The League Genie

Security and Data Integrity Analysis

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1. Executive Summary

This document is to analysis the security and data integrity of our database project. This document contains information about data privacy and security, and entity and referential integrity of out database.

2. Privacy Analysis

For our database there isn't much personal data at all. The only relevant personal data our database *could* keep track of would be a user's profile information. We specifically chose not to include this in our database because the data would not be helpful enough to warrant the privacy risk and therefor was omitted. Other than that, there is no data in the database that could be linked to any individual and therefor no privacy risks associated with the database.

3. Security Analysis

The biggest aim for data integrity is that only the creators of the database (Sasha Chen and Madison Bruner) are allowed administrative control. This makes it so we are the only two that can edit the database in any way. Users of the database will be able to see most information about an individual game as well as an average of most information across the database. In case a player doesn't want a game associated with them personally, match ids and player ids are used so it is unknown to a user who is actually playing in a match; just an anonymous player from their view.

4. Entity Integrity Analysis

   a. For the Champion table, Name must be a unique string less than 20 characters and is the primary key. Level must be an integer between 1 and 18 and not null. Passive, Skill0, Skill1, Skill2, and Skill3 must all be string descriptions that are less than 50 characters long and not null.

b. For the Champion_of_Player table, Champion_Name and Player_id foreign keys must be a unique 20 character string and 5 digit number respectively and cannot be null.

c. For the Fight table, Match_id, Winning_Team, and Losing_Team foreign keys must all be unique 5 digit numbers and cannot be null.

d. For the Friends_With table, User1_id and User2_id foreign keys must both be unique 5 digit numbers and cannot be null.

e. For the Item table, Name must be a string less than 50 characters and is the primary key. Active, Passive, and Aura must all be descriptions less than 50 characters and can all be null. Ability_Power, Attack_Damage, Attack_Speed, Crit_Chance, Health, Mana, Move_Speed, Magic_Resist, and Armor must all be integers and can all be null.

f. For the Item_of_Player table, the Player_id and Item_Name foreign keys must be a unique 5 digit integer and string less than 50 characters respectively and cannot be null.

g. For the Match table, the Match_id must be a unique 5 digit number and is the primary key. Time is a number of seconds and cannot be null.

h. For the Player table, Player_id must be a unique 5 digit number and is the primary key. Kills, Champion_level, Deaths, Summoner_Skill, Assists, and Creep_Score must all be non-null integers with Champion_Level being a number between 1 and 18. Position must be non-null and be one of the following strings: ‘Tank’, ‘ADC’, ‘APC’, or ‘Support’.

i. For the Player_on_Team table, the foreign keys Player_id and Team_id must be unique 5 digit numbers and cannot be null.

j. For the Summoner table, the User_id must be a unique 5 digit number and is the primary key. Level must be an integer between 5 and 30 and cannot be null.

k. For the Summoner_of_Player table, the foreign keys User_id and Player_id must be unique 5 digit integers and cannot be null.

l. For the Team table, Team_id must be a unique 5 digit integer and is the primary key. Turrets must be a number between 0 and 4 and cannot be null. Inhibitor must be either the number 0 or 1 and cannot be null. Gold, Experience, Kills, and Deaths must all be the aggregate totals of all the players associated with the team and cannot be null.

5. Referential Integrity Analysis

On a delete, all operations will cascade. The main reasoning for this is that all parts (other than items) are needed to have a valid game. If a champion is removed from a game for example, that game could never have actually happened because all 10 champions must be present for a game to start.

On an update, all information should cascade. In the foreseeable future, the only reason there would be an update to the database is when there is an addition or a change to the game itself. If there is such a change to the game, the changes should propagate to all aspects of that change.