Over the top (OTT) Database Management

System Database Specification: Purpose, Business Problems Addressed and Business Rules

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Database Purpose:
The purpose of the database is to maintain the data of the OTT platform. It will be used by administrative, marketing, and sales staff of streaming services that deliver content over the internet and will not duplicate information.

Business Problems Addressed:

- Allow OTT administrative, marketing, and sales staff to generate descriptive reports.
- Provide information to enhance or improve revenue that is generated by the system.
- Supply insight to drive targeted marketing initiatives (e.g., to cater to specific market segments such as geographic regions, age- or gender-based populations or other demographic-based content).
- Provide targeted offers to subscribers based on their details (e.g., A subscriber may get a special discount on his/her birthday.)
- Allow sales staff to anticipate subscriptions and payments.
- Permit sales staff to analyze and refine sales quarterly objectives.
- Improve the recommendation process specific to the movie/web series watching pattern of a viewer (e.g. If a viewer watches more comedy content then the system can recommend similar movies/web series.)
- Allow users to customize search based on their interests.
- Allow users to maintain a favorite list and also access the watch history information.

Business Rules:

- A Subscriber only can have access to the system.
- A subscriber may subscribe to multiple stream plans.
- A subscriber may mark zero or multiple movies/web series as their favorite.
- A subscriber may have zero or more movies/web series in their watch history.
- A web series/movie may have at least 1 or more actors.
- An actor may be a part of 1 or more movies/web series.
- A Subscriber can only give ratings to watched movies/web series.
- A movie/web series must at least have one format so that it can run on OTT.
- A movie/web series may or may not receive awards.
- It is not necessary that a movie/web series will have all the genre types, but it will belong to at least one genre.

Design Requirements (Credit to Professor Simon Wang):

- Use Crow's Foot Notation.
- Specify the primary key fields in each table by specifying PK beside the fields.
- Draw a line between the fields of each table to show the relationships between each table. This line should be pointed directly to the fields in each table that are used to form the relationship.
- Specify which table is on the one side of the relationship by placing a one next to the field where the line starts.
- Specify which table is on the many sides of the relationship by placing a crow's feet symbol next to the field where the line ends.

Design Decisions:

Entity Name	Why Entity Included	How Entity is Related to Other Entities
Subscribers	One of the primary purposes of the database is to store information about Subscribers of the OTT platform. The systems store name, email, birthdate, phone number etc of a subscriber. It can make payments, view promotional offers, access favorites, and watch history. It can even search and give ratings to the watched content.	As the core entity in the database, the subscriber entities' primary key, SubscriberID is related to subscription, payment, promotional offers, favorite movies, favorite web series, movie watch history and web series watch history.
Subscriptions	Subscription entity is created to maintain all the subscription details such as plan taken, date of subscription and status of subscription etc of subscribers. The subscription status will indicate whether the plan is currently active or expired.	Subscription entity has SubscriptionID as the primary key and it is related to Subscribers and StreamPlan. The relationship between Subscriber and Subscription is one to many as one subscriber can have multiple subscriptions. Similarly, a StreamPlan can be subscribed many times.
StreamPlan	StreamPlan entity is created to maintain all the plans that exist in the system. It has details such as plan name, price of plan and the duration of a plan.	StreamPlan has PlanID as the primary key and has one to many relationships with subscription entity.
Payment	Payment entity is created to store payment information such as payment method, timestamp of payment made and completed, amount paid etc. Payment method is the mode through which payment is done such as through credit/debit card or some e-wallet.	It has PaymentID as primary key and is related to StreamPlan and Subscribers. This entity has one to many relationship with StreamPlan and Subscribers as the system allows only the paid customers.
PromotionalOffers	PromotionalOffers is the entity which will store all the information about offer discounts available with their expiry dates.	This entity has OfferID as a primary key and will have non-identifying one to many relationships between PromotionalOffers and Subscribers.
Movies	Movies is one of the primary entities in our content management database. All the details about the movies will be stored in the database under Movies entity. It consists of attributes such as the movie name, the year it is released in, its rating given by the subscribers.	MovieID is a primary key in the Movies entity which denotes that each movie will have a movie ID and is connected to MovieActors, MovieGenre, MovieFormat in one to many and MovieAwards, MovieFavorite, MovieWatchHistory in one to zero or many relationship.
WebSeries	WebSeries is one of the primary entities in our content management database. All the details about the web series will be stored in the database under this entity. It consists of attributes such as the Series name, the year it is released in, its rating given by the subscribers and total number of seasons included in the Web Series	WebSeriesID is a primary key in the WebSeries entity which denotes that each wed series will have a web series ID and is connected to WebSeriesActors, WebSeriesGenre, WebSeriesFormat in one to many and WebSeriesAwards, WebSeriesFavorite, WebSeriesWatchHistory in one to zero or many relationship.
Actors	Actors that are a part of any movie or a web series will be listed in this entity. Each Actor will have an ActorID, its first name, last name, birth date, gender included in this table. All the basic details about the actor will be stored in the Actors entity.	ActorID is the primary Key in this entity. It consists of one to zero or many relationships with MovieActors and WebSeriesActors.
MovieActors	MovieActors entity includes details about the actor who are a part of a movie and consists of MovieID and ActorID as attributes	MovieActors is an entity connecting the Movies entity and the Actors entity with one-to-many relation. It consists of MovieID and ActorID as its Primary key.
WebSeriesActor	This entity contains information about the actors that are cast in a web series. Its attributes are WebSeriesId and ActorID	One web series may have many actors and one actor can be a part of many web series. Hence, its relationship with both web series and actor is many-to-one

MovieFavorite	Contains information about the movies that are marked as favorite by a subscriber. Contains two attributes: movieID and subscriberId, both combined form the composite primary key	One subscriber may have 0 or multiple favorite movies and one movie might be a favorite of 0 or multiple subscribers. Hence, its relationship with both movies and subscribers is many-to-one
WebSeriesFavorite	Contains information about the web series that are marked as favorite by a subscriber. Contains two attributes: webSeriesID and subscriberId, both combined form the composite primary key	One subscriber may have 0 or multiple favorite series and one series might be a favorite of 0 or multiple subscribers. Hence, its relationship with both series and subscribers is one-to-many
MovieWatchHistory	Contains the information about the movies watched by a subscriber. Contains two attributes: movieID and subscriberID, both combined form the composite primary key	One subscriber may have watched 0 or multiple movies. One movie might have been watched by 0 or multiple subscribers. Hence, its relationship with both movies and subscribers is many-to-one.
WebSeriesWatchHistory	Contains the information about the WebSeriesId watched by a subscriber. Contains two attributes: WebSeriesId and subscriberID, both combined form the composite primary key	One subscriber may have watched 0 or multiple web series. One web series might have been watched by 0 or multiple subscribers. Hence, its relationship with both web series and subscribers is many-to-one.
Format	Format Entity has the information about the available formats in the system. For instance HD(High Definition) format of a movie. It consists of FormatID, Name and its description.	FormatID is the primary key here and the entity is related to Movie and Web series format. A Movie and a web series both can have multiple formats available hence there is one to many relationship defined.
MovieFormat	Movie Format entity stores the format of the movies. A movie can be available in many formats for instance HD, 720p, Auto etc	MovieID and FormatID are the composite primary keys. It is linked to Movies and Format entities via one to many relationship.
WebSeriesFormat	Web Series Format entity stores the format of the Web Series. A Web Series can be available in many formats for instance HD, 720p, Auto etc	WebSeriesID and FormatID are the composite primary keys. It is linked to WebSeries and Format entities via one to many relationship.
Awards	Awards entity contains details of all the awards that can be given to either a movie or a web series. It stores information like the name of the award and the year it is presented.	AwardID and Year form composite primary key and it is related to Movie Awards and Web Series Awards with one to many relationship as there can be multiple awards every year for movies and web series.
MovieAwards	Movie Awards contain information about the Awards that are presented to the movies. It has AwardID and MovieId attributes.	AwardID and MovieID are the composite primary keys. This entity is linked to Movies with one to zero or many relationship. It is not mandatory that a movie will receive an award.
WebSeriesAwards	Web Series Awards contain information about the Awards that are presented to the Web Series. It has AwardID and WebSeriesID attributes.	AwardID and WebSeriesID are the composite primary keys. This entity is linked to WebSeries with one and many relationship. It is not mandatory that a WebSeries will receive an award.
Genre	Genre entity is created to hold all the information related to genre of the content. For Example a movie/web series can be comedy, tragedy, scientific or biography.	GenreID is the primary key of this entity and it is connected with MovieGenre and WebSeriesGenre with one and many relation.
MovieGenre	MovieGenre has the genre details of the movies. It has MovieID and GenreID as the attributes.	MovieID and GenreID are the composite primary keys. It is linked to Movies and Genre entity. It is not necessary that a movie will have all the genre types but it will have at least one genre type.
WebSeriesGenre	Web Series Genre has the genre details of the web series. It has WebSeriesID and GenreID as the attributes.	WebSeriesID and GenreID are the composite primary keys. It is linked to WebSeries and Genre entity. It is not necessary that a web series will have all the genre types but it will belong to at least one genre.