INFO 6210
Data Management and Database Design
Physical Data Model and Social Media
Assignment 2

Professor: Nik Bear Brown

Due March 6, 2019

In this assignment, you are assumed to be working for a company called *Nerd Analytics* and that you are completely in charge of the database. Another group of statisticians and machine learning experts will be using the data that you model, gather, clean and database to ask analyze Social Media for a particular domain (e.g. Games, Film, Databases, Cartoons, Baseball, Pokemon, Music, etc.). Each domain must have entities that represent consumers, producers and companies. For example, for games one must be able to model gamers, game developers and game companies. For music one must be able to model music lovers, musicians and music companies.

This assignment can be done in pairs, or individually. But two people MUST have two social media accounts and write more use-cases.

Part I

Conceptual Model

Design Requirements

This can be an extension of your first conceptual model or a new one.

Your submission must include:

- o   A domain (e.g. games, film, databases, cartoons, etc.)
- o   Conceptual models (entities) for a tweet/post, a Social Media user, a person, and a company.
- o   Conceptual models (entities) that represent consumers, producers and companies in your chosen domain.
- o   Conceptual models (entities) for at least two things specific to the domain (e.g. a game, a film, a song, etc.)
- o   Relationships that connect the entities.
- o   Appropriate attributes and keys.
- o   ER diagrams that illustrate the entire conceptual model.
- o   The ER diagrams can use standard ER symbols or UML.

Questions

Questions you must answer about your conceptual model:

1. What are the ranges, data types and format of all of the attributes in your entities?
2. When should you use an entity versus attribute? (Example: address of a person could be modeled as either)

3. When should you use an entity or relationship, and placement of attributes? (Example: a manager could be modeled as either)
4. How did you choose your keys? Which are unique?
5. Did you model hierarchies using the "ISA" design element? Why or why not?
6. Were there design alternatives? What are their tradeoffs: entity vs. attribute, entity vs. relationship, binary vs. ternary relationships?
7. Where are you going to find real-world data to populate your model?

Social Media Account

You need a Social Media account (e.g. Twitter, Facebook, Instagram, etc.) It is recommended that you create a Social Media account separate from your personal one for this class as it will be used for interacting with the Social Media API.

Scoring Rubric - Part I

- o (50 Points) Conceptual models - The quality of the conceptual models. Do they cover the specs?
- o (15 Points) ER diagrams – The quality of the ER diagrams. Do they cover the conceptual models?
- o (15 Points) Questions – 2 points for each of the 7 questions and a brownie point if you get more than 10 points on the seven 2 point questions.
- o (10 Points) Explanations, understandability of the report.
- o (10 Points) Quality Score - Professionalism of the work.

Part II

Physical Model

Design Requirements

Your submission must include:

- o Updated ER diagrams that illustrate the entire conceptual model in a form that directly maps to SQL. You need to either: incorporate the feedback you are given or respond as to why it isn't needed.
- o SQL and diagram for the physical model that represents the entire conceptual/physical model.
- o SQL that express the queries you are asked to write.
- o At least 5 (10 if two people) distinct use cases of queries that are particular to your domain.
- o SQL expressions that express the 5 (10 if two people) use cases of queries that you write.

Queries (25 points)

Note: You may have to update your database model that make these queries.

Queries you must answer about your physical model (In SQL):

    a. What user posted this (e.g. tweet, facebook post, IG post, etc.)?
    b. When did the user post this (e.g. tweet, facebook post, IG post, etc.)??
    c. What posts has this user posted in the past 24 hours?
    d. How many post has this user posted in the past 24 hours?
    e. What keywords/ hashtags are popular?
    f. What posts are popular?

Use Cases

At least 5 use cases of queries that are particular to your domain. This means your use cases cannot be queries that are general to Social Media as above. If your use cases can be applied to everyone's model then they are not particular to your domain (e.g. Games, Film, Databases, Cartoons, Baseball, Pokemon, Music, etc.). The 5 use cases must involve tables/entities that are domain specific. At least two use cases of queries must involve the Social Media tables with the domain specific tables.

If you are working in a group on the same model, each student must come up with 5 different use cases.

Scoring Rubric - Part II

    ○ (25 points) Updated or new ER diagrams that illustrate the entire conceptual model.
    ○ (25 points) SQL and diagram for the physical model that represents the entire conceptual model.
    ○ (25 points) SQL that express the queries you are asked to write.
    ○ (5 points) At least 5 use cases (10 if two people) of queries that are particular to your domain.
    ○ (10 Points) Explanations, understandability of the report.
    ○ (10 Points) Quality Score - Professionalism of the work.

Submission of Assignments

Your submission must include the SQL, diagram(s), along with a write-up.