

person:

person is an entity with attributes (personID, firstName, lastName, age, street, city, province, occupation) and has a one to many (exactly one: total) relation with at least one phoneNumber through the ASSOCIATEDWITH relation. Person is a superclass to movie_director, movie_actor and movie_goer.

phoneNumber:

phoneNumber is an entity with attributes (lineType and phoneNumber) and has a many to one (exactly one: total) relation with person through the ASSOCIATEDWITH relation.

movie_director:

movie_director is a subclass of the person entity that has additional attributes including (studioAffiliation, experience and netWorth) and has a one-many (exactly one: total) relation with the weak entity awards through the WINS relation, as well as a one-many (exactly one: total) relation with at least one movie through the DIRECTS relation.

movie_actor:

movie_actor is a subclass of the person superclass with attributes (year, role, oscar) and participates in a many-many relation with movie through the STARRING relation. It also participates in a many-one relation with movie through the HASROLE relation.

- Domain constraint: The domain of the (oscar) attribute of the hasRole relation is {0,1} to indicate whether the actor has won an Oscar (=1) or not (=0). This relation also has a (role) attribute, the domain of which is {lead, supporting, under study} and a (year) attribute with the domain constraint of year<=2022 as an award cannot be won in the future.

movie_goer:

Movie_goer is a subclass of the person superclass with no additional attributes, and it participates in a many-many relation with movieTheatre through the VISITS relation which itself has (ticketPrice, visitDate, paymentMethod) as its attributes. It also participates in an at least one many-many relation with transaction through the MAKES relation. It is also a part of the one-one relation with rewardsCard through the OBTAINS relation.

awards:

awards is a weak entity with attributes (totalBudget, name, year) and has a many-one relation with movie_director through the wins relation as well as a many-many relation with movie through the belongingTo weak relation.

- There is a domain constraint on awards, forcing it to be less than the current year (2022) as an award cannot be won in the future

movie:

movie is an entity with attributes (movieID, title, genre, releaseDate, grossEarnings) and participates in a many-many relation with movie actor through the STARRING. It also participates in a one-many relation with movie_actor through the HASROLE relation and a many-many relation with movieTheatre through the SHOWS relation which itself has attributes (ticketPrice, screenNumber, time, day). It also participates in at least one many-many relation with movie_director through the DIRECTS relation.

- Domain constraints: genre must be one of drama, comedy, horror, family, romance, scifi (D, C, H, F, R, S)

movieTheatre:

movieTheatre is an entity with attributes (theatreID, totalScreens, street, city, province, theatreName) and acts as the stronger entity in the weak one-many HAS relation with the weak concessionStand entity. It also participates in a many-many relation with movie_goer through the VISITS relation.

product:

The product is an entity with attributes (SKU, price, name, category) participates in at least one many-many relation with the transaction entity through the PARTOF relation. It is also in an at least one many-many relation with the weak concessionStand entity.

concessionStand:

concessionStand is a weak entity with attributes (type) that participates in a many-one relation with movieTheatre through the weak HAS relation. It also participates in the many-many relation with products through the SELLS relation. The concessionStand is a weak entity as a type of concessionStand can exist in many movieTheatres and to uniquely identify a concessionStand, the theatreID is also required.

- Referential Integrity: The primary key of a concession stand is type and theatreID (foreign key from movieTheatre). Therefore, for a concession stand to exist, a movie theatre with a valid theatreID must exist as well.
- There can only be one concession stand type in a theatre.
- Domain constraint: The attribute (type) has the domain {food, souvenir}.

transaction:

transaction is an entity with attributes (transactionID, transactionDate, amountPaid, paymentMethod) that participates in a many-many relation with the movie_goer entity through the MAKES relation. It also participates in a many-many relation with the product entity through the PARTOF relation.

rewardsCard:

rewardsCard is an entity with attributes (cardNumber, balance, activationDate) and has a one-one relation with movie_goer through the OBTAINS relation.

