

Project 2: ERD Models – Mom and Pop Database

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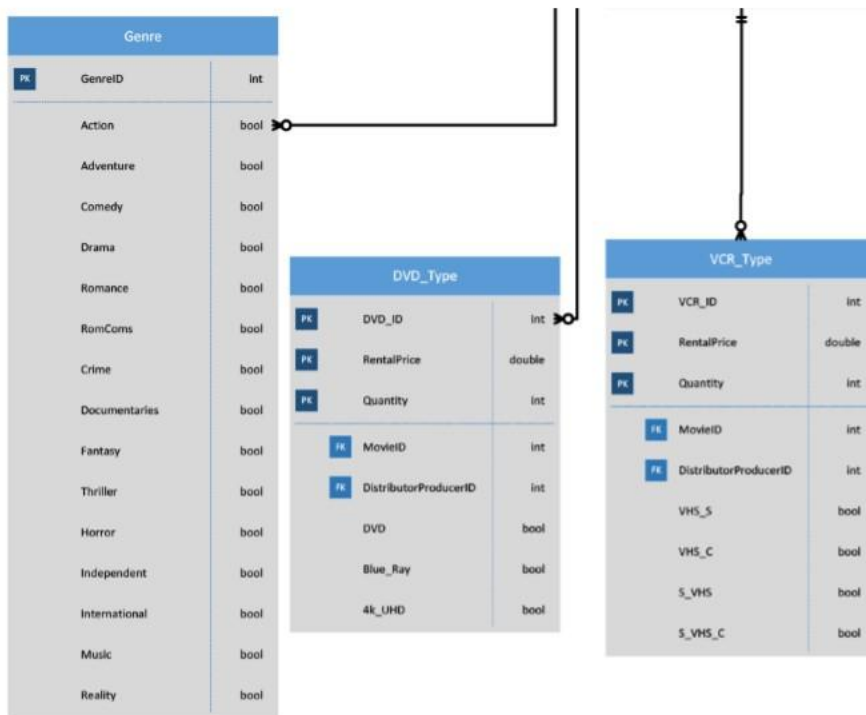
CMSC 320: Relational Database Concepts and Applications

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ERD Models: Mom and Pop Database

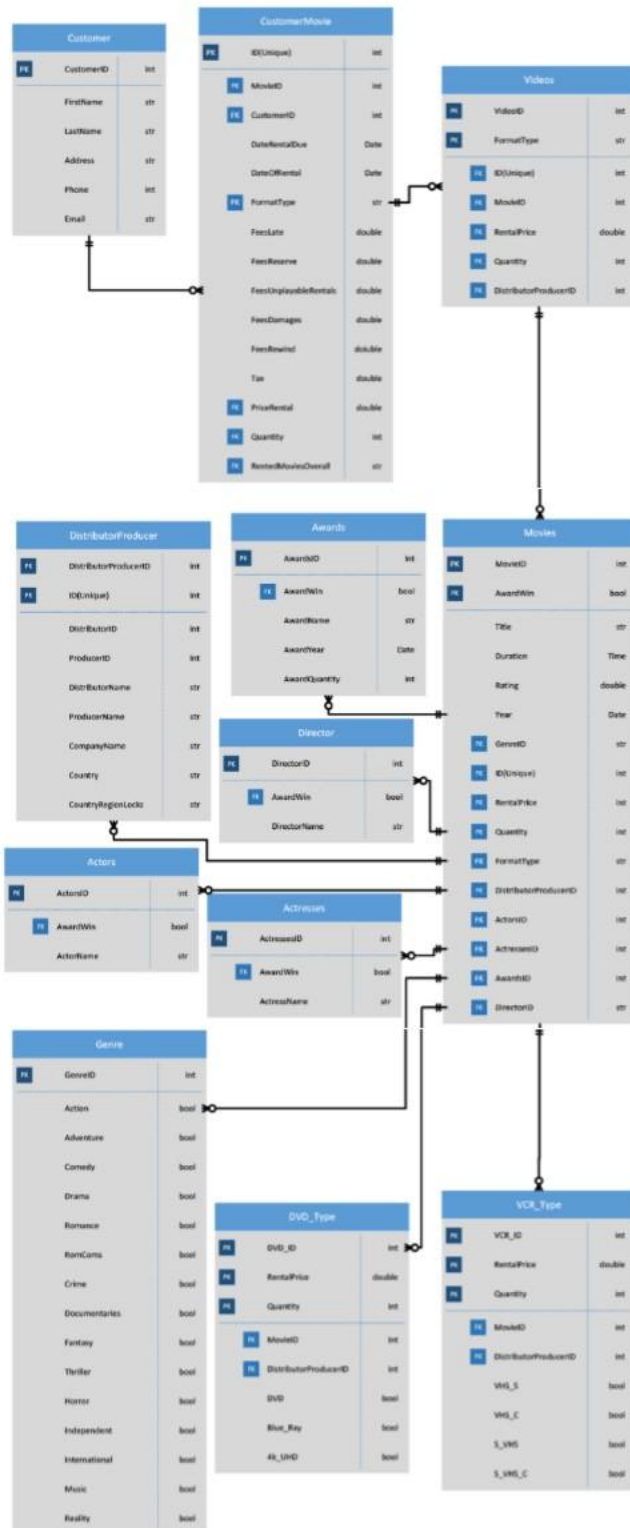
The ERD below showcases the entities and attributes related to the Mom and Pop Database. A smaller version is provided in the pages afterward for a total overview and layout.





(A smaller version is on the next page.)

A smaller version of the ERD to see the whole layout (Vertical: Top Left to Bottom Right):



Note: The PDF versions of both Vertical and Horizontal versions of the same ERD are attached to the submission regarding the Mom and Pop Database.

Relationships:

1. Mom & Pop Database Business -> All Entities & Attributes (starting from Customer)
2. Customer -> CustomerMovie -> Videos -> Movies
3. Movies -> DistributorProducer
4. Movies -> Director
5. Movies -> Actors
6. Movies -> Actresses
7. Movies -> Awards
8. Movies -> Genre
9. Movies -> DVD_Type
10. Movies -> VCR_Type

It is noted that 1:Infinity is maxed out by the maximum number of movies the business has and if the user prefers to rent it in bulk. It is limited to 100 movies a person could rent per week to avoid misuse of the maximum number of movies/videos to rent. Most of this is from 1:M or 1:Infinity, which is the scope of a one-one or one-many requirements. And FK is the data that is passed into another data table from the PK. For instance, the PK of CustomerID in Customer. The FK of Customer ID from CustomerMovie is the PK being passed down or shared to CustomerMovie. Another would be the DVD_Type of Rental Pricing, Quantity, and FormatType(Name based on Boolean). This example would pass the PK values into the FK in the Movies entity. It starts from PK and if you want to pass that data around, utilizing the FK

would move the original data (PK) into other entities or attributes. This method is repeated for all PK passing to FK and FK receiving from PK transitions. The rest should not have any relationship with other tables (entities) as it is neither a PK or FK. This would mean it is a regular key attribute within one entity in the table.

The Relationship Sentence Pairs are below in detail. The previous one above is the relationship hierarchy, direction, and which one manages through a visual perspective. The one below is an in-depth detail about it.

- Mom & Pop Database manages all the entities and attributes starting from customers.
- Customer manages CustomerMovie, Videos, and Movies. Selecting/Renting a CustomerMovie based on the user's criteria of movies or videos selected is from 1:Infinity.
- CustomerMovie manages Videos. Selecting/Renting Videos based on the user's criteria is from 1:Infinity
- Videos manage Movies. Selecting/Renting Movies based on the user's criteria is from 1:Infinity.
- Movies manages Director, Actors, Actresses, Awards, Genre, DVD_Type, and VCR_Type. Selecting/Renting a movie and quantity amount based on the user's criteria is from a 1:Infinity.
- Director, Actors, Actresses, Awards, Genre, DVD_Type, and VCR_Type are only managed by Movies.
- Movies manages Director. Selecting/Renting a movie and quantity amount based on the user's criteria and sorting it based on the director's name from a 1:Infinity. When

Director passes the data back into Movies, Movies can also find if the Director won the award through the Award entity and AwardWin boolean.

- Movies manages Actors. Selecting/Renting a movie and quantity amount based on the user's criteria and sorting it based on the Actors' names from a 1:Infinity. When Actors passes the data back into Movies, Movies can also find if the Actors won the awards through the Award entity and AwardWin boolean.
- Movies manages Actresses. Selecting/Renting a movie and quantity amount based on the user's criteria and sorting it based on the Actresses' names from a 1:Infinity. When Actresses passes the data back into Movies, Movies can also find if the Actresses won the awards through the Award entity and AwardWin boolean.
- Movies manages Awards. Selecting/Renting a movie and quantity amount based on the user's criteria and sorting it based on the Awards' names from a 1:Infinity. When Awards passes the data back into Movies, Movies can also find if the movie won any awards through the Award entity and AwardWin boolean.
- Movies manages Genre. Selecting/Renting a movie and quantity amount based on the user's criteria and sorting it based on the Genres' names or boolean from a 1:Infinity. When Genre passes the data back into Movies, Movies can also find if a specific movie genre won any awards through the Award entity and AwardWin boolean.

Metadata File of ERD Mom and Pop Database

Table 1

This is the Meta Data relating to the Mom & Pop Database ERD Model (Entities and Attributes)

Meta Data	Mom & Pop Database			
<u>Entity Name</u>	<u>Attributes</u>	<u>PK/FK?</u>	<u>Data Type</u>	<u>Descriptions</u>
Customer	CustomerID	PK	integer	Primary Key for Customer entity number
	FirstName	no	string	Customer first name
	LastName	no	string	Customer last name
	Address	no	string	Customer location address
	Phone	no	integer	Customer phone number
	Email	no	string	Customer email address
CustomerMovie	ID(Unique)	PK	integer	Primary Key for CustomerMovie entity number
	MovieID	FK	integer	This is the FK that points to Movie
	CustomerID	FK	integer	This is the FK that points to Customer
	DateRentalDue	no	date	Rental due date with time zone
	DateOfRental	no	date	Rental Date that user rented video or movie with time zone
	FormatType	FK	string	This is the FK that points to Videos
	FeesLate	no	double	Late rental fees number

	FeesReserve	no	double	Rentals reserving fee number
	FeesUnplayableRentals	no	double	Rentals that are unplayable (refunded) fees numbers
	FeesDamages	no	double	Damage fees number
	FeesRewind	no	double	Rewinded fees number
	Tax	no	double	Tax number
	PriceRental	FK	double	This is the FK that points to Videos
	Quantity	FK	integer	This is the FK that points to Videos
	RentedMoviesOverall	FK	string	This is the FK that points to Videos
Videos	VideoID	PK	integer	Primary Key for Videos entity number
	FormatType	PK	string	Primary Key for Videos entity FormatType string
	ID(Unique)	FK	integer	This is the FK that points to CustomerMovie
	MovieID	FK	integer	This is the FK that points to Movies
	RentalPrice	FK	double	This is the FK that points to Movies
	Quantity	FK	integer	This is the FK that points to Movies
	DistributorProducerID	FK	integer	This is the FK that points to Movies
Movies	MovieID	PK	integer	Primary Key for Movies entity number

	AwardWin	PK	bool	Primary Key for Movies entity; True if win an award; Helps find award wins for specific entities connected.
	Title	no	string	Title of Movie
	Genre	no	string	Genre of Movie
	Duration	no	Time	Length of Movie
	Rating	no	double	Customer rating of Movie (value/10)
	Year	no	Date	Year of Movie
	ID(Unique)	FK	integer	This is the FK that points to CustomerMovie
	RentalPrice	FK	integer	This is the FK that points to DVD_Type or VCR_Type
	Quantity	FK	integer	This is the FK that points to DVD_Type or VCR_Type
	FormatType	FK	string	This is the FK that points to Videos from DVD_Type or VCR_Type booleans
	DistributorProducerID	FK	integer	This is the FK that points to DistributorProducer
	ActorsID	FK	integer	This is the FK that points to Actors
	ActressesID	FK	integer	This is the FK that points to Actresses
	AwardsID	FK	integer	This is the FK that points to Awards

	DirectorID	FK	integer	This is the FK that points to Director
DistributorProducer	DistributorProducerID	PK	integer	Primary Key for DistributorProducer entity number
	ID(Unique)	PK	integer	This is the FK that points to CustomerMovie
	DistributorID	no	integer	Distributor ID number
	ProducerID	no	integer	Producer ID number
	DistributorName	no	string	Distributor name
	ProducerName	no	string	Producer name
	CompanyName	no	string	Company name
	Country	no	string	Country names or abbreviations
	CountryRegionLocks	no	string	Country names or abbreviations where it is region-locked
Actors	ActorsID	PK	integer	Primary Key for ActorsAcressesAwards: ActorsID number
	AwardWin	FK	bool	This is the FK that points to Movie
	ActorName	no	string	Actors Names
Actresses	ActressesID	PK	integer	Primary Key for ActorsAcressesAwards: ActressesID number
	AwardWin	FK	bool	This is the FK that points to Movie
	ActressName	no	string	Actresses Names
Awards	AwardsID	PK	integer	Primary Key for ActorsAcressesAwards: AwardsID number

	AwardWin	FK	bool	This is the FK that points to Movie
	AwardName	no	string	Award names or titles
	AwardYear	no	Date	Award year or dates
	AwardQuantity	no	integer	Awards number or quantity
Director	DirectorID	PK	integer	Primary Key for ActorsAcressesAwards: DirectorID number
	AwardWin	FK	bool	This is the FK that points to Movie.
	DirectorName	no	string	Directors' names
DVD_Type	DVD_ID	PK	integer	Primary Key for DVD_Type entity number
	RentalPrice	PK	double	Primary Key for DVD_Type: RentalPrice number
	Quantity	PK	interger	Primary Key for DVD_Type: Quantity number
	MovieID	FK	integer	This is the FK that points to Movie
	DistributorProducerID	FK	integer	This is the FK that points to Movie
	DVD	no	bool	True if it is a DVD
	Blue_Ray	no	bool	True if it is a Blue-Ray
	4k_UHD	no	bool	True if it is a 4k-UHD
VCR_Type	VCR_ID	PK	integer	Primary Key for VCR_Type entity number
	RentalPrice	PK	double	Primary Key for VCR_Type: RentalPrice number

	Quantity	PK	integer	Primary Key for VCR_Type: Quantity number
	MovieID	FK	integer	This is the FK that points to Movie
	DistributorProducerID	FK	integer	This is the FK that points to Movie
	VHS_S	no	bool	True if it is a Standard VHS
	VHS_C	no	bool	True if it is a Compact VHS
	S_VHS	no	bool	True if it is a super VHS
	S_VHS_C	no	bool	True if it is a Compact Super VHS
Genre	GenreID	PK	integer	Primary Key for Genre number
	Action	no	bool	True if it is Action
	Adventure	no	bool	True if it is Adventure
	Comedy	no	bool	True if it is Comedy
	Drama	no	bool	True if it is Drama
	Romance	no	bool	True if it is Romance
	RomComs	no	bool	True if it is RomComs
	Crime	no	bool	True if it is Crime
	Documentaries	no	bool	True if it is Documentaries
	Fantasy	no	bool	True if it is Fantasy
	Thriller	no	bool	True if it is Thriller
	Horror	no	bool	True if it is Horror
	Independent	no	bool	True if it is Independent
	International	no	bool	True if it is International
	Music	no	bool	True if it is Music
	Reality	no	bool	True if it is Reality

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