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Lab 1

2. Short Essay: Data vs Information - Select a database in use today (real or imagined) and identify the elements of “data” stored therein and describe how the database organizes the “data” into “information”. Give contrasting examples of “data” and “information” that illustrate the meaningless of “data” without context and organization. Talk about the value the “information” provides once the component data is given context.

A database that is used today to organize data into information is video game databases. In most multiplayer games, developers will use databases to store statistics on every certain individual such as performance, hours played, etc. Depending on the online game, there can be a multitude of player data statistics that are sorted through in a database to relay back to the player and even change their playing experience. For example, the popular game “Rocket League” has a database for all of its player's competitive play statistics. Rocket League is an online PVP game where the players play car soccer. Every player controls their own car and statistics are recorded for each competitive game for ranking purposes.

There are a total of 8 ranked tiers which are calculated by the statistics of the individual player and their wins and losses. The players' goals, assists, saves, wins, and losses are immediately recorded into their backend database when starting competitive play. This data could look like binary numbers, bits or bytes, and text codes, depending on what exact database they use. All of this data is then organized into algorithms to formulate a player's skill rank. After 10 games of analyzing, an average skill rank is calculated and then the player will then play with others in the same rank tier to make competitive play fairer.

This formulation of the player data is one of the most important aspects of the game. Without the algorithm that calculates the player's rank, the data of the player stats would have no practical use at all unless the player wanted to look at them. The creation of this information allows players to climb the ranks to become professional Rocket League players. Professional Rocket League has been at the top of e-sports recently and the pros are gathering huge followings to make a living off of the game. Therefore, the transfer of data to information from their databases is vital for the game to survive.

3. Short Essay: Data Models - Briefly describe the hierarchical and network pre-relational data models. Explain their shortcomings in reaction to the relational model. Considering this, what do you think of XML as a model for data storage?

Before relational modeling, data was structured in a hierarchy. Given the example in class, Dungeons & Dragons, the hierarchy would start at the game then branch out to the players and then finally branch out to the items. An issue with this structure is that there are duplicates of data for separate parent branches of data and also having items in the game that are there, but not being used by any players. This was an inefficient way to structure the data. Improving on this in the future, the relational model was then produced from this. The relation model consisted of putting the items and characteristics into tables with ID numbers. This allowed for these data points to be selected and organized with SQL script. XML or “extensible markup language” as a model for data storage is an efficient tool. XML performs in a similar way of the data tables of relational modeling. It contains characteristics and IDs that keep the data oraganized.