

Database Systems Lab (CL2005)

Date: March 13th 2025

Instructor(s)

Mr. Muhammad Kamran

Ms. Seemab Ayyub

Sessional-II Exam

Total Time (Hrs): 1.5

Total Marks: 40

Total Questions: 4

Roll No

Section

Student Signature

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Attempt all the questions.



Problem Statement & Schema

The **Pokémon Grand League** is the ultimate battlefield where only the smartest trainers thrive. This year, the league introduces a new twist—a **powerful database system** that tracks every battle, trainer, and Pokémon. But there's a problem: **the data is chaotic, battles are miscalculated, and rankings are flawed**.

To restore order, **Professor Alder** issues a challenge:

 "Only those who can master data can conquer the League. Structure the battle records, uncover hidden patterns, and outthink your rivals!"

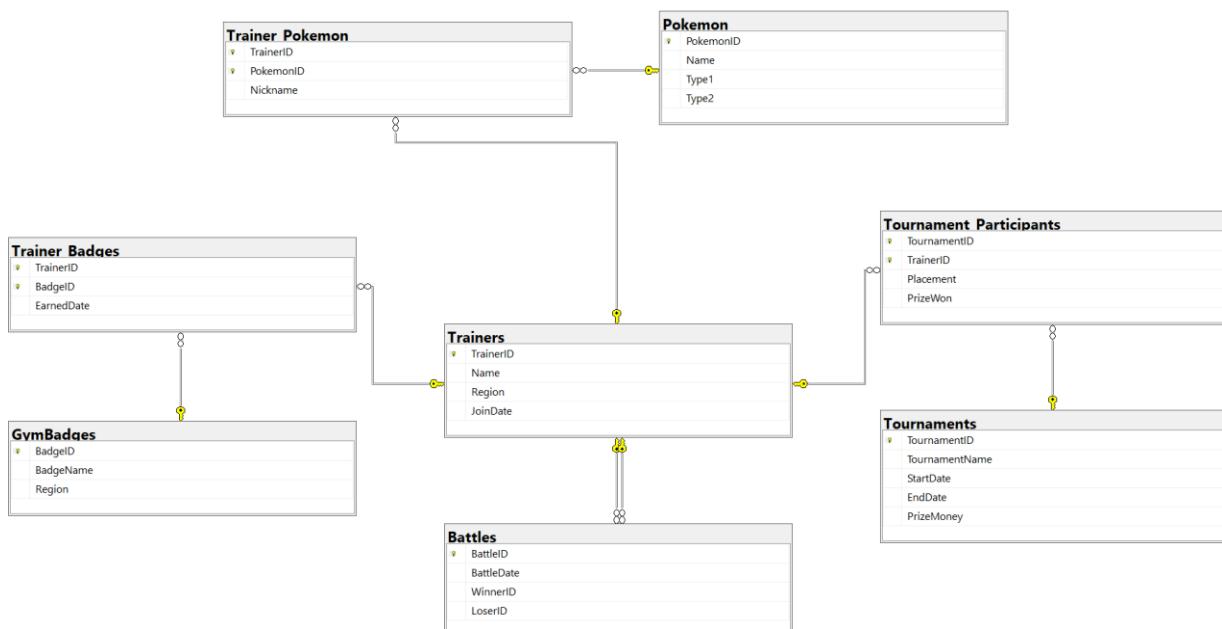
As a skilled trainer and data architect, your mission is clear:

- **Build** a flawless system to track Pokémons, trainers, and battles.
- **Analyze** battle histories to find top performers and rare undefeated trainers.
- **Extract insights** to predict matchups and gain a strategic edge.

Basic Schema is provided which is depicted in following picture

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Answer the following questions

CLO #: 2

Q1: The league requires to track abilities and which pokemons possess them. To do so, [7(3+4) marks]

Write Following queries:

- a) Write a create statement to make a Table named “Abilities”

AbilityID – An integer as the primary key (auto-incremented).

AbilityName – A string of at most **100** characters, must be **unique**.

Description – A string of at most **200** characters describing the ability.

- b) Write a create statement to make a Table named “Trainer_Items”

PokemonID – A foreign key referencing the **Pokemon** table.

AbilityID – A foreign key referencing the **Abilities** table.

Level – A non-negative integer representing the number of levels a pokemon achieved (default is **1**)

CLO #: 2

Q2: The Pokémon League rules that each Gym Badge must have a unique name and must be associated with a valid region (not null & atleast 3 characters).

- Write an ALTER TABLE query to enforce these constraints.
- Add a new column **DifficultyLevel** (INT, Default: 1) to the **GymBadges** table. Ensure that it cannot have negative values.
- Ash accidentally disabled all constraints. Could you re-enable all checks? Write sql query for that.
- Add a column named “isLegendary” as a Bit; can’t be null and by default 0.

CLO #: 3

Q3: DML & Basic Queries

[7(1+1+1+3+1) marks]

- a) Insert the following trainer data into the Abilities table:

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- ('Static', 'May cause paralysis if touched.')
 - ('Blaze', 'Powers up Fire-type moves when the Pokémon is in trouble.')
 - ('Overgrow', 'Powers up Grass-type moves when the Pokémon is in trouble.')
 - ('Torrent', 'Powers up Water-type moves when the Pokémon is in trouble.')
- b) Insert following data into Pokemon_Abilities Table
- (1, 1), -- Pikachu - Static
 - (2, 2), -- Charizard - Blaze
 - (3, 3), -- Bulbasaur - Overgrow
 - (4, 4), -- Squirtle - Torrent
- c) Delete all battles that were fought before the year 2000.
- d) A legendary event has occurred! Increase the level of all pokemon_abilities by 2.
- e) Change the status of these pokemon to legendary: 'Snorlax', 'Pikachu', 'Bulbasaur', 'Gengar'

CLO #: 3

Q4: DQL & Queries

[20 marks]

- a) [3 Marks] List trainers who have won at least two battles, along with their win count.
- b) [3 Marks] Find the most commonly owned Pokémon across all trainers.
- c) [4 Marks] Find Trainers Who Have Participated in Every Tournament.
- d) [5 Marks] Find the tournament that had the highest total prize money distributed among participants.
- e) [5 Marks] Find the region with the highest average number of gym badges per trainer.

