- 1) Create a relational model, in 3NF, to represent the required data. (3p)
- 2) Create a master - detail windows form that allows searching the posts for a given user. The form should have at least the following components: a combo box (or list box) to display the users, a grid for all the posts of the selected user, and a button for saving added / deleted / modified posts. It's up to you how to add / delete / change a post. (2p)
- 3) For all users in the 18-24 age group that wrote at least one post in the last month that has at least 2 comments, display the number of liked pages. The result set should include the user's name and age and be ordered by the number of liked pages. You must also create at least one index to be used by this query (you must prove the index is used by displaying and explaining the actual execution plan). (3p)
- 4). Create a scenario that reproduces the non-repeatable reads concurrency issue, through stored procedures or standalone queries. Find a solution to solve / workaround this concurrency issue. (1p)