

Database Systems

Spring Semester 2024

Assignment #2

Due Date: 19th February 2024,

Instructions:

- **Submit on *GOOGLE CLASSROOM* in the form of a zip file with your ROLLNUMBER**
- *Do not copy the work of your peers. In case cheating is detected, then your case will be referred to DC.*

The aim of this assignment is to provide students with hands-on experience in working with a real-world database schema. In this case, we'll use a simplified schema based on Pinterest. Students will be tasked with writing SQL queries to retrieve and manipulate data from the Pinterest database.

Database Schema: Consider the simplified Pinterest database schema given below. The Pinterest database model consists of different entities, including Users, Boards, Pins, Comments, and Likes. Each User entity is characterized by attributes such as UID, Name, Birth data (Bdate) and Email. Users can create multiple Boards, each identified by a unique BID and featuring attributes like name. Pins, representing images or content, are associated with Boards and have attributes such as PID, Description, URL, and Date pinned. Users can interact with Pins through Comments, denoted by CID, Text, and Date on which comment is given. Additionally, Users can express their appreciation for Pins and Like them.

- Users (UID, Name, Gender, BDate, Email)
- Boards (BID, UID, Name)
- Pins (PID, BID, Description, URL, Date)
- Comments (CID, PID, UID, Text, Date)
- Likes (PID, UID)

1. Write down nested SQL statements for the following queries:

- Print the names of the users with the most pins.
- For each PIN, print the PIN Name and the total number of LIKES it received, but only for the PINS with more than 10 LIKES.
- For each Board, list the names of the PINs it holds. If it has no PIN, then indicate this with a null value.
- Print the PIDs of the PINs that have exactly the same number of Likes and Comments.
- Print the details of the Users who have liked all the PINs made by the User with UID=100.
- Find pairs of Users who have commented on exactly the same pins.
- Print the names and ages of users with more than the average age.
- Print the ID of the Board with the minimum number of pins in the year 2022.
- Find the top 3 boards with the highest number of pins.
- Find the names of the users who have commented on one or more Pins.
- List the names of Boards with exactly five pins

2. Create the following Views on Pinterest Schema

- a. UserBoardsView: This view provides a list of users and the boards they created.
- b. PopularPinsView: This view displays the popularity of each pin based on the number of likes.
- c. UserActivityView: This view shows user activity by listing their comments and the associated pin details.
- d. BoardDetailsView: This view provides the board name, the name of the PIN it holds, and the total number of likes received by each PIN, but only for boards with more than 10 pins.

3. Create the following triggers on Pinterest Schema.

- a. NewPinTrigger: Assume we have a table for logging new pin creation. Write a trigger that logs each new pin creation in the PinActivityLog table for tracking activity.
- b. PINLikes: Create a trigger that prints a message when a PIN receives more than 100000 Likes.