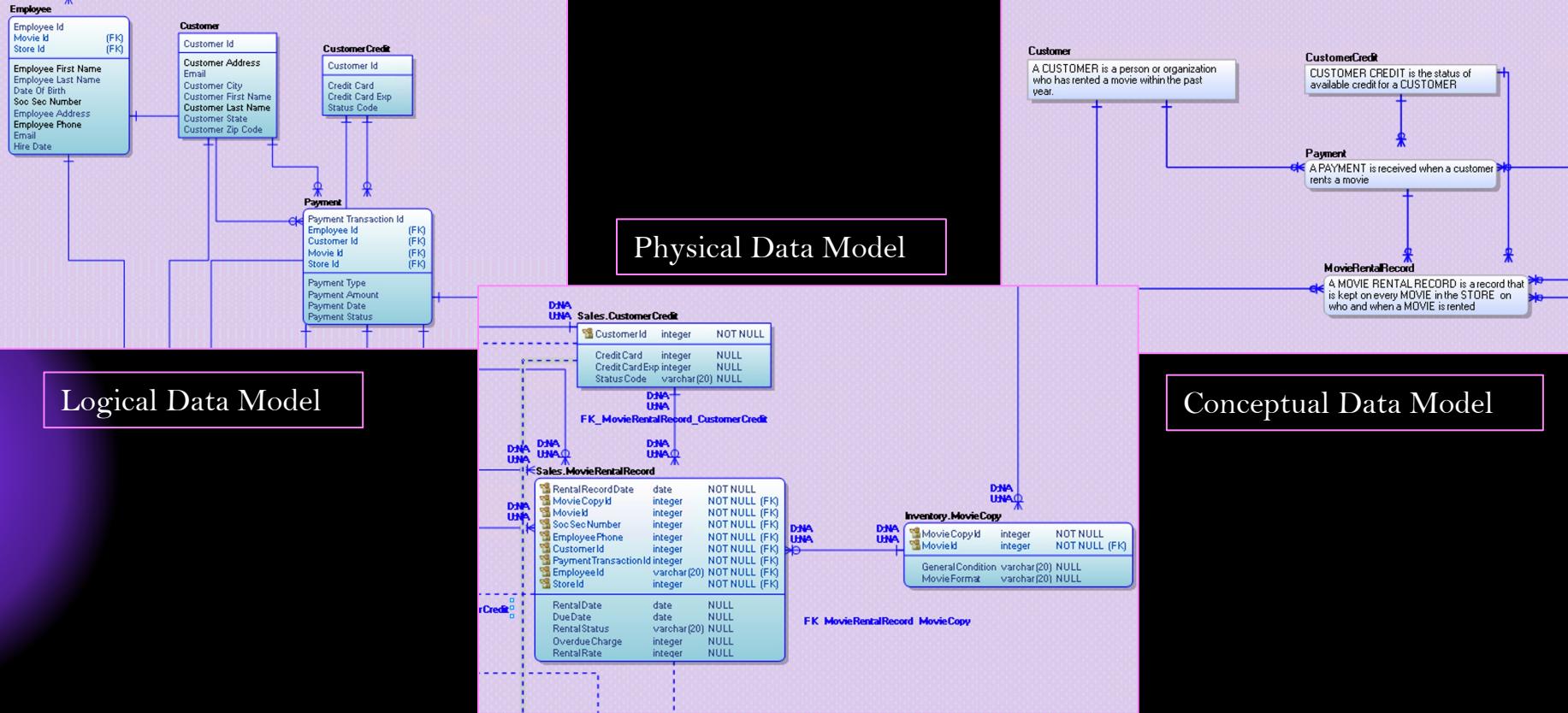


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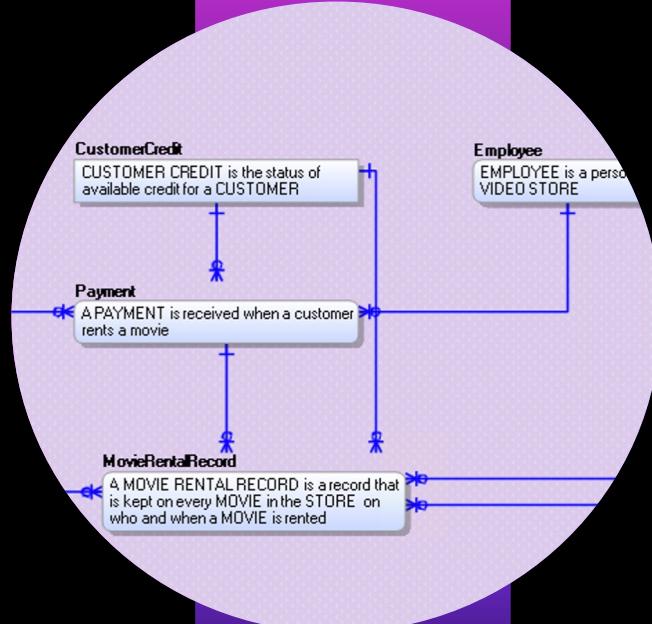
Data Modeling

with Maheen Naqvi

3 Musketeers – Quick View



My eMovies CDM

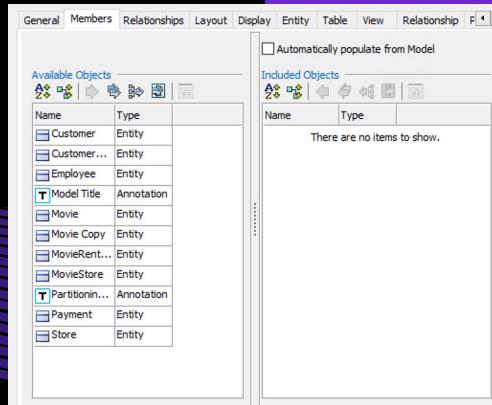
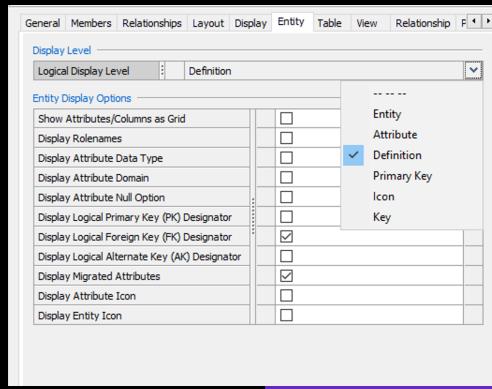


CDM CDM CDM CDM CDM CDM CDM CDM CDM

■ Conceptual Data Model ■

How to make modernized CDM:

1. Click ER diagrams in Model Explorer
2. Right click and choose NEW
3. Name it as CDM
4. Right click on the Window Panel and choose Properties
5. Under the tab entity, you will see a Display Level, you can choose definitions from the dropdown menu
6. Click on the Members tab and populate the model by clicking this arrow
7. Use hierarchical layout from the Diagram Menu and your CDM is ready!



Conceptual Data Model

Why should we make CDM?

01

Shows the critical
business objects

02

Interaction of the business
objects with each other

03

Shows the critical
Business Definitions

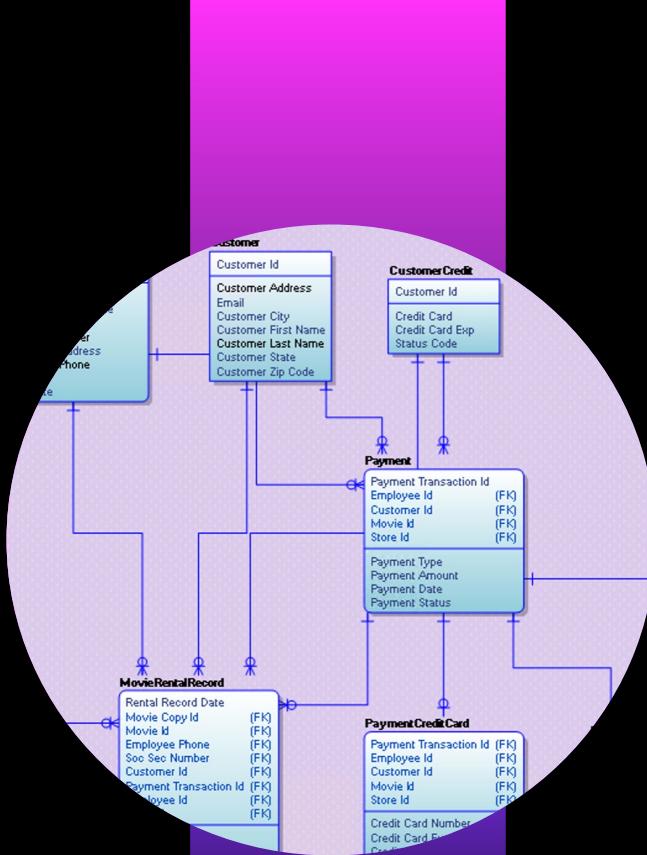
04

Provide high-level
solutions

CDM CDM CDM CDM CDM CDM CDM CDM CDM

My eMovies

LDM



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■ Logical Data Model ■

How did I make modernized LDM:

- Change “number” to identifier



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■ Logical Data Model ■

How did I make modernized LDM:

- Change “number” to identifier
- Delete irrelevant columns and add required information

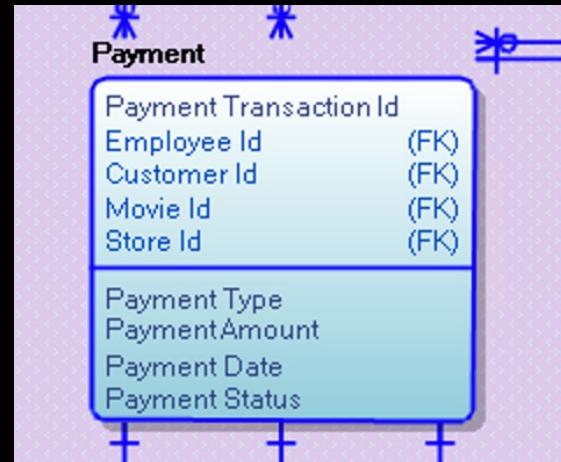


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■ Logical Data Model ■

How did I make modernized LDM:

- Change “number” to identifier
- Delete irrelevant columns and add required information
- Rearranging the columns

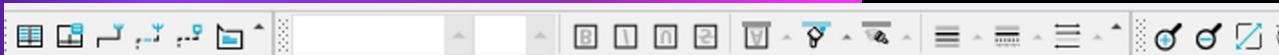
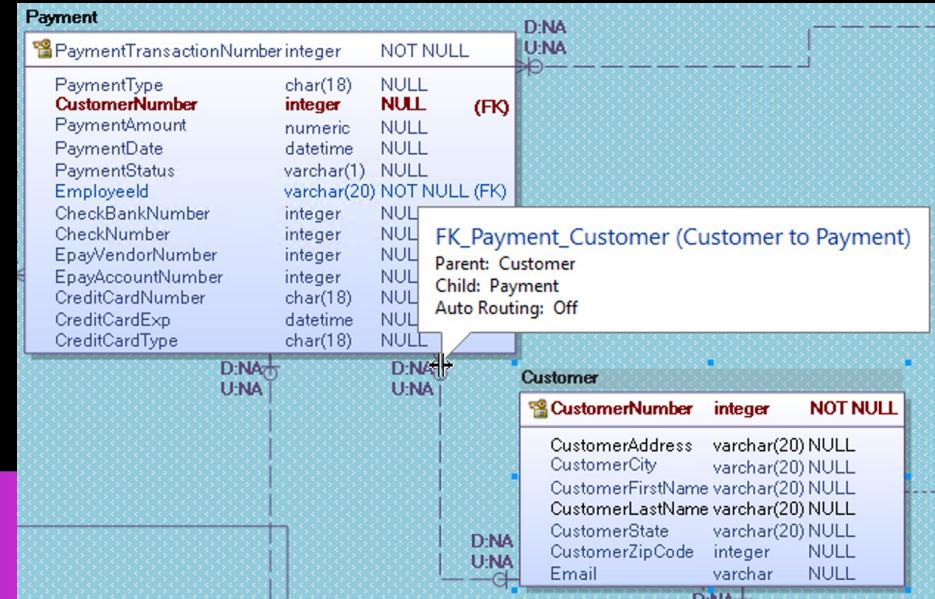


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Logical Data Model

How did I make modernized LDM:
(Normalization)

- Remove the duplicate attributes

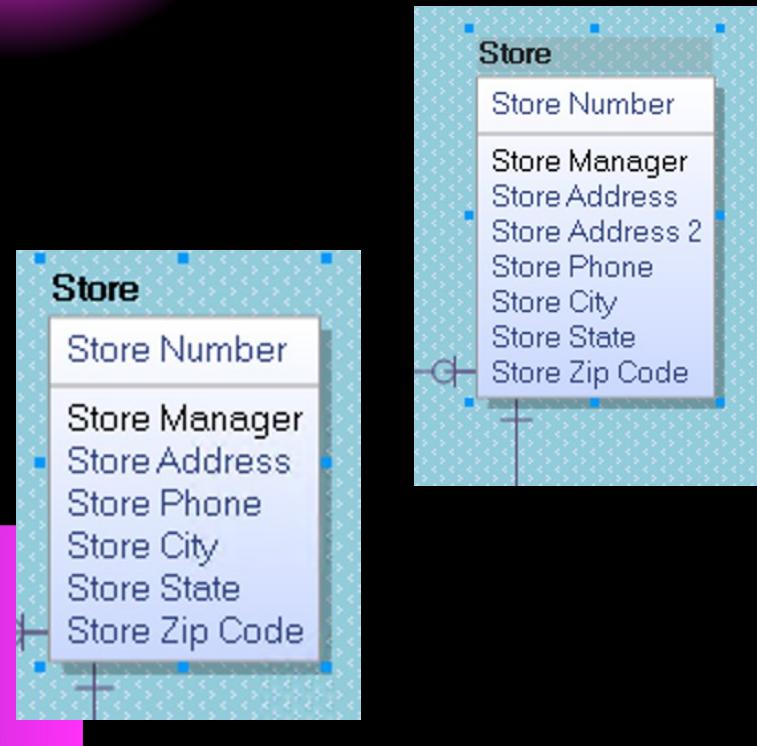


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Logical Data Model

How did I make modernized LDM:
(Normalization)

- Remove the duplicate attributes
- Fix multivalued attributes

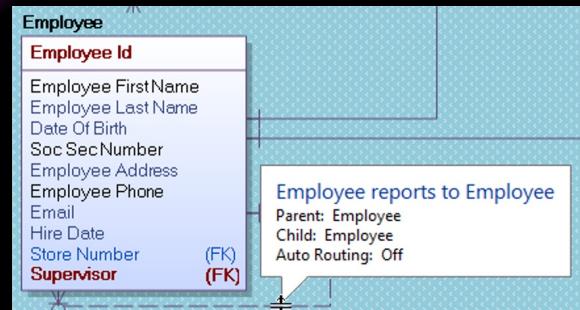


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Logical Data Model

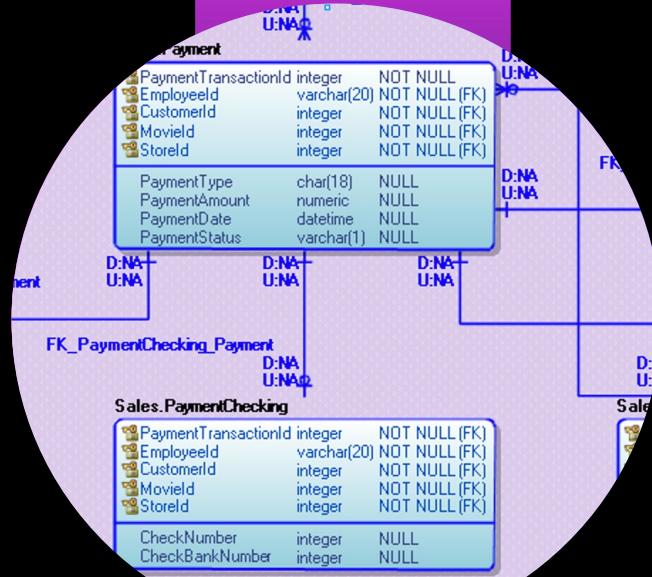
How did I make modernized LDM:
(Normalization)

- Remove the duplicate attributes
- Fix multivalued attributes
- Resolve the hidden dependency



My eMovies

PDM



PDM PDM PDM PDM PDM PDM PDM PDM

Physical Data Model

How did I make modernized PDM:

- Use fully qualified object names

Inventory.Movie		
Movield	integer	NOT NULL
MovieTitle	varchar(20)	NULL
MovieDirector	varchar(20)	NULL
Description	varchar(20)	NULL
Star1Name	varchar(20)	NULL
Rating	varchar	NULL
Star2Name	varchar(20)	NULL
Genre	char	NULL
RentalRate	numeric	NULL
MovieUrl	varchar	NULL
MovieClip	varbinary	NULL

D:NA+

Physical Name	Schema
Customer	Sales
CustomerCredit	Sales
Employee	HumanResouces
Movie	Inventory
MovieCopy	Inventory
MovieRentalRecord	Sales
Payment	Sales

PDM PDM PDM PDM PDM PDM PDM PDM PDM

Physical Data Model

How did I make modernized PDM:

- Use fully qualified object names
- Fix the datatypes

Physical Name	Domain Parent	Physical Data Type	Primary ...
StoreId	# Number	integer	<input checked="" type="checkbox"/>
EmployeeFirstName	#& firstname	varchar(20)	<input type="checkbox"/>
EmployeeAddress	#& address	varchar(20)	<input type="checkbox"/>
EmployeePhone	#& phone	integer	<input type="checkbox"/>
SocSecNumber	# Number	integer	<input type="checkbox"/>
HireDate	Datetime	date	<input type="checkbox"/>
Email	#& String	varchar(20)	<input type="checkbox"/>
DateOfBirth	Datetime	date	<input type="checkbox"/>
EmployeeLastName	#& lastname	varchar(20)	<input type="checkbox"/>

PDM PDM PDM PDM PDM PDM PDM PDM

Physical Data Model

How did I make modernized PDM:

- Use fully qualified object names
- Fix the datatypes
- Use PASCAL case

HumanResources.Employee		
EmployeeId	varchar(20)	NOT NULL
MovieId	integer	NOT NULL (FK)
StoreId	integer	NOT NULL (FK)
EmployeeFirstName	varchar(20)	NULL
EmployeeAddress	varchar(20)	NULL
EmployeePhone	integer	NULL
SocSecNumber	integer	NULL
HireDate	date	NULL
Email	varchar(20)	NULL
DateOfBirth	date	NULL
EmployeeLastName	varchar(20)	NULL

PDM PDM PDM PDM PDM PDM PDM PDM PDM

Physical Data Model

How did I make modernized PDM:

- Use fully qualified object names
- Fix the datatypes
- Use PASCAL case
- Remove abbreviations

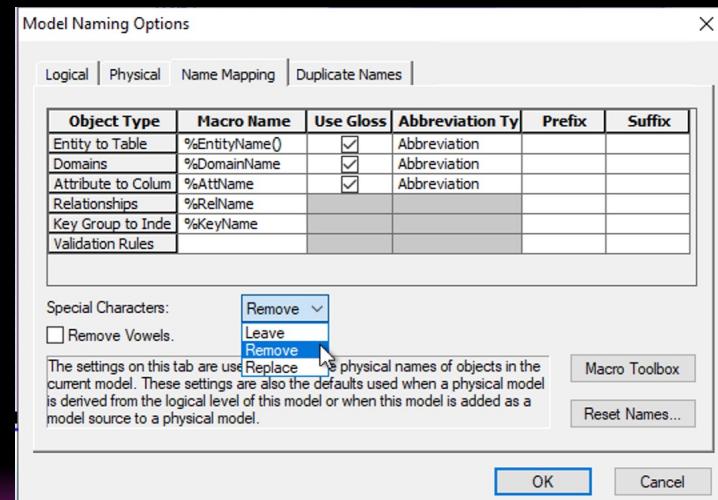
Sales.Customer		
	CustomerId	integer NOT NULL
	CustomerAddress	varchar(20) NULL
	CustomerCity	varchar(20) NULL
	CustomerFirstName	varchar(20) NULL
	CustomerLastName	varchar(20) NULL
	CustomerState	varchar(20) NULL
	CustomerZipCode	integer NULL
	Email	varchar NULL

PDM PDM PDM PDM PDM PDM PDM PDM PDM

Physical Data Model

How did I make modernized PDM:

- Use fully qualified object names
- Fix the datatypes
- Use PASCAL case
- Remove abbreviations
- Remove underscore and spaces

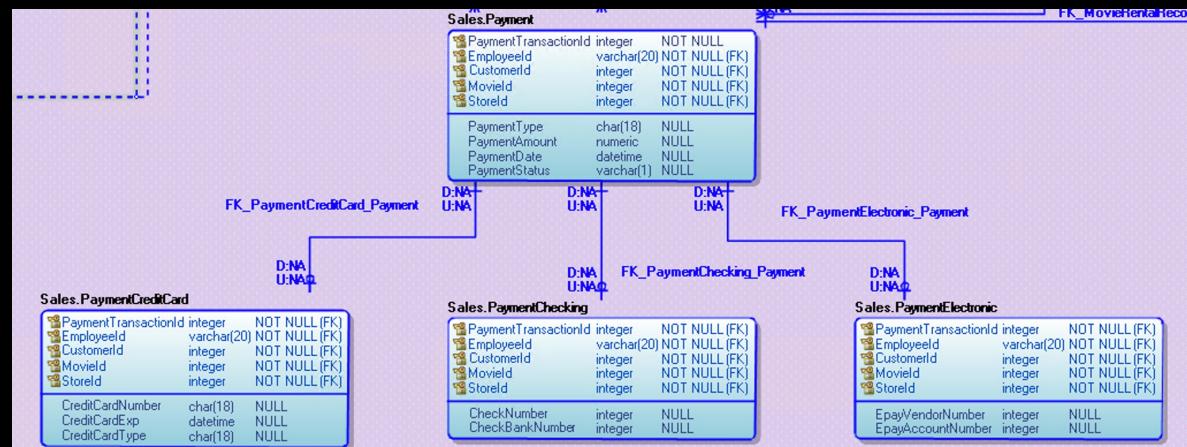


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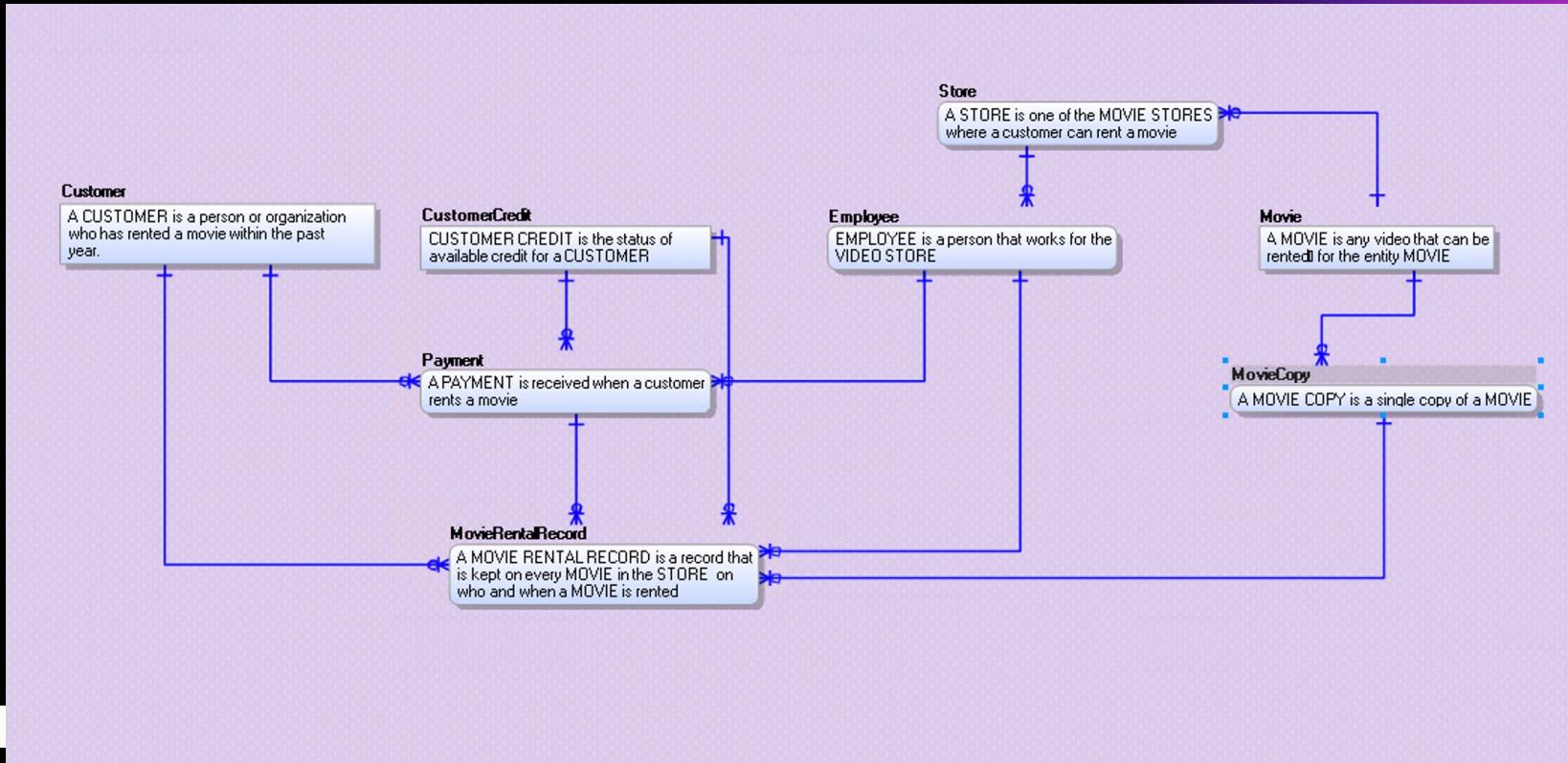
Physical Data Model

How did I make modernized PDM (Star Schema):

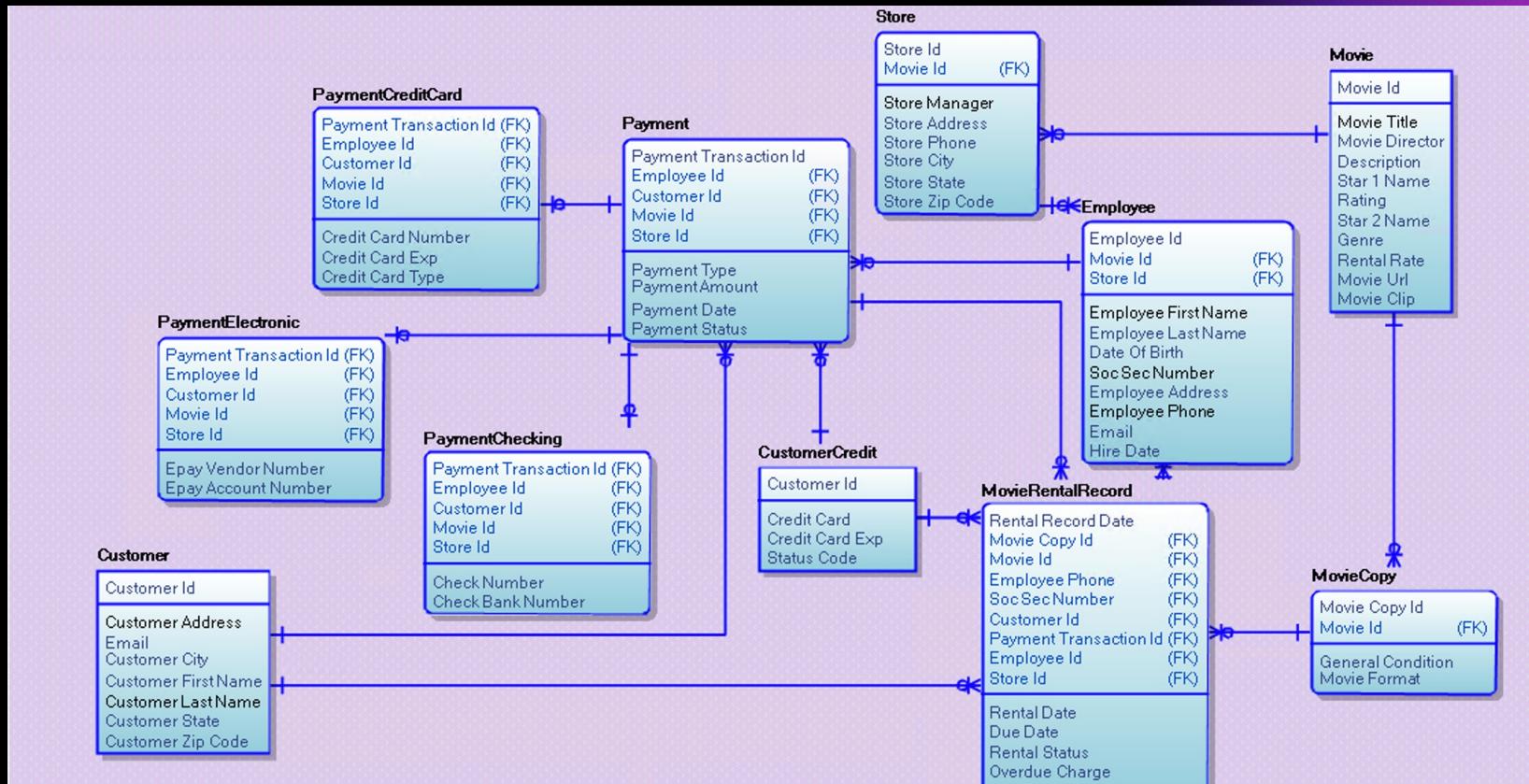
- Fact table: Sales.PaymentTranscation.
- Key value PaymentTransactionId
- New tables made
 - Sales.PaymentCreditCard
 - Sales.PaymentChecking
 - Sales.PaymentElectronic



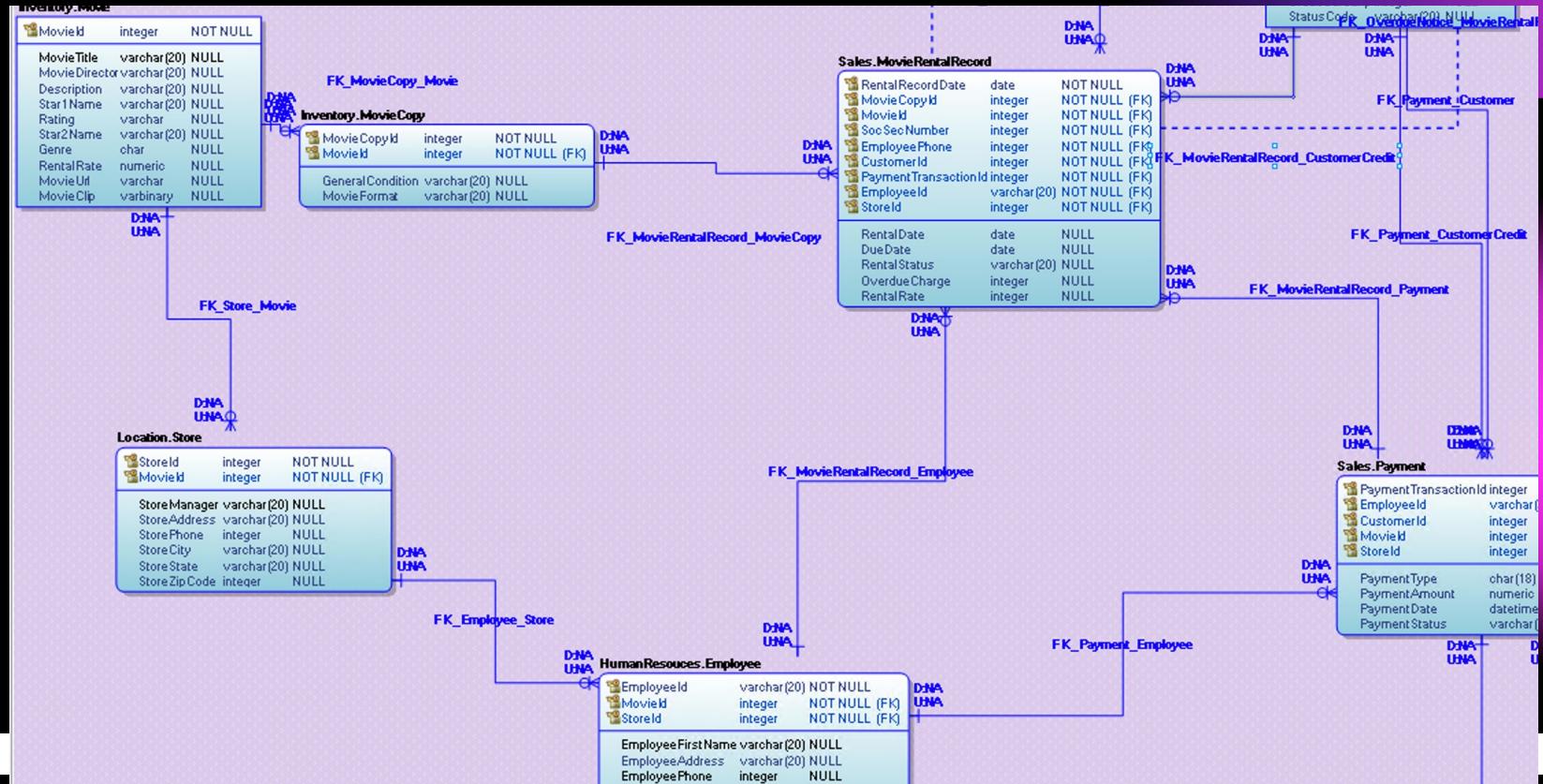
Here's a full image of how CDM looks like



Here's a full image of how LDM looks like



Here's a full image of how PDM looks like



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Thanks

Do you have any questions?



maheen.naqvi05@qmail.cuny.edu

