

Designing Data Architecture for Business Intelligence

Assignment: Data Modeling Chinook

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1. Convert ER Model to Dimensional Model:

- List fact(s) & dimensions:

Facts:-

1. FactInvoice

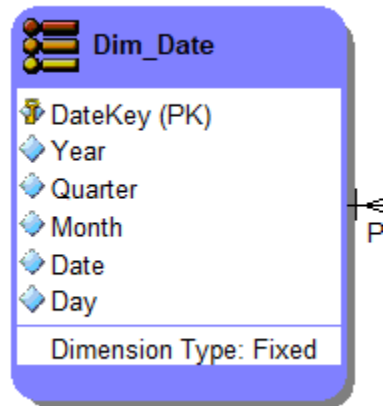
List fact(s) & Dimensions:-

1. DimAlbum
2. DimCustomer
3. DimDate
4. DimEmployee
5. DimGeography
6. DimPlaylist
7. DimTrack

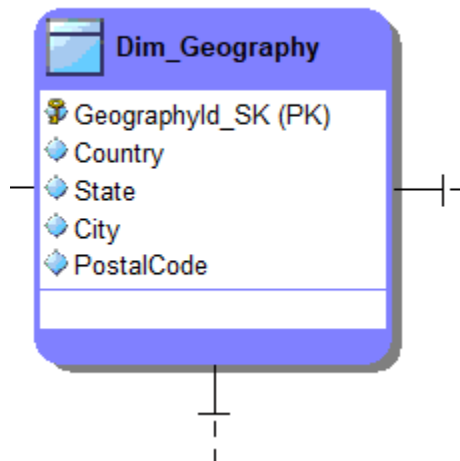
- What Tables will be combined?

The tables Artist, MediaType, Playlist and Genre contained only primary keys. Therefore, we can combine them with the tables which were referenced by the keys resulted into merging Playlist with PlaylistTrack, MediaType and Genre with the DimTrack and Artist with the DimAlbum.

- Create date/calendar dimension:



- Create geography table:



- Determine table attributes:

Table	Column	Keys
DimGeography	GeographyId_SK	PK
DimGeography	Country	
DimGeography	State	
DimGeography	city	
DimGeography	Postalcode	
FactInvoiceLine	InvoiceLineId	PK
FactInvoiceLine	InvoiceId	FK
FactInvoiceLine	UnitPrice	
FactInvoiceLine	Quantity	
FactInvoiceLine	Track_SK	FK
FactInvoice	InvoiceId	PK
FactInvoice	Total	
FactInvoice	Customer_SK	FK
FactInvoice	Date_SK	FK
FactInvoice	Geography_SK	FK
PlaylistTrack	Track_SK	FK
PlaylistTrack	Playlist_SK	FK
DimAlbum	AlbumID	AK
DimAlbum	Title	
DimAlbum	ArtistID	
DimAlbum	Album_SK	PK
DimPlaylist	PlaylistID	AK
DimPlaylist	Name	
DimPlaylist	Playlist_SK	PK
DimTrack	Trackid_SK	PK
DimTrack	Name	
DimTrack	Composer	
DimTrack	Milliseconds	
DimTrack	Bytes	
DimTrack	MediaType	
DimTrack	GenreID	
DimTrack	Album_SK	FK
Customer	CustomerID_SK	PK
Customer	FirstName	
Customer	LastName	
Customer	Company	

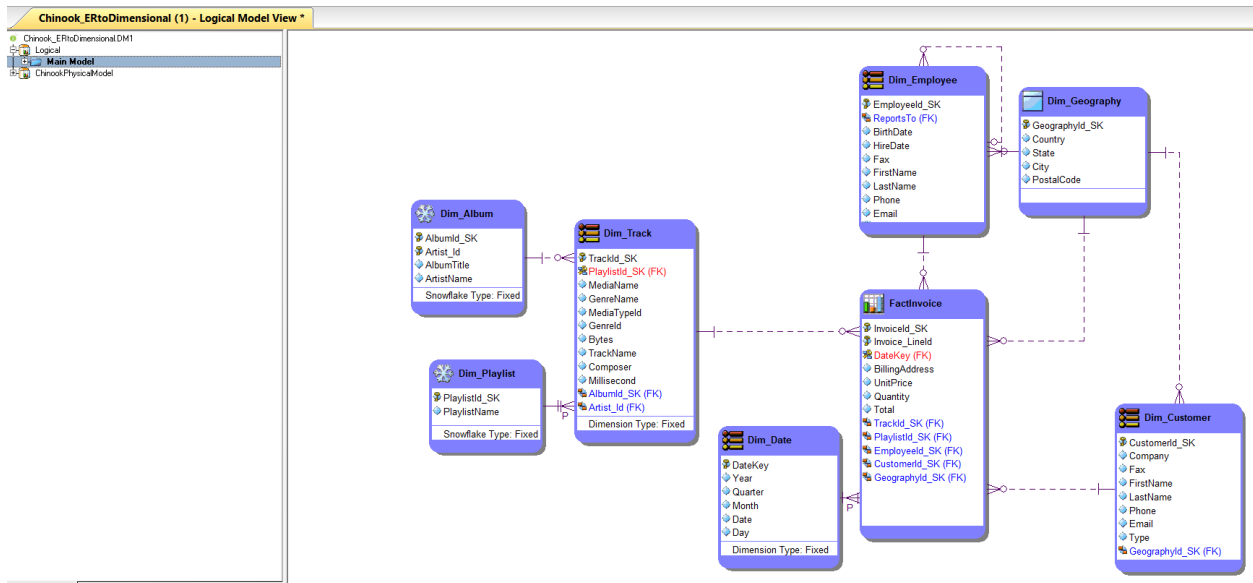
Customer	Phone	
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Customer	Fax	
Customer	Email	
Customer	Customer_SK	PK
Customer	Date_SK	FK
Customer	Employee_SK	FK
Customer	Geography_SK	FK
DimEmployee	EmployeeID_SK	PK
DimEmployee	LastName	
DimEmployee	FirstName	
DimEmployee	Title	
DimEmployee	ReportsTo	FK
DimEmployee	Phone	
DimEmployee	Fax	
DimEmployee	Email	
DimEmployee	GeographyId	FK
DimEmployee	Employee_SK	PK
DimDate	DateKey	PK
DimDate	MonthName	
DimDate	CalenderYear	
DimDate	Date_SK	AK
DimDate	DayOfMonth	
DimDate	DayOfTheWeek	

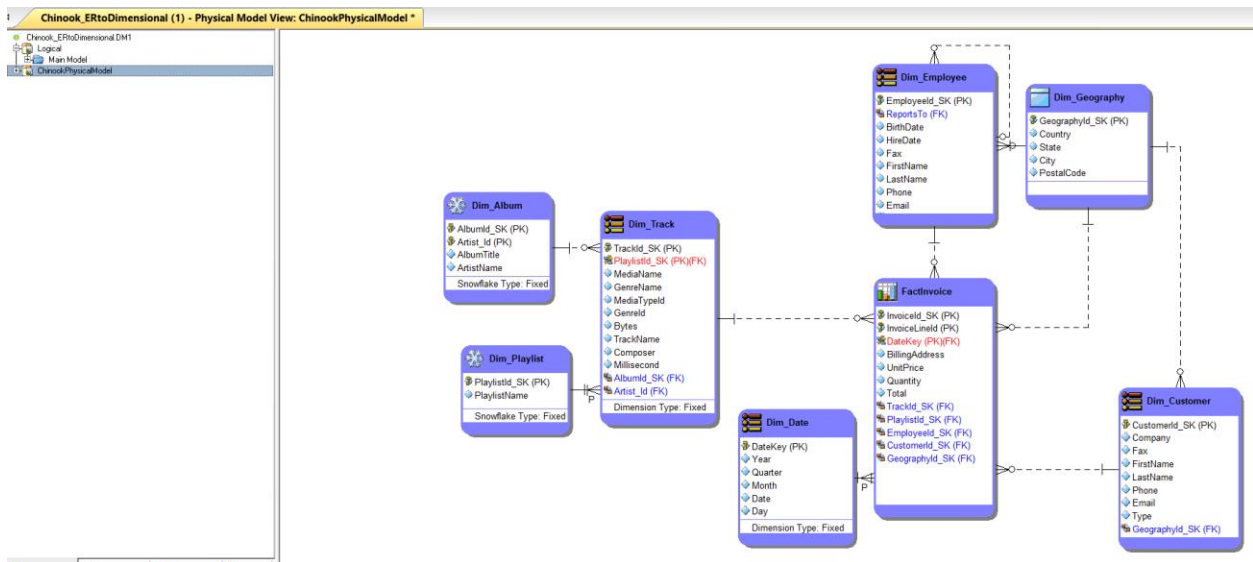
- Map source table(s) to target table
Target Table is the FactInvoice Table since all the dimensions are connected to the FactInvoice Table. The Source tables are all the dimensions from where all the values are passed to the Fact Table.

2. Create data model in ER/Studio & upload data models

Main model:



Physical model:



3. Create DDL & create tables in following databases & upload DDL for each database:

o SQL Server

The screenshot displays the Microsoft SQL Server Management Studio interface. The title bar indicates the connection to 'ChinnokPhysicalModel_SQLServer.sql - DESKTOP-HFRL11D\SIDHISQLChinnokDB_Dim (DESKTOP-HFRL11D\Siddhi (53)) - Microsoft SQL Server Management Studio'. The Object Explorer on the left shows the server structure, with 'ChinnokDB_Dim' selected under the 'Databases' folder. The Query window on the right contains the following SQL script:

```
ALTER TABLE Dim_Track ADD CONSTRAINT RefDim_Album16
FOREIGN KEY (AlbumId_SK, Artist_Id)
REFERENCES Dim_Album(AlbumId_SK, Artist_Id)
go

/*
* TABLE: FactInvoice
*/


ALTER TABLE FactInvoice ADD CONSTRAINT RefDim_Track4
FOREIGN KEY (TrackId_SK, PlaylistId_SK)
REFERENCES Dim_Track(TrackId_SK, PlaylistId_SK)
go


ALTER TABLE FactInvoice ADD CONSTRAINT RefDim_Date23
FOREIGN KEY (DateKey)
REFERENCES Dim_Date(DateKey)
```


The Messages window at the bottom shows the execution results:


```
<<< CREATED TABLE Dim_Album >>>
<<< CREATED TABLE Dim_Customer >>>
<<< CREATED TABLE Dim_Date >>>
<<< CREATED TABLE Dim_Employee >>>
<<< CREATED TABLE Dim_Geography >>>
<<< CREATED TABLE Dim_Playlist >>>
<<< CREATED TABLE Dim_Track >>>
<<< CREATED TABLE FactInvoice >>>
```


Completion time: 2020-01-30T12:27:00.6896726-05:00


[-]  DESKTOP-HFRL11D\SIDDDHISQL (SQL Server 14.0.2027.2 - DESKTOP-HFRL11D)


[-]  Databases


+  System Databases


+  Database Snapshots

+  AdultLiteracy


+  AdventureWorks2017


+  AdventureWorksDW2017


+  AdventureWorksLT2017


+  Chinook

+  INFO6210


+  Practice


+  sample

+  SportsEquipmentDB


+  SportsEquipmentDB_New

+  XYZ


[-]  ChinnokDB_Dim


+  Database Diagrams


[-]  Tables


+  System Tables


+  FileTables


+  External Tables


+  Graph Tables


+  dbo.Dim_Album


+  dbo.Dim_Customer


+  dbo.Dim_Date


+  dbo.Dim_Employee

+  dbo.Dim_Geography

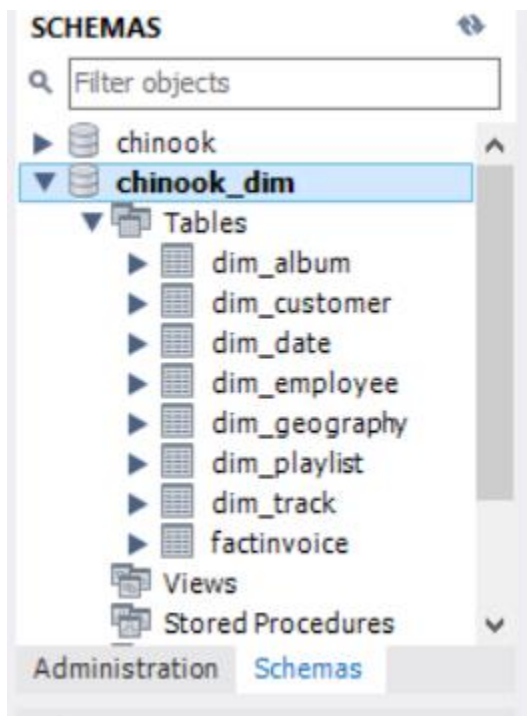
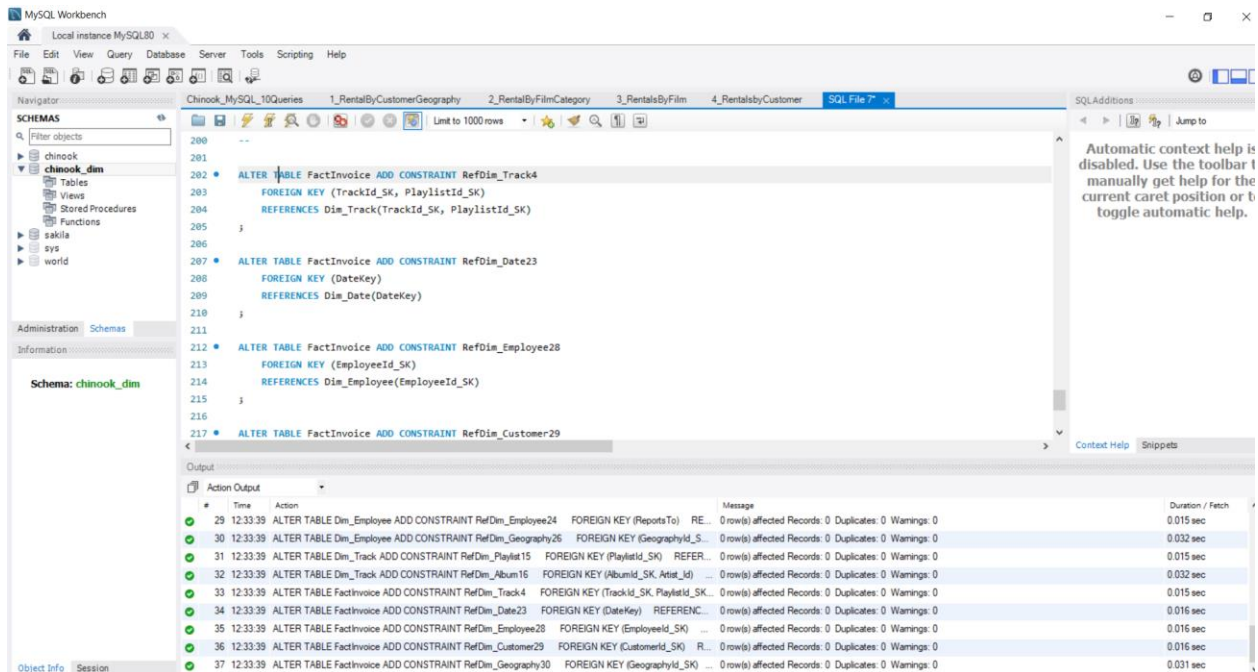
+  dbo.Dim_Playlist

+  dbo.Dim_Track

+  dbo.FactInvoice

+  Views

o MySQL



o PostgreSQL

← → ↻ 127.0.0.1:54863/browser/

Apps Image result for ent... Gmail YouTube Maps Bs Welcome, Siddhi Vi... m Kudvenkat sql - You... 185 Action Verbs T... 300

pgAdmin File Object Tools Help

Browser Servers (1)
 PostgreSQL 12
 Databases (3)
 Chinook
 Chinook_Dim
 Casts
 Catalogs
 Event Triggers
 Extensions
 Foreign Data Wrappers
 Languages
 Schemas
 postgres
 Login/Group Roles
 Tablespace

Dashboard Properties SQL Statistics Dependencies Dependents Chinook_Dim/postgres@Postg

Chinook_Dim/postgres@PostgreSQL 12

Query Editor Query History

```

217 ALTER TABLE "FactInvoice" ADD CONSTRAINT "RefDim_Customer29"
218 FOREIGN KEY ("CustomerId_SK")
219 REFERENCES "Dim_Customer" ("CustomerId_SK")
220 ;
221
222 ALTER TABLE "FactInvoice" ADD CONSTRAINT "RefDim_Geography30"
223 FOREIGN KEY ("GeographyId_SK")
224 REFERENCES "Dim_Geography" ("GeographyId_SK")
225 ;
226
227
228

```

Data Output Explain Messages Notifications

ALTER TABLE

Query returned successfully in 1 secs 850 msec.

> 1.3 Sequences

> Tables (8)

> Dim_Album

> Dim_Customer

> Dim_Date

> Dim_Employee

> Dim_Geography

> Dim_Playlist

> Dim_Track

> FactInvoice

> Trigger Functions

> Types

> Views

o Oracle 11gR2

Oracle SQL Developer

File Edit View Navigate Run Team Tools Window Help

Connections

- Tables (Filtered)
- DDM_AJBLN
- DDM_CUSTOMER
- DDM_EMPLOYEE
- DDM_GEOGRAPHY
- DDM_PLAYLIST
- DDM_TRACK
- FACTINVOICE
- Views
- Indexes
- Packages
- Procedures
- Functions
- Operators
- Queues
- Queues Tables
- Triggers

Reports

- All Reports
- Analytic View Reports
- Data Dictionary Reports
- Data Modeler Reports
- OLAP Reports
- TimesTen Reports
- User Defined Reports

Worksheet

Query Builder

```
ALTER TABLE FactInvoice ADD CONSTRAINT RefDim_Employee28
FOREIGN KEY (EmployeeId_SK)
REFERENCES Dim_Employee(EmployeeId_SK)
;

ALTER TABLE FactInvoice ADD CONSTRAINT RefDim_Customer29
FOREIGN KEY (CustomerId_SK)
REFERENCES Dim_Customer(CustomerId_SK)
;

ALTER TABLE FactInvoice ADD CONSTRAINT RefDim_Geography30
FOREIGN KEY (GeographyId_SK)
REFERENCES Dim_Geography(GeographyId_SK)
;
```

Script Output

Task completed in 0.424 seconds

```
FOREIGN KEY (DateKey)
REFERENCES Dim_Date(DateKey)

Error report -
ORA-00942: table or view does not exist
00942. 00000 - "table or view does not exist"
*Cause:
*Action:

Table FACTINVOICE altered.

Table FACTINVOICE altered.

Table FACTINVOICE altered.
```