

## **Project 2: Database Design**

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# Entities

## CUSTOMER

- customerID (PK)
- name
- address
- phoneNumber

## RENTAL

- rentalID (PK)
- customerID (FK)
- dateRented
- dueDate
- dateReturned
- taxRate

## APPLIED\_FEE

- rentalID (PK/FK)
- feeType (PK/FK)

## FEE

- feeType (PK)
- charge

## MOVIE\_RENTAL

- rentalID (PK/FK)
- inventoryID (PK/FK)

## INVENTORY\_MOVIE

- serialNumber (PK)
- movieID (FK)
- catalogID (FK)
- quantityInStock

## CATALOG\_ENTRY

- movieID (PK/FK)
- catalogID (PK/FK)
- wholesalePrice

## CATALOG

- catalogID (PK)
- distributorID (PK/FK)
- volume

## DISTRIBUTOR

- distributorID (PK)
- loyaltyDiscount

## MOVIE\_ORDER

- catalogEntryID (PK/FK)
- shipmentID (PK/FK)
- quantity
- wholesalePrice (FK)

## SHIPMENT

- shipmentID (PK)
- dateOrdered
- dateShipped
- distributorID (FK)

## MOVIE

- movieID (PK)
- isDVD
- genre
- runningLength
- rating
- year

## AWARD

- name (PK)
- year (PK)
- movieID (FK)

## DIRECTOR\_SEAT

- movieID (PK/FK)
- directorID (PK/FK)

## DIRECTOR

- directorID (PK)
- name

## CASTING

- movieID (PK/FK)
- actorID (PK/FK)

## ACTOR

- actorID (PK)
- name

## Relationship Sentence Pairs

Each CUSTOMER makes one or more RENTAL.  
Each RENTAL is made by only one CUSTOMER.

Each RENTAL may have one or more APPLIED\_FEE.  
Each APPLIED\_FEE is applied to one RENTAL.

Each APPLIED\_FEE is one type of FEE.  
Each FEE may be in one or more APPLIED\_FEE.

Each RENTAL has one RENTAL\_RATE.  
Each RENTAL\_RATE is in one or more RENTAL.

Each RENTAL has one or more MOVIE\_RENTAL.  
Each MOVIE\_RENTAL is part of one RENTAL.

Each MOVIE\_RENTAL is associated with one INVENTORY\_MOVIE.  
Each INVENTORY\_MOVIE may be part of one or more MOVIE\_RENTAL.

Each INVENTORY\_MOVIE is associated with one CATALOG\_ENTRY.  
Each CATALOG\_ENTRY is associated with one INVENTORY\_MOVIE.

Each CATALOG\_ENTRY has one MEDIA.  
Each MEDIA is in one or more CATALOG\_ENTRY.

Each CATALOG\_ENTRY belongs to one CATALOG.  
Each CATALOG has one or more CATALOG\_ENTRY.

Each CATALOG belongs to one DISTRIBUTOR.  
Each DISTRIBUTOR has one or more CATALOG.

Each DISTRIBUTOR can send one or more SHIPMENT.  
Each SHIPMENT is sent by one DISTRIBUTOR.

Each CATALOG\_ENTRY may be part of one or more MOVIE\_ORDER.  
Each MOVIE\_ORDER relates to one CATALOG\_ENTRY.

Each MOVIE\_ORDER is part of one SHIPMENT.  
Each SHIPMENT has one or more MOVIE\_ORDER.

Each CATALOG\_ENTRY is about one MOVIE.  
Each MOVIE is in one or more CATALOG\_ENTRY.

Each MOVIE may have one or more AWARD.  
Each AWARD is for one MOVIE.

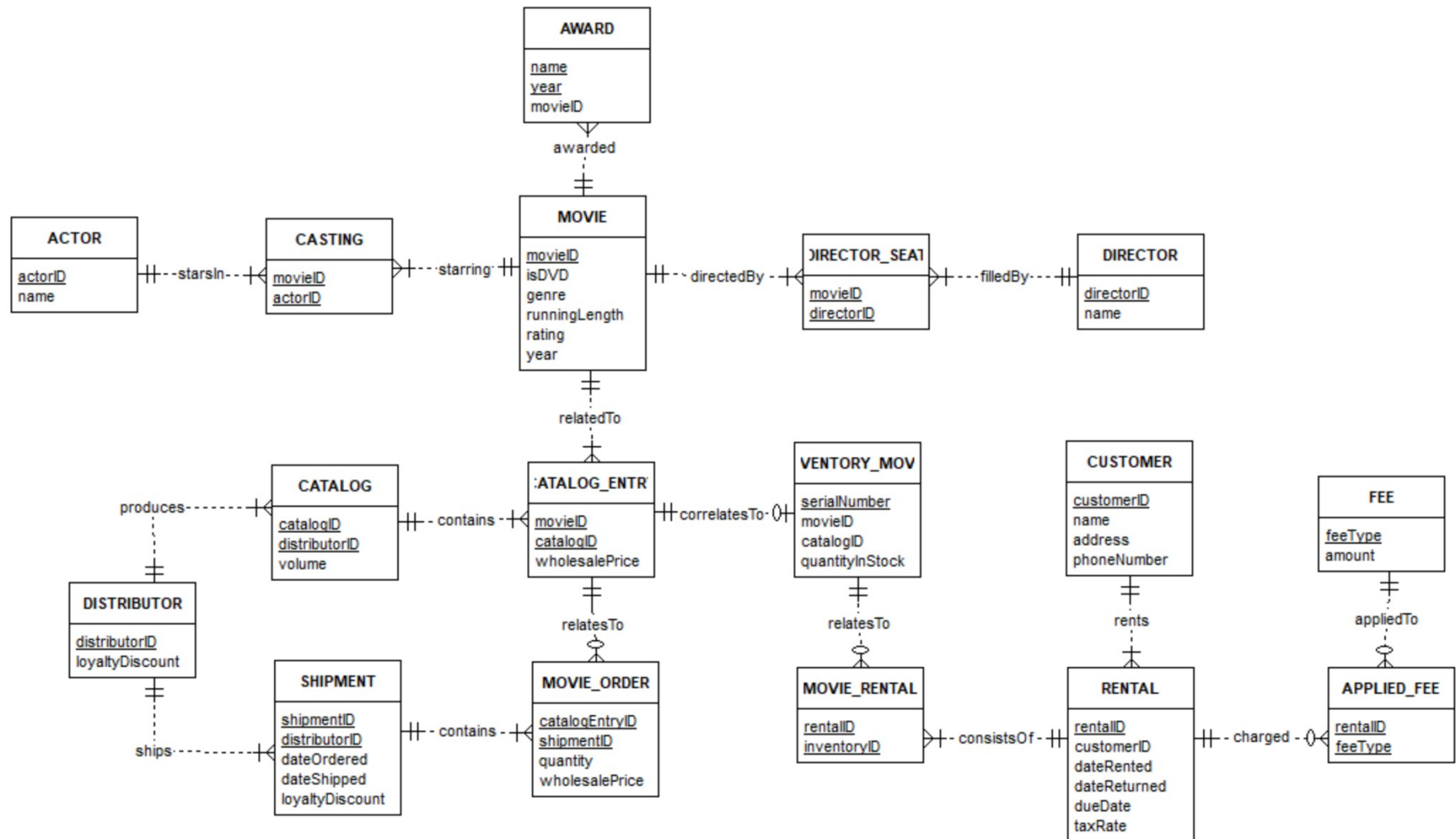
Each MOVIE has one or more DIRECTOR\_SEAT.  
Each DIRECTOR\_SEAT belongs to one MOVIE.

Each DIRECTOR\_SEAT has one DIRECTOR.  
Each DIRECTOR is in one or more DIRECTOR\_SEAT.

Each MOVIE has one or more CASTING.  
Each CASTING is for one MOVIE.

Each CASTING is one ACTOR.  
Each ACTOR has one or more CASTING.

# Entity Relationship Diagram



## Table Metadata

### CUSTOMER

Attribute Name	Stands For	Data Type	Key Type and Relation	Required	Referential Integrity
customerID	Auto Key	INT	PK	Yes	Yes
name	Name	String	N/A	Yes	No
address	Full Address	String	N/A	Yes	No
phoneNumber	Phone Number	String	N/A	No	No

### RENTAL

Attribute Name	Stands For	Data Type	Key Type and Relation	Required	Referential Integrity
rentalID	Auto Key	INT	PK	Yes	Yes
customerID	Renting Customer	INT	FK CUSTOMER.customerID	Yes	Yes
dateRented	Date of Rent	Date	N/A	Yes	No
dueDate	Date Rental needs to be returned	Date	N/A	Yes	No
dateReturned	Date Returned	Date	N/A	Yes	No
taxRate	Amount of Tax	Double	N/A	Yes	No

### APPLIED\_FEE

Attribute Name	Stands For	Data Type	Key Type and Relation	Required	Referential Integrity
rentalID	Rental ID	INT	FK RENTAL.rentalID	Yes	Yes
feeType	Type of Fee	INT	FK FEE.feeType	Yes	Yes

### FEE

Attribute Name	Stands For	Data Type	Key Type and Relation	Required	Referential Integrity
feeType	Type of Fee	String	PK	Yes	Yes
charge	Amount of charge for the fee	Double	N/A	Yes	No

### MOVIE\_RENTAL

Attribute Name	Stands For	Data Type	Key Type and Relation	Required	Referential Integrity
rentalID	Rental ID	INT	PK/FK RENTAL.rentalID	Yes	Yes
inventoryID	Inventory ID	INT	PK/FK INVENTORY_MOVIE.serialNumber	Yes	Yes

## INVENTORY\_MOVIE

Attribute Name	Stands For	Data Type	Key Type and Relation	Required	Referential Integrity
serialNumber	Internal serialization of movies	INT	PK	Yes	Yes
catalogID	Catalog ID	INT	FK CATALOG_ENTRY.catalogID	Yes	Yes
movieID	Movie ID	INT	FK CATALOG_ENTRY.movieID	Yes	Yes
quantityInStock	Count of movies currently in Stock	INT	N/A	Yes	No

## CATALOG\_ENTRY

Attribute Name	Stands For	Data Type	Key Type and Relation	Required	Referential Integrity
catalogEntryID	Catalog Entry ID	INT	PK	Yes	Yes
movieID	Movie ID	INT	FK MOVIE.movieID	Yes	Yes
catalogID	Catalog ID	INT	FK CATALOG.ID	Yes	Yes
wholesalePrice	Price for wholesale purchase	Double	N/A	Yes	No

## CATALOG

Attribute Name	Stands For	Data Type	Key Type and Relation	Required	Referential Integrity
catalogID	Catalog ID	INT	PK	Yes	Yes
distributorID	Distributor ID	INT	FK DISTRIBUTOR.distributorID	Yes	Yes
volume	Volume Number	INT	N/A	Yes	No

## DISTRIBUTOR

Attribute Name	Stands For	Data Type	Key Type and Relation	Required	Referential Integrity
distributorID	Distributor ID	INT	PK	Yes	Yes
loyaltyDiscount	Discount earned for loyalty	Double	N/A	No	No



## MOVIE\_ORDER

Attribute Name	Stands For	Data Type	Key Type and Relation	Required	Referential Integrity
catalogEntryID	Catalog Entry ID	INT	PK/FK CATALOG_ENTRY.catalogEntryID	Yes	Yes
shipmentID	Shipment ID	INT	PK/FK SHIPMENT.shipmentID	Yes	Yes
quantity	Amount ordered	INT	N/A	Yes	No
wholesalePrice	Price for wholesale purchase	Double	FK CATALOG_ENTRY.wholesalePrice	Yes	Yes

## SHIPMENT

Attribute Name	Stands For	Data Type	Key Type and Relation	Required	Referential Integrity
shipmentID	Shipment ID	INT	PK	Yes	Yes
dateOrdered	Date order was placed	Date	N/A	Yes	No
dateShipped	Date order was shipped	Date	N/A	Yes	No
distributorID	Distributor ID	INT	FK DISTRIBUTOR.distributorID	Yes	Yes

## MOVIE

Attribute Name	Stands For	Data Type	Key Type and Relation	Required	Referential Integrity
movieID	Movie ID	INT	PK	Yes	Yes
idDVD	Whether movie is DVD or VHS	Boolean	N/A	Yes	No
genre	Genre of Movie (Horror, Romance, etc.)	String	N/A	Yes	No
runningLength	Length of Movie (in minutes)	INT	N/A	Yes	No
rating	MPAA Rating	String	N/A	Yes	No
year	Release Year	Date	N/A	Yes	No

## AWARD

Attribute Name	Stands For	Data Type	Key Type and Relation	Required	Referential Integrity
name	Name of Award	String	PK	Yes	Yes
year	Year awarded	Date	PK	Yes	Yes
movieID	Movie awarded	INT	FK MOVIE.movieID	Yes	Yes

## DIRECTOR\_SEAT

Attribute Name	Stands For	Data Type	Key Type and Relation	Required	Referential Integrity
movieID	Movie Directed	INT	PK/FK MOVIE.movieID	Yes	Yes
directorID	Director	INT	PK/FK DIRETOR.directorID	Yes	Yes

## DIRECTOR

Attribute Name	Stands For	Data Type	Key Type and Relation	Required	Referential Integrity
directorID	Director ID	INT	PK	Yes	Yes
name	Director's Name as appears in credits	String	N/A	Yes	No

## CASTING

Attribute Name	Stands For	Data Type	Key Type and Relation	Required	Referential Integrity
movieID	Movie Starred In	INT	PK/FK MOVIE.movieID	Yes	Yes
actorID	Actor Starring in Movie	INT	PK/FK ACTOR.actorID	Yes	Yes

## ACTOR

Attribute Name	Stands For	Data Type	Key Type and Relation	Required	Referential Integrity
actorID	Actor ID	INT	PK	Yes	Yes
name	Name of Actor/Actress	String	N/A	Yes	No