Project 3 – Course Project Design

A database system presentation submitted to

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Project Description:

The information provided within this database is taken from the first 250 rows of the "Top Anime" section of the MyAnimeList (https://myanimelist.net/topanime.php) website. The target audience is geared towards anime and manga fanatics and enthusiasts, especially individuals searching for new anime to watch (or new manga to read). The end user may filter their anime related searches via its current air status (completed or ongoing), genre, rating (G to R in regard to age-appropriate content), total episode count, air dates, manga volumes and chapters along with the air status, studio and soundtrack information, score rating (based upon MyAnimeList registered members voting on a scale from 1 to 10), ranking compared to all other scored anime in the MyAnimeList database, and serialization information (manga publishing company along with the first and last publishing dates). Some people may find and watch new anime via browsing Netflix or Hulu; however, these television shows are rated anybody willing to rate a show. Some shows will be down voted by non-anime fans without the refined taste for this particular cartoon archetype. Also, Netflix and Hulu do not give specific genres of anime nor do they rank them in order for others to see. The goal of this database is to grant the end user the ability personalize their searches for anime geared towards their current mood or predisposed tastes (instead of blindly filtering through endless anime lists via Netflix and Hulu that provide no hint towards the enjoyability of a particular show to the end user). For example, a person could filter their search to find anime with the genre of "slice of life" and order the list from the highest to lowest ranking "slice of life" style anime. All users of the database have the access rights to all the data maintained within this anime and manga database; however, only an administrator may edit primary and foreign keys and table and variable information. Non admin users of the database may filter and query the database via any search their imagination may conjure, but they cannot delete any rows or table data.

Project Design:

- Six tables in total
    - Anime
        - Displays anime title, television airing status (ongoing or completed), genre, rating (from G to R in regard to age-appropriate content), and MangaID (for referencing Manga and Serialization tables via Foreign Keys)
        - Anime(AnimeID, Title, AnimeStatus, MainGenre, Rating, MangaID)
        - AnimeID: The "A" stands for "Anime", and the numbers increments by 1 all the way to 250
            - Data Type: VARCHAR2
            - Primary Key (Because values cannot be null and this field will uniquely identify each record)
            - One-to-one relationship with AnimeID from Licensing Table
            - One-to-one relationship with AnimeID from Rank Table
            - One-to-one relationship with AnimeID from Production Table
        - Title: Contains the title of the anime (The database contains first seasons and later seasons for certain anime)

        - Data Type: VARCHAR2
    - AnimeStatus: States whether the anime is "Completed" or "Ongoing"
        - Data Type: VARCHAR2
    - MainGenre: Contains the main genre used for the specific anime title (I read the synopsis and judged for myself)
        - Data Type: VARCHAR2
    - Rating: The viewer rating from rated G to rated R
        - Data Type: VARCHAR2
    - MangaID: A manga ID based on the initials/title of the anime (If anime was one word long, an abbreviation was made)
        - Data Type: VARCHAR2
        - One-to-one relationship with MangaID from Serialization Table
        - One-to-one relationship with MangaID from Manga Table

- Licensing
    - Displays Licensor of that particular anime, total amount of episodes aired, and the first and last airing dates (even if it is still in the ongoing status)
    - Licensing(AnimeID, LicensedBy, Episodes, FirstAired, LastAired)
    - AnimeID: The "A" stands for "Anime", and the numbers increments by 1 all the way to 250
        - Data Type: VARCHAR2
        - Primary Key/Foreign Key (Primary Key because values cannot be null and this field will uniquely identify each record and Foreign Key because references Anime Parent Table AnimeID data column)
        - One-to-one relationship with AnimeID from Anime Table
    - LicensedBy: States who licensed the anime for production (Database contains the North American licensor, but also contains Australian licensor when North American licensor was not listed)
        - Data Type: VARCHAR2
        - Compound Primary Key (Even though this field will contain repeated values, it becomes a unique primary key when concatenated with the unique AnimeID; Together, they become a compound primary key since there can still only be one primary key per table)
    - Episodes: Contains the number of episodes the anime has
        - Data Type: Number
    - FirstAired: Contains the first air date on television (non-re-runs)
        - Data Type: Date
    - LastAired: Contains the last air date on television (non-re-runs)
        - Data Type: Date

- Manga

- Displays the Manga corresponding to the anime with the total amount of volumes and chapters along with the publishing status (ongoing or completed series)
- Manga(MangaID, Volumes, Chapters, MangaStatus)
- MangaID: A manga ID based on the initials/title of the anime (If anime was one word long, an abbreviation was made)
    - Data Type: VARCHAR2
    - Primary Key/Foreign Key (Primary Key because values cannot be null and this field will uniquely identify each record and Foreign Key because references Anime Parent Table MangaID data column)
    - One-to-one relationship with MangaID from Anime Table
- Volumes: Number of volumes (books) the manga or novel has reached or ended with (Novels are also listed for the anime that had either no manga or just one manga)
    - Data Type: Number
- Chapters: Number of chapters combined from all the manga or novels published
    - Data Type: Number
- MangaStatus: States whether manga is "Completed" or "Ongoing"
    - Data Type: VARCHAR2

- Production
    - Displays the Production Studio that worked on the anime itself (animation, music, voice acting, etc.) and the anime director and music soundtrack directors' first and last names
    - Production(AnimeID, ProductionStudio, AnimeDirectorFirstName, AnimeDirectorLastName, MusicComposerFirstName, MusicComposerLastName)
    - AnimeID: The "A" stands for "Anime", and the numbers increments by 1 all the way to 250
        - Data Type: VARCHAR2
        - Primary Key/Foreign Key (Primary Key because values cannot be null and this field will uniquely identify each record and Foreign Key because references Anime Parent Table AnimeID data column)
        - One-to-one relationship with AnimeID from Anime Table
    - ProductionStudio: States which production studio worked on the anime
        - Data Type: VARCHAR2
        - Compound Primary Key (Even though this field will contain repeated values, it becomes a unique primary key when concatenated with the unique AnimeID; Together, they become a compound primary key since there can still only be one primary key per table)
    - AnimeDirectorFirstName: Contains first name of anime's director
        - Data Type: VARCHAR2
    - AnimeDirectorLastName: Contains the last name of the anime's director
        - Data Type: VARCHAR2

        - MusicComposerFirstName: Contains the first name of the anime's music composer
            - Data Type: VARCHAR2
        - MusicComposerLastName: Contains the last name of the anime's music composer
            - Data Type: VARCHAR2

- Rank
    - Displays total amount of registered MyAnimeList members' votes on the particular anime along with the ranking (in comparison to the top 250 anime scored from 1 to 10) and the score (the anime are rated on a score of 1 to 10)
    - Rank(AnimeID, MembersVoted, Ranked, Score)
    - AnimeID: The "A" stands for "Anime", and the numbers increments by 1 all the way to 250
        - Data Type: VARCHAR2
        - Primary Key/Foreign Key (Primary Key because values cannot be null and this field will uniquely identify each record and Foreign Key because references Anime Parent Table AnimeID data column)
        - One-to-one relationship with AnimeID from Anime Table
    - MembersVoted: Contains the number of people from myanimelist.net that voted from 1 to 10 based on quality of the anime
        - Data Type: Number
        - Compound Primary Key (Even though this field will contain repeated values, it becomes a unique primary key when concatenated with the unique AnimeID; Together, they become a compound primary key since there can still only be one primary key per table)
    - Ranked: Contains rank of the anime on the myanimelist.net website based on "MembersVoted" (Database contains anime from the top 487 anime on their list)
        - Data Type: Number
    - Score: Average score the anime received from the people who voted from 1 to 10 (Database contains anime from a score of 7.99 to 9.23)
        - Data Type: Number

- Serialization
    - Displays the company that serialized and published the Manga (a Japanese magazine medium) and the first and last publishing dates (even if the manga is not a completed series yet)
    - Serialization(MangaID, SerializedBy, FirstPublished, LastPublished)
    - MangaID: A manga ID based on the initials/title of the anime (If anime was one word long, an abbreviation was made)
        - Data Type: VARCHAR2

        - Primary Key/Foreign Key (Primary Key because values cannot be null and this field will uniquely identify each record and Foreign Key because references Anime Parent Table MangaID data column)
        - One-to-one relationship with MangaID from Anime Table
    - SerializedBy: States which company published the manga or novels
        - Data Type: VARCHAR2
        - Compound Primary Key (Even though this field will contain repeated values, it becomes a unique primary key when concatenated with the unique MangaID; Together, they become a compound primary key since there can still only be one primary key per table)
    - FirstPublished: Contains first publishing date for manga or novel
        - Data Type: Date
    - LastPublished: Contains last publishing date for manga or novel
        - Data Type: Date

Extra Explanations:

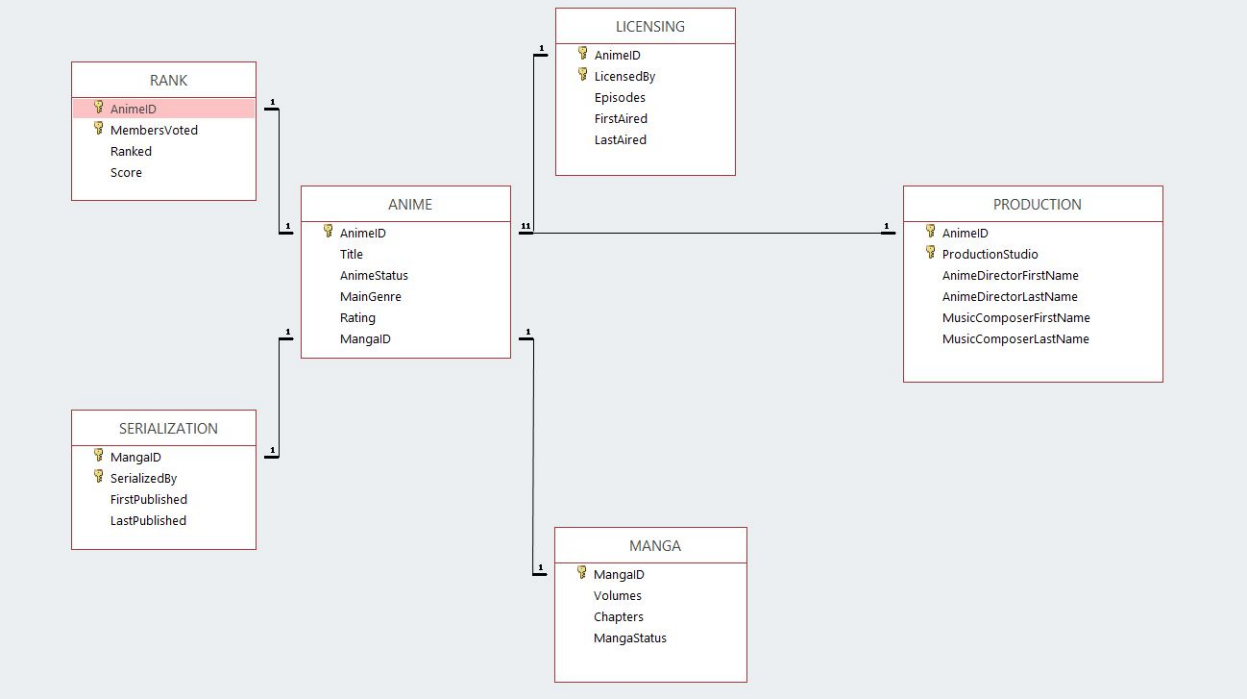
This database is designed to fit the third normal form design technique. To achieve third normal form, first normal form must be met first, which means all columns must contain only atomic (a value that cannot be divided) values and there ought to be no repeating groups. For example, if there is a column containing colors, then no row should have more than one value in its color column. If the column has "red, green", then it is not first normal form; however, if it only contains "red" or "green", then the condition has been satisfied. And no repeating groups means that each set of columns must contain a unique value (all field attributes will be its own unique value). For example, a student may be taking more than one subject for his total semester; however, there cannot be two subject fields because that would violate first normal form. The student may be entered more than once (on separate rows), containing the same age and ID number, but the subject would be different for each line. With this said, all six tables in the anime and manga database have unique field attributes, and they contain one value per column for each row.

The next step in achieving third normal form is to achieve second normal form. To achieve second normal form, the table ought to already be in first normal form, and all non-key columns/fields/attributes should depend upon the table's primary key. Essentially, the table's purpose ought to be defined, and the database administrator should consider whether the column/field/attribute describes what the primary key identifies. Thus, the following information becomes dependent on the primary key, which is an ID in most cases. For example, the anime table contains the primary key of "AnimeID", and the following fields all represent that specific anime with its specific ID. The anime's title, air status, genre, rating, and MangaID all depend on the AnimeID field because those attributes describe the anime itself. That information gives the user information about an anime they are looking for. However, if the tables were not split into the six that I have created, it would not be second form normal. For example, the "Rank" table contains the anime's ranking and scoring information based upon the compound primary keys of AnimeID and MembersVoted. The rank and score depend upon the specific anime ID and the amount of people who voted because the score attribute is the average of the total score of the total amount of people who voted on said anime. But

this would not be considered second normal form if left in the anime table because the score and ranking do not solely depend upon the AnimeID. That data also depends upon MembersVoted, which would not have been a primary key in the anime table, which would have broken the whole second normal form structure. The same principles could be applied to the reasoning for separating the rest of the information into four other tables.

The last steps in establishing third normal form are to ensure that second form normal has been established and to ensure that the tables contain only columns that are "non-transitively dependent on the primary key", which means only foreign key columns ought to be used to reference another table (as well as no other columns from the parent table should exist in the referenced table). This also corresponds with the discussion on separating the MembersVoted, Ranked, and Score attributes into another table in which the AnimeID is a foreign key in reference to the AnimeID field in the Anime Parent Table. Because it was unnecessary to group ranked and score in the Anime table due to its dependence upon membersvoted rather than simply the AnimeID, to complete the third normal form factor, these attributes had to be separated into the Rank table. Because of this, the Ranked and Score columns are solely dependent upon the compound primary keys of AnimeID and MembersVoted columns. The same concept applies to the licensing table, for example. The AnimeID is still a foreign key referencing the primary key AnimeID form the Anime Parent Table, but the LicensedBy column is a compound primary key (with the AnimeID foreign key) that causes the attributes Episodes, FirstAired, and LastAired to be dependent upon this particular compound key setup. Episodes, FirstAired, and LastAired may meat second normal form if left within the Anime Parent Table, but it would be more appropriate to further separate the data because episodes and air dates are still set by the licensing company funding the project. Therefore, each table has its own purpose. The Anime table describes the minimum details necessary that would be provided in any Netflix or Hulu search. The Rank table describes the ranking and score of the anime based upon the average scores/votes of the registered members of the MyAnimeList website. The Licensing table describes the episodes, airing dates, and the company licensing the project. The Product table describes the anime studio that worked on the project itself, providing the name of the anime and music directors. The Manga table provides the corresponding manga series to the anime series while also providing total volume, chapter, and current publishing status of the manga. And the Serialization table describes the Japanese magazine company that published the manga series along with the publishing dates (whether ongoing or not). All of these tables has its own function and purpose and these purposes/functions do not collide since the data was separated into these six differing tables.

ER Diagram:


LICENSING
AnimeID
LicensedBy
Episodes
FirstAired
LastAired
RANK
AnimeID
MembersVoted
Ranked
Score
ANIME
AnimeID
Title
AnimeStatus
MainGenre
Rating
MangaID
PRODUCTION
AnimeID
ProductionStudio
AnimeDirectorFirstName
AnimeDirectorLastName
MusicComposerFirstName
MusicComposerLastName
SERIALIZATION
MangaID
SerializedBy
FirstPublished
LastPublished
MANGA
MangaID
Volumes
Chapters
MangaStatus