Final Assessment

SQL SERVER INTEGRATION SERVICE – SSIS

This document is about extracting data from different sources, transforming and loading it with required conditions in different destinations using SSIS tool. Also, it shows different types of transformations and its execution.

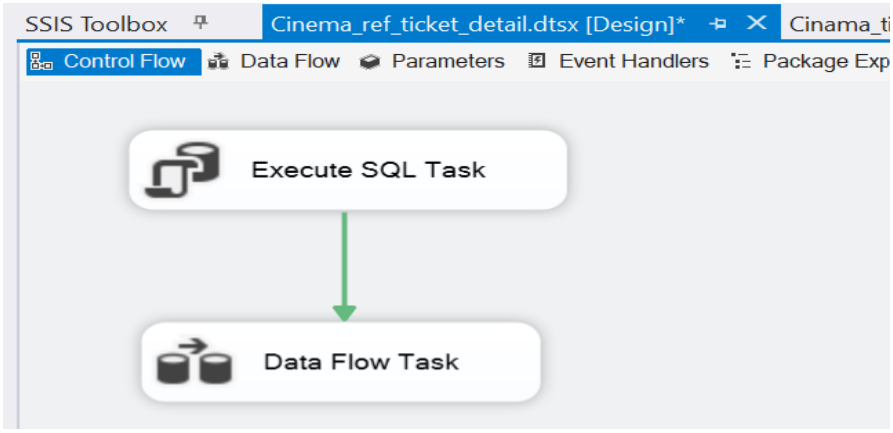
1. Extracting Transforming and loading data

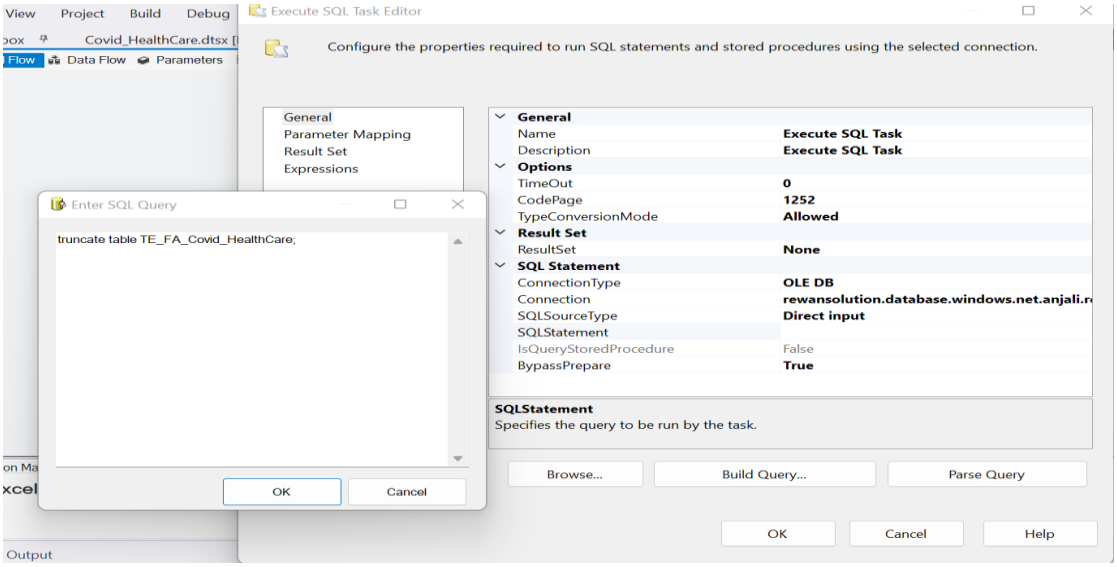
i) Cinema Ticket Details Data Source:

Source – Cinema reference ticket details excel data source

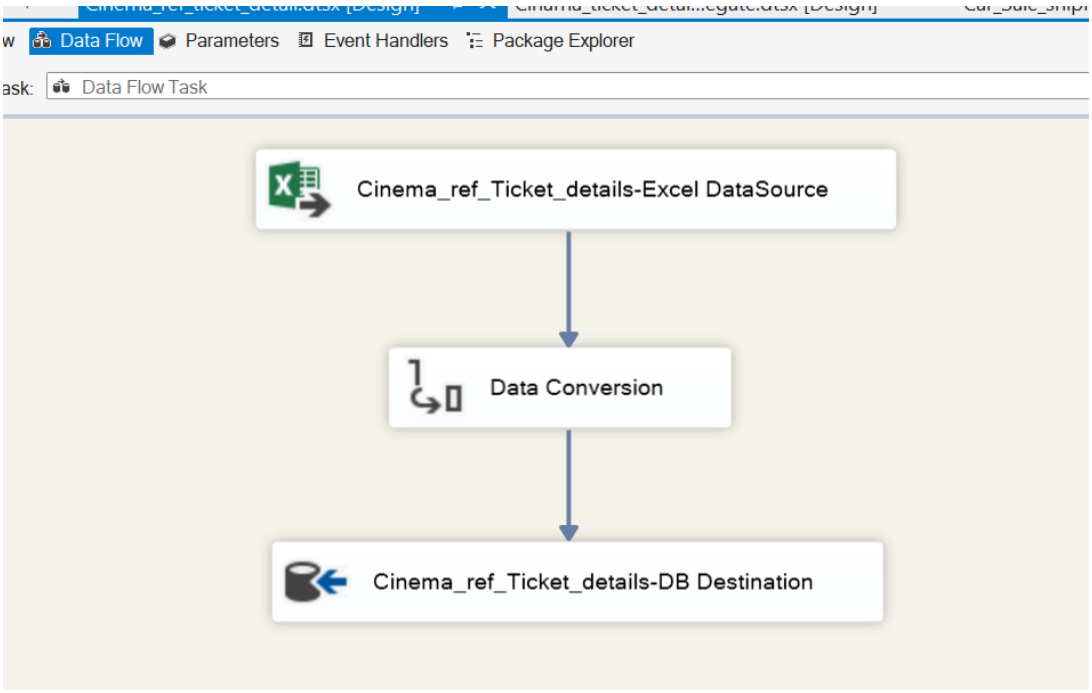
Target – SQL server

In control flow-

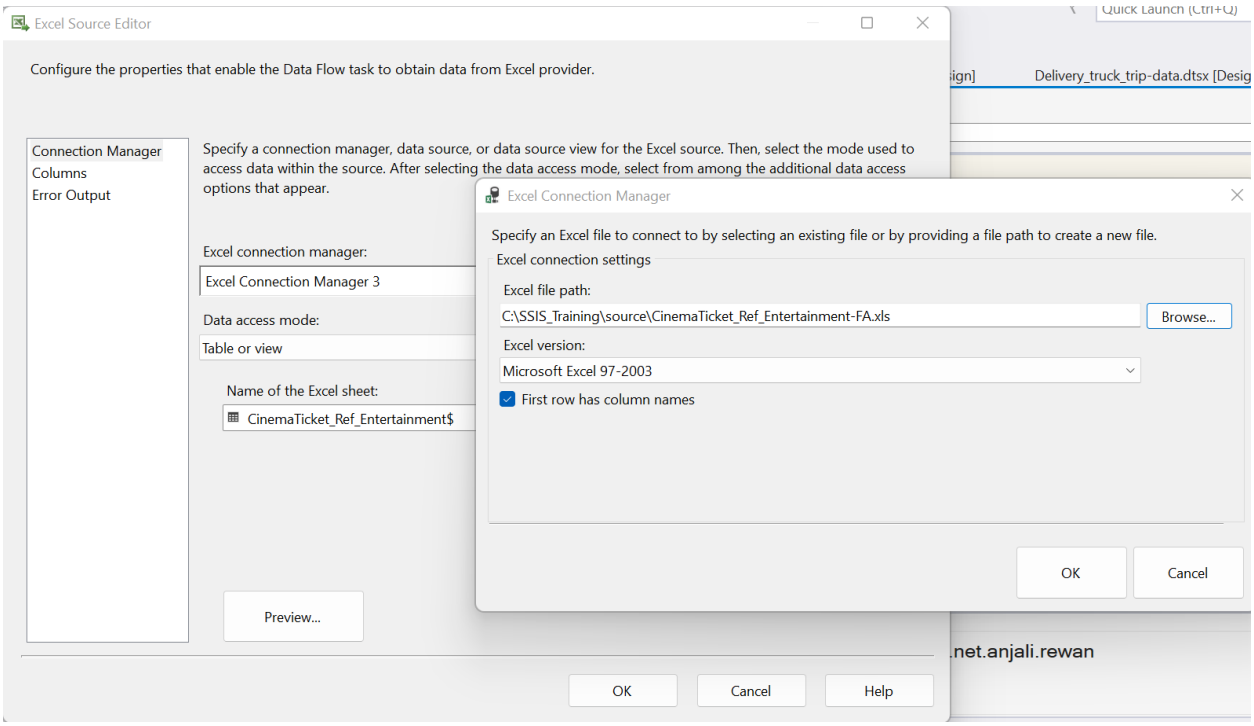


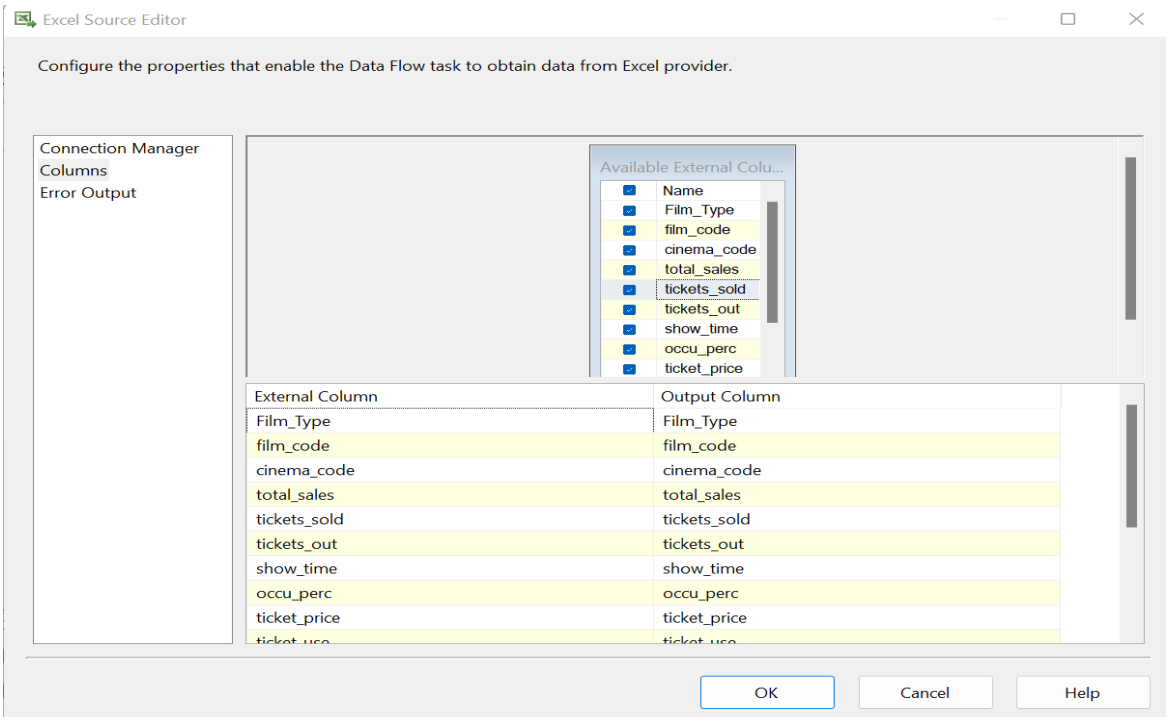


In Data Flow-

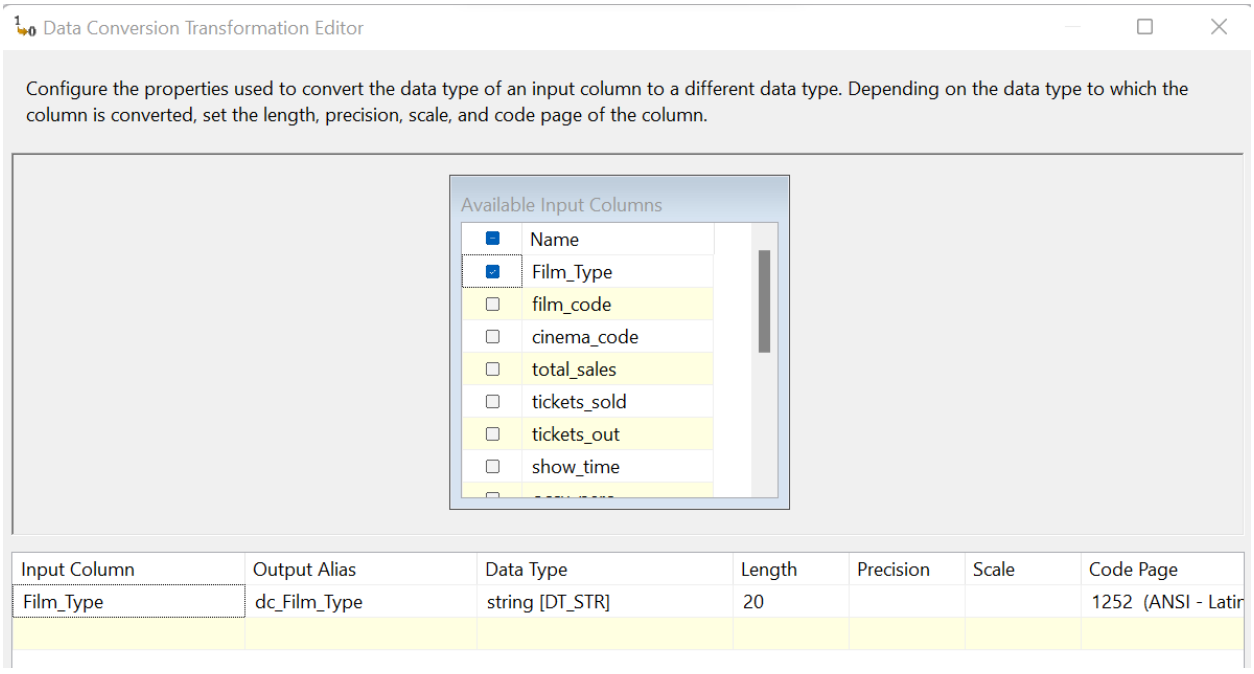


a) Creating connection for Excel Source-



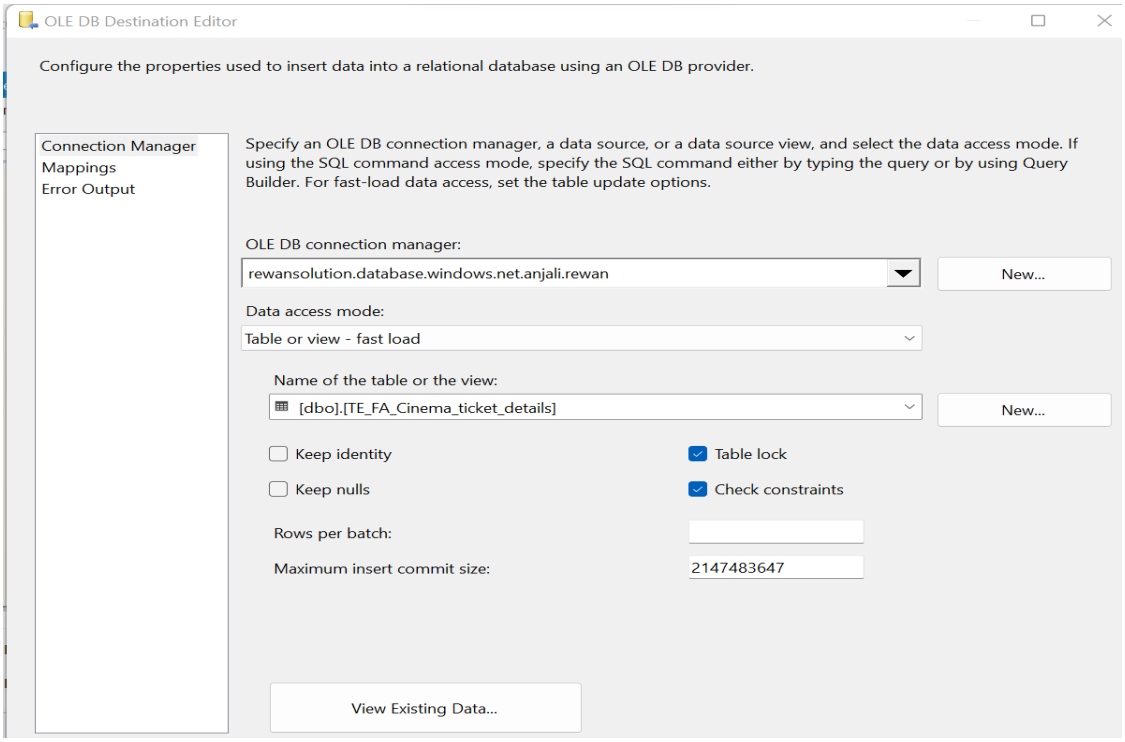


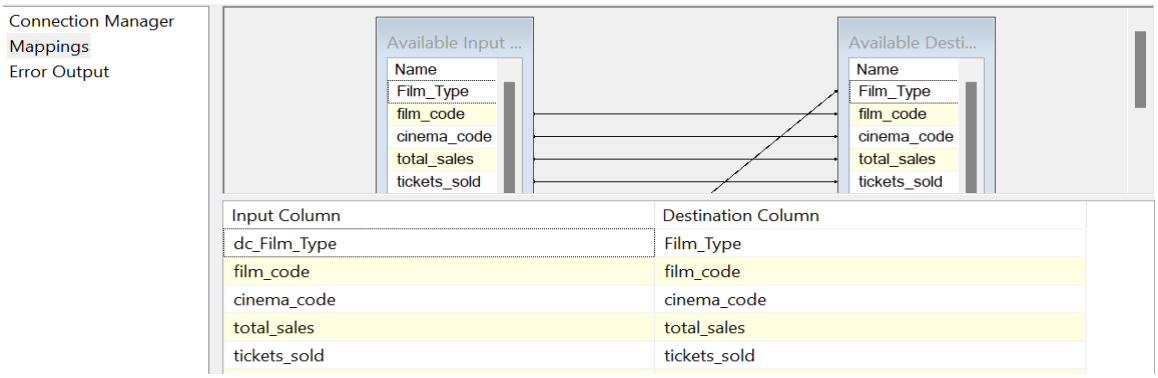
b) Data Conversion-



c) Creating connection for SQL Server(destination)-

```
create table TE_FA_Cinema_ticket_details
(
 Film_Type varchar(20),
 film_code int,
 cinema_code int,
 total_sales bigint,
 tickets_sold int,
 tickets_out int,
 show_time date,
 occu_perc   float,
 ticket_price float,
 ticket_use  int,
 capacity int,
 datee date,
 monthh int,
 quarterr int,
 dayy int
);
select * from TE_FA_Cinema_ticket_details;
```

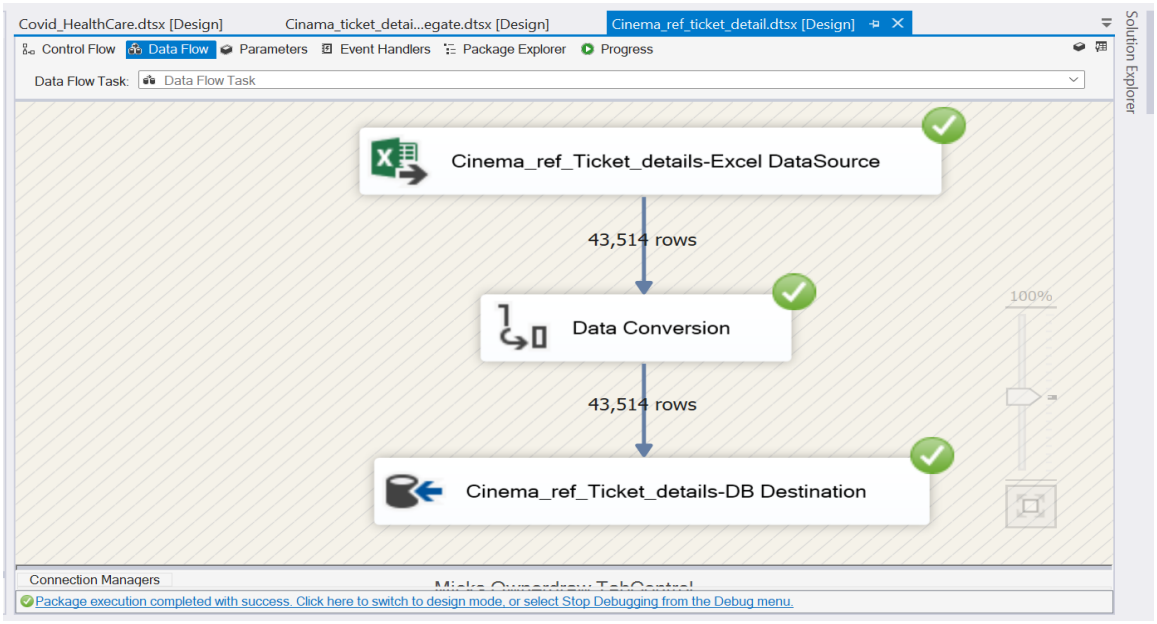


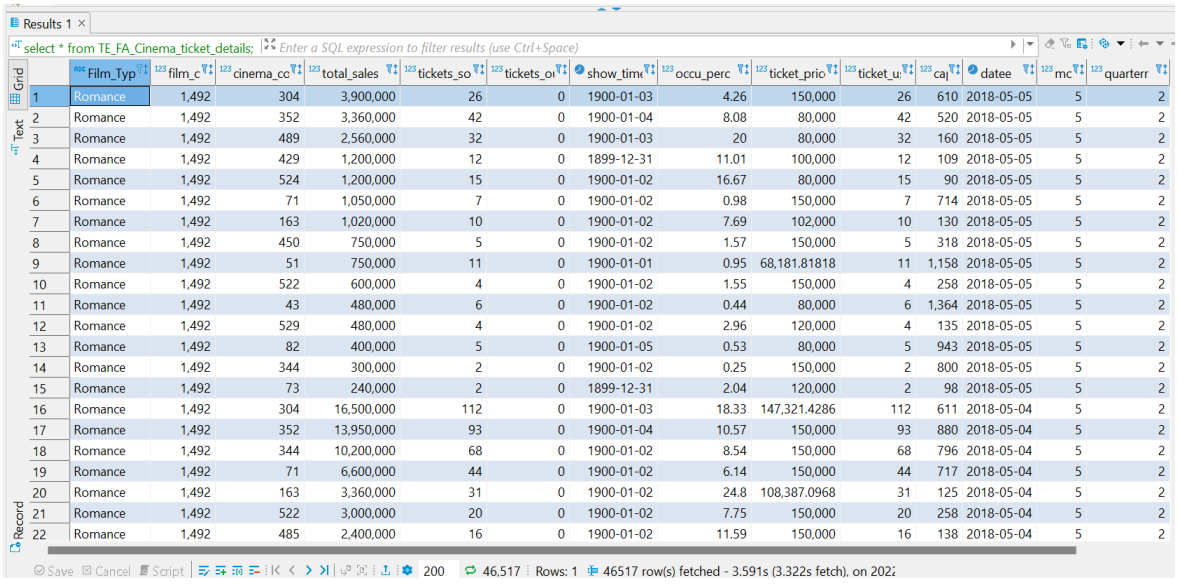


Input Column	Destination Column
dc_Film_Type	Film_Type
film_code	film_code
cinema_code	cinema_code
total_sales	total_sales
tickets_sold	tickets_sold

d) Result:

The data is loaded into SQL Server database from excel data source.





Results 1

select * from TE_FA_Cinema_ticket_details;

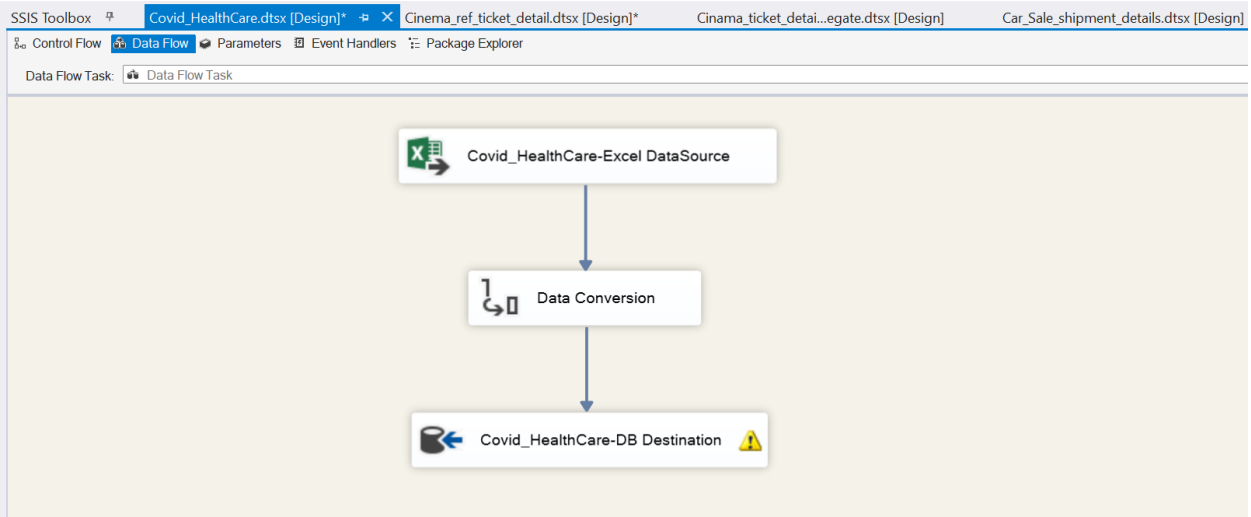
	Film_Typ	film_c	cinema_co	total_sales	tickets_so	tickets_oi	show_time	occu_perc	ticket_pric	ticket_u	caj	datee	mc	quarterr
1	Romance	1,492	304	3,900,000	26	0	1900-01-03	4.26	150,000	26	610	2018-05-05	5	2
2	Romance	1,492	352	3,360,000	42	0	1900-01-04	8.08	80,000	42	520	2018-05-05	5	2
3	Romance	1,492	489	2,560,000	32	0	1900-01-03	20	80,000	32	160	2018-05-05	5	2
4	Romance	1,492	429	1,200,000	12	0	1899-12-31	11.01	100,000	12	109	2018-05-05	5	2
5	Romance	1,492	524	1,200,000	15	0	1900-01-02	16.67	80,000	15	90	2018-05-05	5	2
6	Romance	1,492	71	1,050,000	7	0	1900-01-02	0.98	150,000	7	714	2018-05-05	5	2
7	Romance	1,492	163	1,020,000	10	0	1900-01-02	7.69	102,000	10	130	2018-05-05	5	2
8	Romance	1,492	450	750,000	5	0	1900-01-02	1.57	150,000	5	318	2018-05-05	5	2
9	Romance	1,492	51	750,000	11	0	1900-01-01	0.95	68,181.81818	11	1,158	2018-05-05	5	2
10	Romance	1,492	522	600,000	4	0	1900-01-02	1.55	150,000	4	258	2018-05-05	5	2
11	Romance	1,492	43	480,000	6	0	1900-01-02	0.44	80,000	6	1,364	2018-05-05	5	2
12	Romance	1,492	529	480,000	4	0	1900-01-02	2.96	120,000	4	135	2018-05-05	5	2
13	Romance	1,492	82	400,000	5	0	1900-01-05	0.53	80,000	5	943	2018-05-05	5	2
14	Romance	1,492	344	300,000	2	0	1900-01-02	0.25	150,000	2	800	2018-05-05	5	2
15	Romance	1,492	73	240,000	2	0	1899-12-31	2.04	120,000	2	98	2018-05-05	5	2
16	Romance	1,492	304	16,500,000	112	0	1900-01-03	18.33	147,321.4286	112	611	2018-05-04	5	2
17	Romance	1,492	352	13,950,000	93	0	1900-01-04	10.57	150,000	93	880	2018-05-04	5	2
18	Romance	1,492	344	10,200,000	68	0	1900-01-02	8.54	150,000	68	796	2018-05-04	5	2
19	Romance	1,492	71	6,600,000	44	0	1900-01-02	6.14	150,000	44	717	2018-05-04	5	2
20	Romance	1,492	163	3,360,000	31	0	1900-01-02	24.8	108,387.0968	31	125	2018-05-04	5	2
21	Romance	1,492	522	3,000,000	20	0	1900-01-02	7.75	150,000	20	258	2018-05-04	5	2
22	Romance	1,492	485	2,400,000	16	0	1900-01-02	11.59	150,000	16	138	2018-05-04	5	2

Save Cancel Script 200 46,517 Rows: 1 46517 row(s) fetched - 3.591s (3.322s fetch), on 202

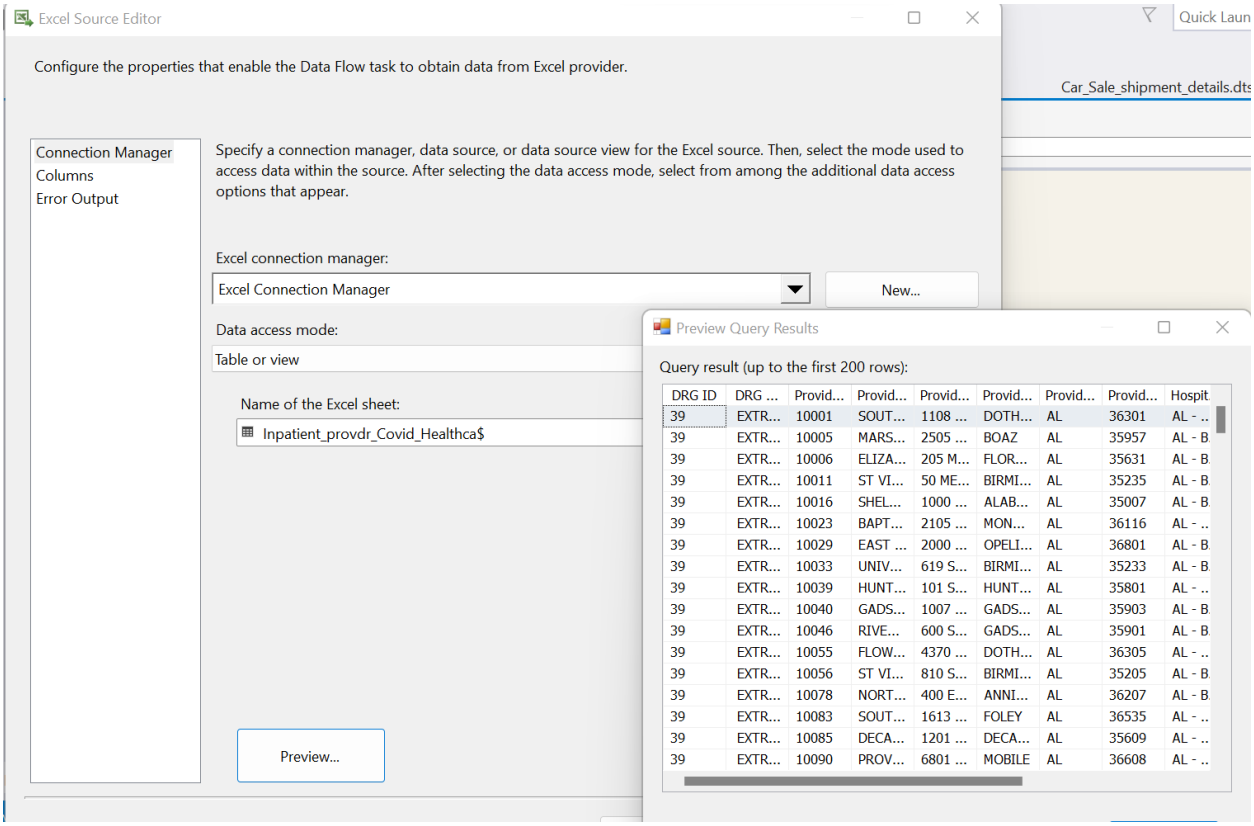
ii) Covid Health Care Details:

Source – Impatient provider covid healthcare excel data source

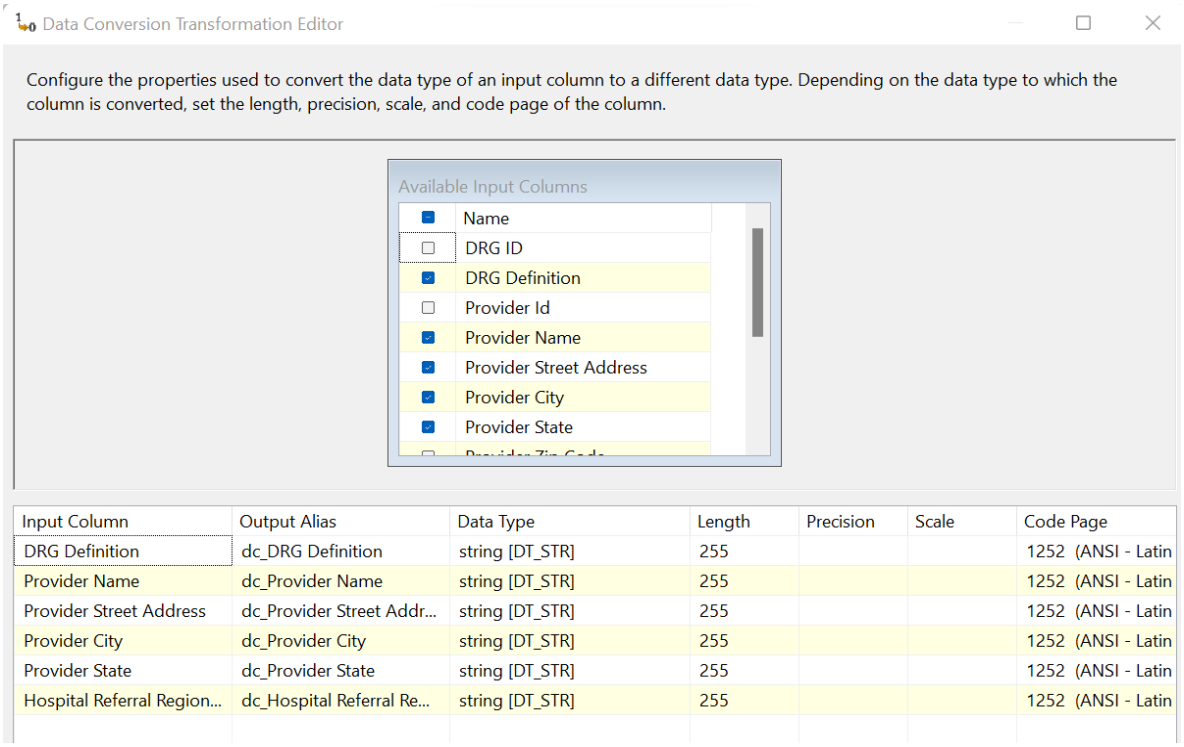
Target – SQL server



a) Connection for Data Source-



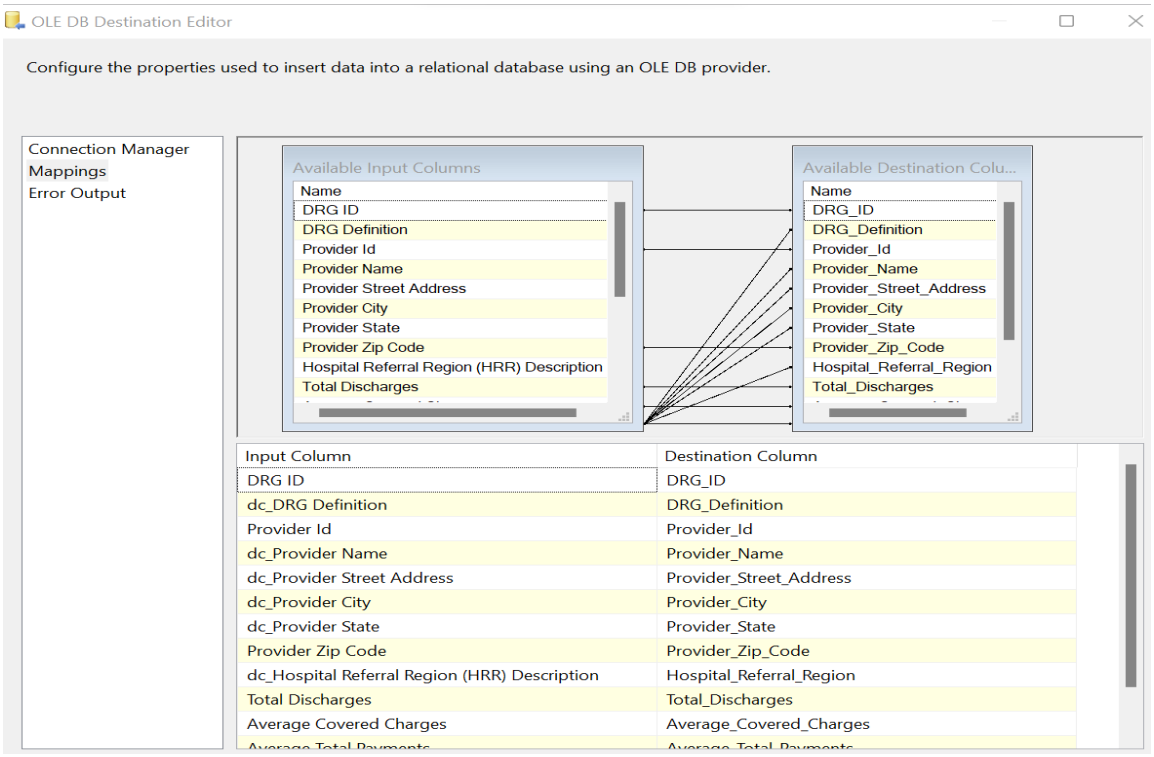
b) Data Conversion-



Input Column	Output Alias	Data Type	Length	Precision	Scale	Code Page
DRG Definition	dc_DRG Definition	string [DT_STR]	255			1252 (ANSI - Latin
Provider Name	dc_Provider Name	string [DT_STR]	255			1252 (ANSI - Latin
Provider Street Address	dc_Provider Street Addr...	string [DT_STR]	255			1252 (ANSI - Latin
Provider City	dc_Provider City	string [DT_STR]	255			1252 (ANSI - Latin
Provider State	dc_Provider State	string [DT_STR]	255			1252 (ANSI - Latin
Hospital Referral Region...	dc_Hospital Referral Re...	string [DT_STR]	255			1252 (ANSI - Latin

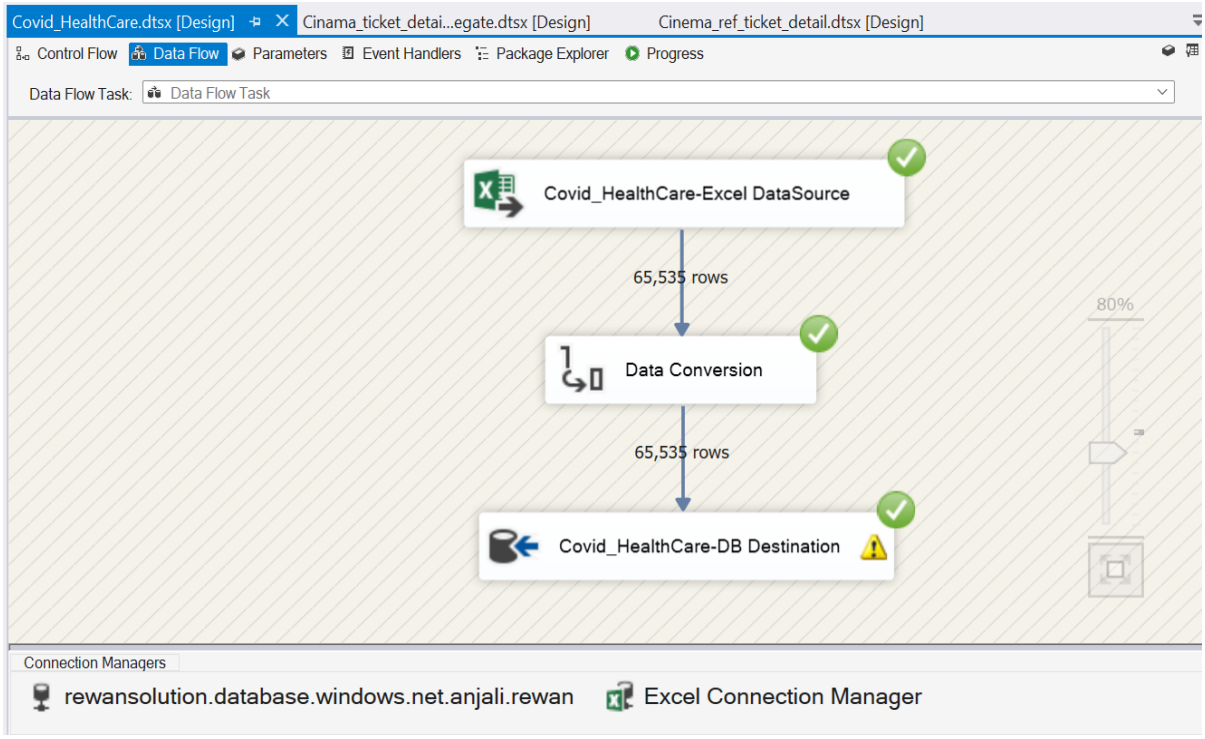
c) Destination-

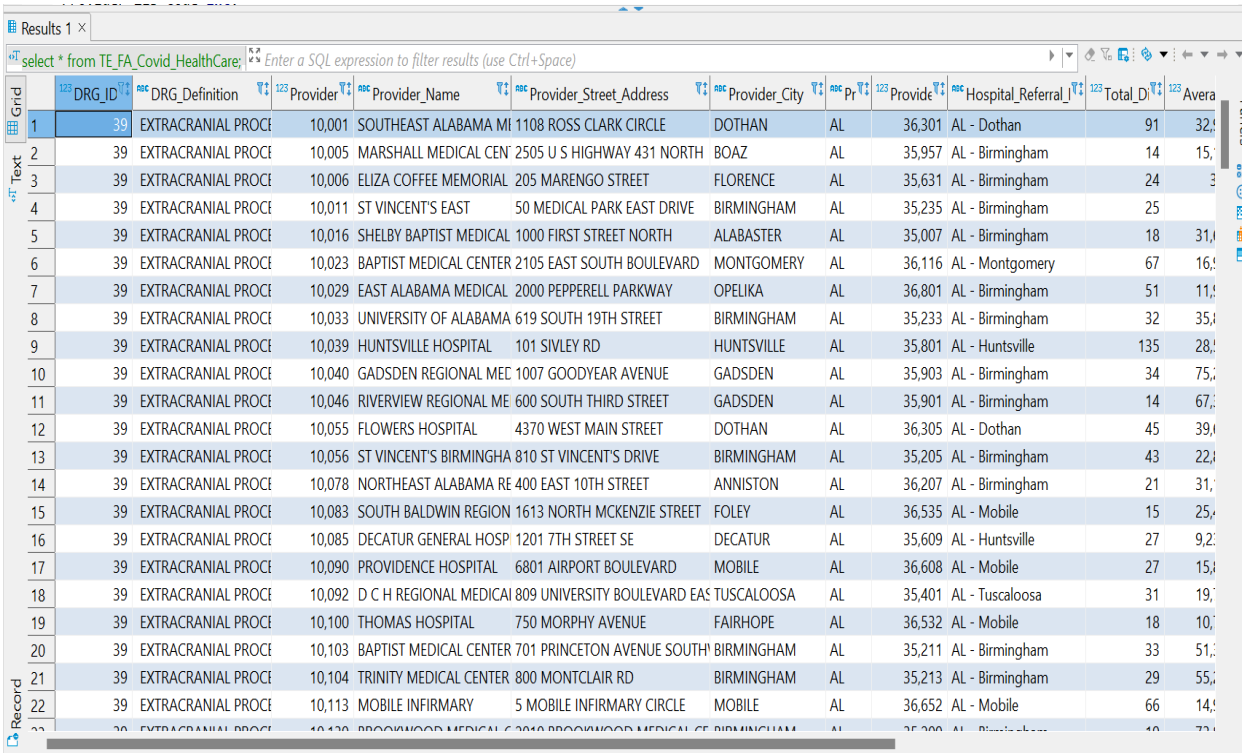
```
create table TE_FA_Covid_HealthCare
(
 DRG_ID int,
 DRG_Definition varchar(100),
 Provider_Id int,
 Provider_Name varchar(100),
 Provider_Street_Address varchar(100),
 Provider_City varchar(100),
 Provider_State varchar(100),
 Provider_Zip_Code int,
 Hospital_Referral_Region varchar(100),
 Total_Discharges int, Average_Covered_Charges float, Average_Total_Payments float,
 Average_Medicare_Payments float
);
select * from TE_FA_Covid_HealthCare;
```



d) Result-

The data from excel source is loaded into SQL server database.





Results 1

```
select * from TE_FA_Covid_HealthCare;
```

Enter a SQL expression to filter results (use Ctrl+Space)

	DRG_ID	DRG_Definition	Provider	Provider_Name	Provider_Street_Address	Provider_City	Pr	Provide	Hospital_Referral_I	Total_DI	Avera
1	39	EXTRACRANIAL PROCE	10,001	SOUTHEAST ALABAMA MI	1108 ROSS CLARK CIRCLE	DOTHAN	AL	36,301	AL - Dothan	91	32,8
2	39	EXTRACRANIAL PROCE	10,005	MARSHALL MEDICAL CEN	2505 U S HIGHWAY 431 NORTH	BOAZ	AL	35,957	AL - Birmingham	14	15,7
3	39	EXTRACRANIAL PROCE	10,006	ELIZA COFFEE MEMORIAL	205 MARENGO STREET	FLORENCE	AL	35,631	AL - Birmingham	24	3
4	39	EXTRACRANIAL PROCE	10,011	ST VINCENT'S EAST	50 MEDICAL PARK EAST DRIVE	BIRMINGHAM	AL	35,235	AL - Birmingham	25	
5	39	EXTRACRANIAL PROCE	10,016	SHELBY BAPTIST MEDICAL	1000 FIRST STREET NORTH	ALABASTER	AL	35,007	AL - Birmingham	18	31,0
6	39	EXTRACRANIAL PROCE	10,023	BAPTIST MEDICAL CENTER	2105 EAST SOUTH BOULEVARD	MONTGOMERY	AL	36,116	AL - Montgomery	67	16,9
7	39	EXTRACRANIAL PROCE	10,029	EAST ALABAMA MEDICAL	2000 PEPPERELL PARKWAY	OPELIKA	AL	36,801	AL - Birmingham	51	11,9
8	39	EXTRACRANIAL PROCE	10,033	UNIVERSITY OF ALABAMA	619 SOUTH 19TH STREET	BIRMINGHAM	AL	35,233	AL - Birmingham	32	35,8
9	39	EXTRACRANIAL PROCE	10,039	HUNTSVILLE HOSPITAL	101 SIVLEY RD	HUNTSVILLE	AL	35,801	AL - Huntsville	135	28,9
10	39	EXTRACRANIAL PROCE	10,040	GADSDEN REGIONAL MEC	1007 GOODYEAR AVENUE	GADSDEN	AL	35,903	AL - Birmingham	34	75,2
11	39	EXTRACRANIAL PROCE	10,046	RIVERVIEW REGIONAL ME	600 SOUTH THIRD STREET	GADSDEN	AL	35,901	AL - Birmingham	14	67,2
12	39	EXTRACRANIAL PROCE	10,055	FLOWERS HOSPITAL	4370 WEST MAIN STREET	DOTHAN	AL	36,305	AL - Dothan	45	39,0
13	39	EXTRACRANIAL PROCE	10,056	ST VINCENT'S BIRMINGHA	810 ST VINCENT'S DRIVE	BIRMINGHAM	AL	35,205	AL - Birmingham	43	22,8
14	39	EXTRACRANIAL PROCE	10,078	NORTHEAST ALABAMA RE	400 EAST 10TH STREET	ANNISTON	AL	36,207	AL - Birmingham	21	31,7
15	39	EXTRACRANIAL PROCE	10,083	SOUTH BALDWIN REGION	1613 NORTH MCKENZIE STREET	FOLEY	AL	36,535	AL - Mobile	15	25,4
16	39	EXTRACRANIAL PROCE	10,085	DECATUR GENERAL HOSP	1201 7TH STREET SE	DECATUR	AL	35,609	AL - Huntsville	27	9,2
17	39	EXTRACRANIAL PROCE	10,090	PROVIDENCE HOSPITAL	6801 AIRPORT BOULEVARD	MOBILE	AL	36,608	AL - Mobile	27	15,8
18	39	EXTRACRANIAL PROCE	10,092	D C H REGIONAL MEDICAI	809 UNIVERSITY BOULEVARD EAS	TUSCALOOSA	AL	35,401	AL - Tuscaloosa	31	19,7
19	39	EXTRACRANIAL PROCE	10,100	THOMAS HOSPITAL	750 MORPHY AVENUE	FAIRHOPE	AL	36,532	AL - Mobile	18	10,7
20	39	EXTRACRANIAL PROCE	10,103	BAPTIST MEDICAL CENTER	701 PRINCETON AVENUE SOUTH	BIRMINGHAM	AL	35,211	AL - Birmingham	33	51,3
21	39	EXTRACRANIAL PROCE	10,104	TRINITY MEDICAL CENTER	800 MONTCLAIR RD	BIRMINGHAM	AL	35,213	AL - Birmingham	29	55,2
22	39	EXTRACRANIAL PROCE	10,113	MOBILE INFIRMARY	5 MOBILE INFIRMARY CIRCLE	MOBILE	AL	36,652	AL - Mobile	66	14,9

iii) Hospital Details:

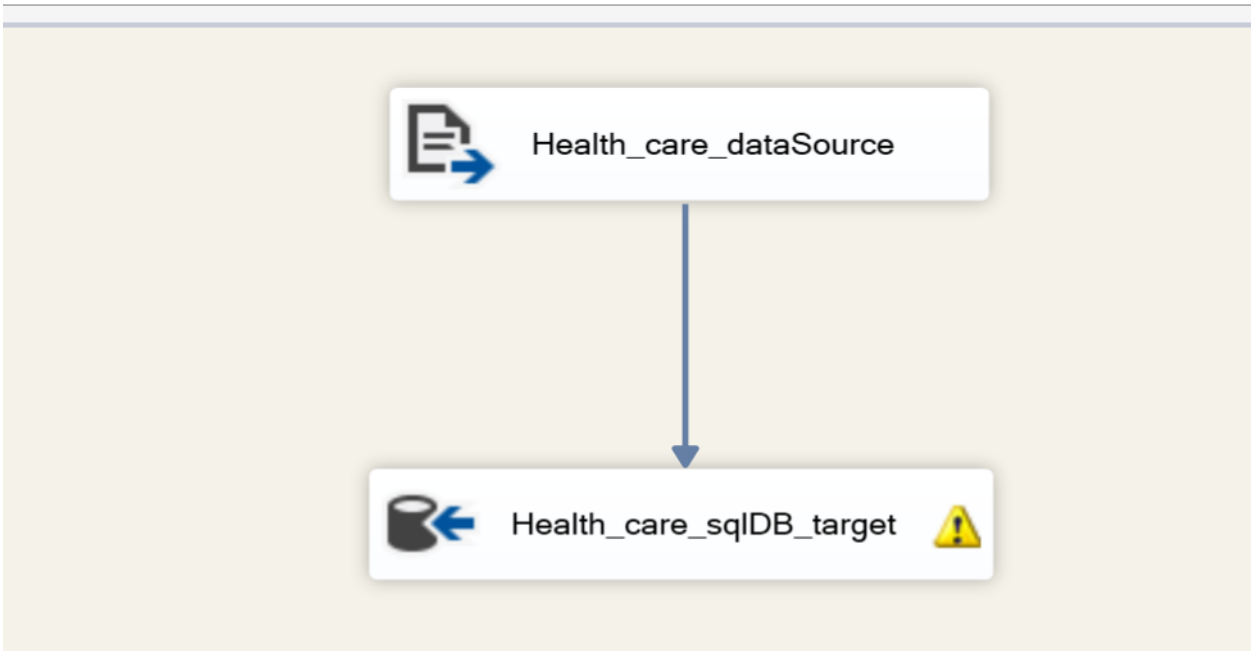
Flat file Source-

Health_care-DataSource - Notepad

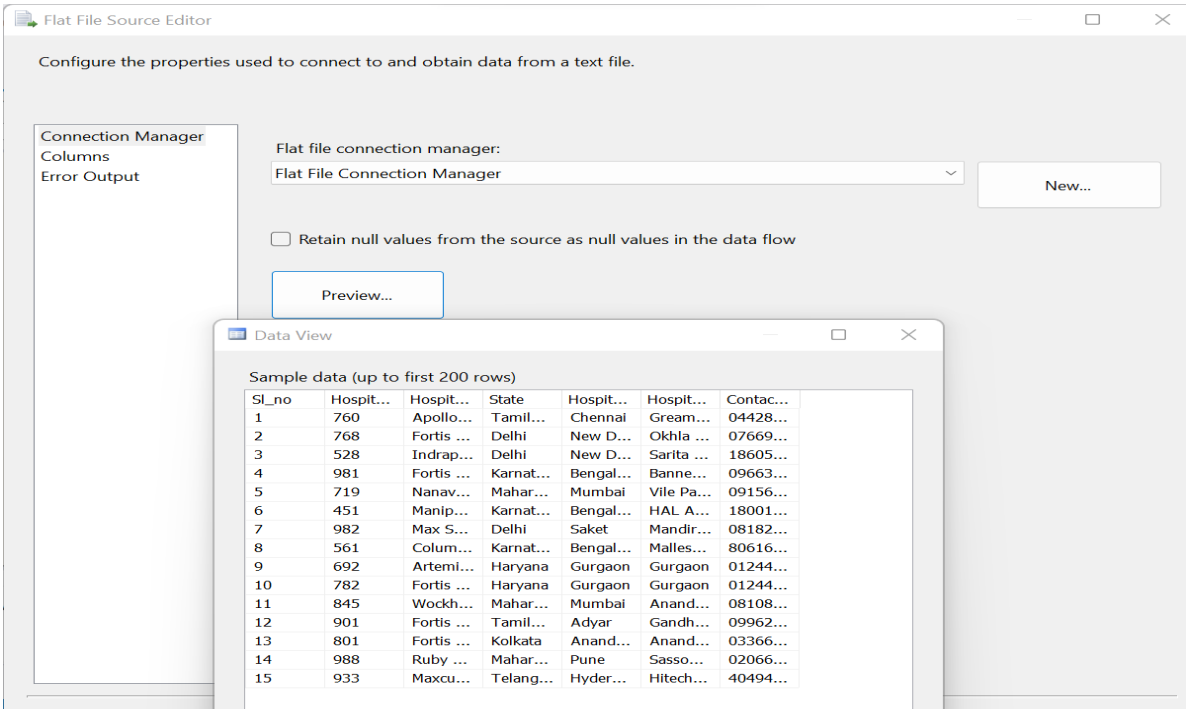
File Edit View

```
Sl_no,Hospital_reg_ID,Hospital_name,State,Hospital_city,Hospital_area,Contact_no
1,760,Apollo Hospital,Tamilnadu,Chennai,Greams Lane,04428293333,
2,768,Fortis Escorts Heart Institute,Delhi,New Delhi,Okhla road,07669584409,
3,528,Indraprastha Apollo Hospital,Delhi,New Delhi,Sarita Vihar,18605001066,
4,981,Fortis Hospital,Karnataka,Bengaluru,Bannerghatta road,09663367253,
5,719,Nanavati Super Speciality Hospital,Maharashtra,Mumbai,Vile Parle(West),09156514776,
6,451,Manipal Hospital,Karnataka,Bengaluru,HAL Airport Road,18001024647,
7,982,Max Super Speciality Hospital,Delhi,Saket,Mandir Marg,08182269400,
8,561,Columbia Asia Referral Hospital,Karnataka,Bengaluru,Malleswaram West,8061656262,
9,692,Artemis Hospital,Haryana,Gurgaon,Gurgaon,01244511111,
10,782,Fortis Memorial Research Institute,Haryana,Gurgaon,Gurgaon,01244962200,
11,845,Wockhardt Hospital,Maharashtra,Mumbai,Anand Nair Road,08108101104,
12,901,Fortis Malar Hospital,Tamilnadu,Adyar,Gandhi nagar,09962599933,
13,801,Fortis Hospital Anandpur,Kolkata,Anandapur,Anandapur,03366284444,
14,988,Ruby Hall Clinic,Maharashtra,Pune,Sassoon Road,02066455100,
15,933,Maxcure Hospitals,Telangana,Hyderabad,Hitech City,4049404940;
```

Ln 1, Col 1 | 100% | Windows (CRLF) | UTF-8

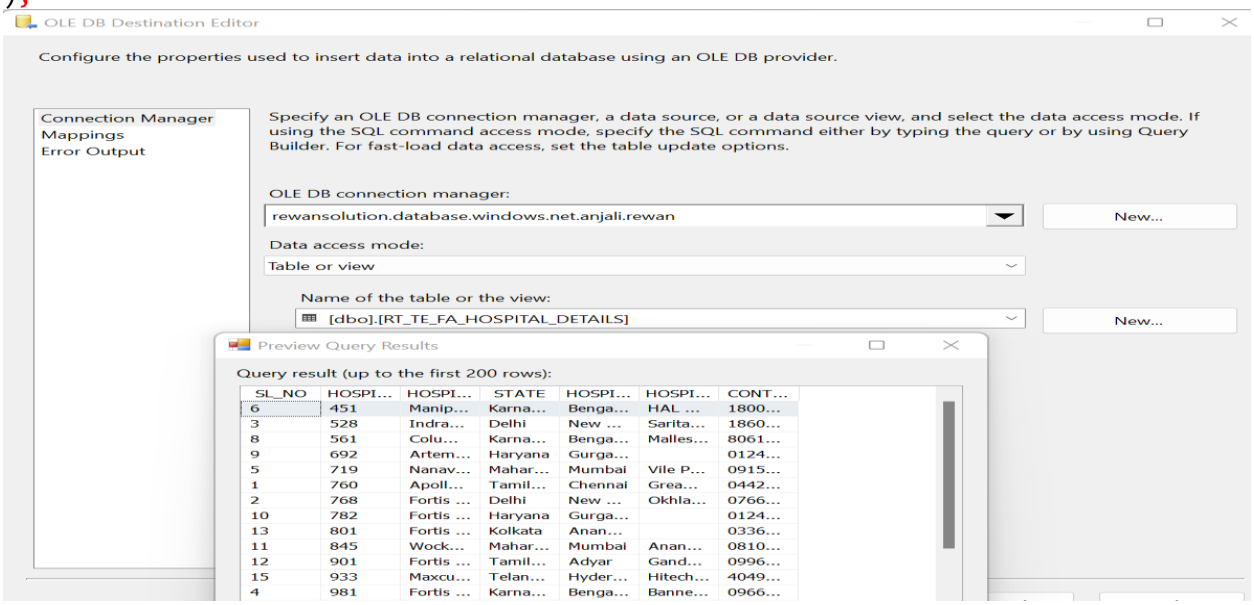


a) Source flat file connection-



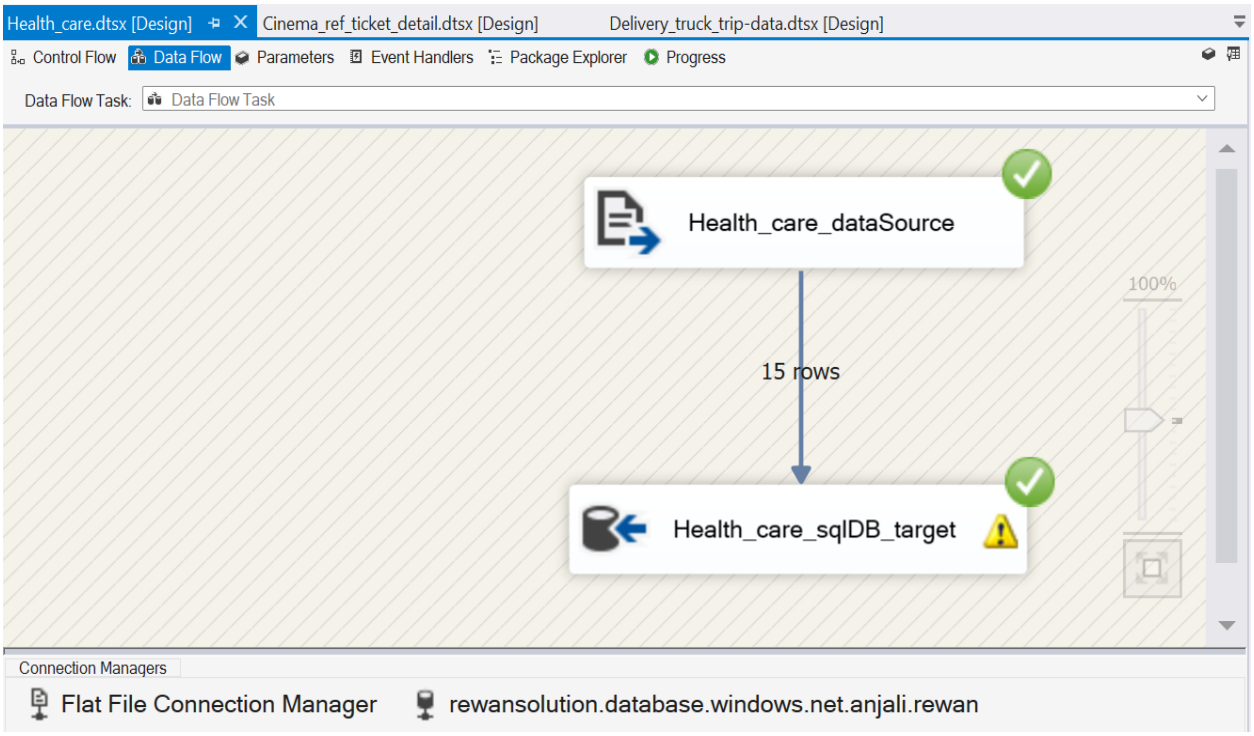
b) Target Sql server Connection-

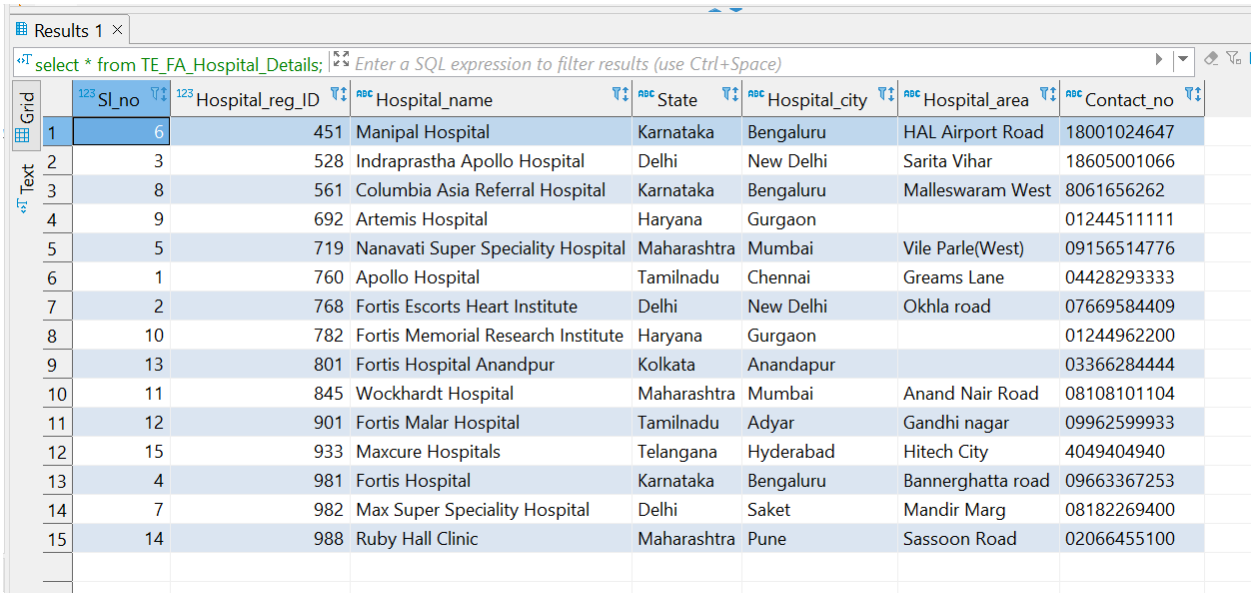
```
create table TE_FA_Hospital_Details
(
 Sl_no int, Hospital_reg_ID int primary key,
 Hospital_name varchar(50) not null,
 State varchar(20),Hospital_city varchar(20),
 Hospital_area varchar(20) default 'Search with Hospital reg no',
 Contact_no varchar(20)
);
```



c) Result-

The data is loaded into SQL database from flat file source.



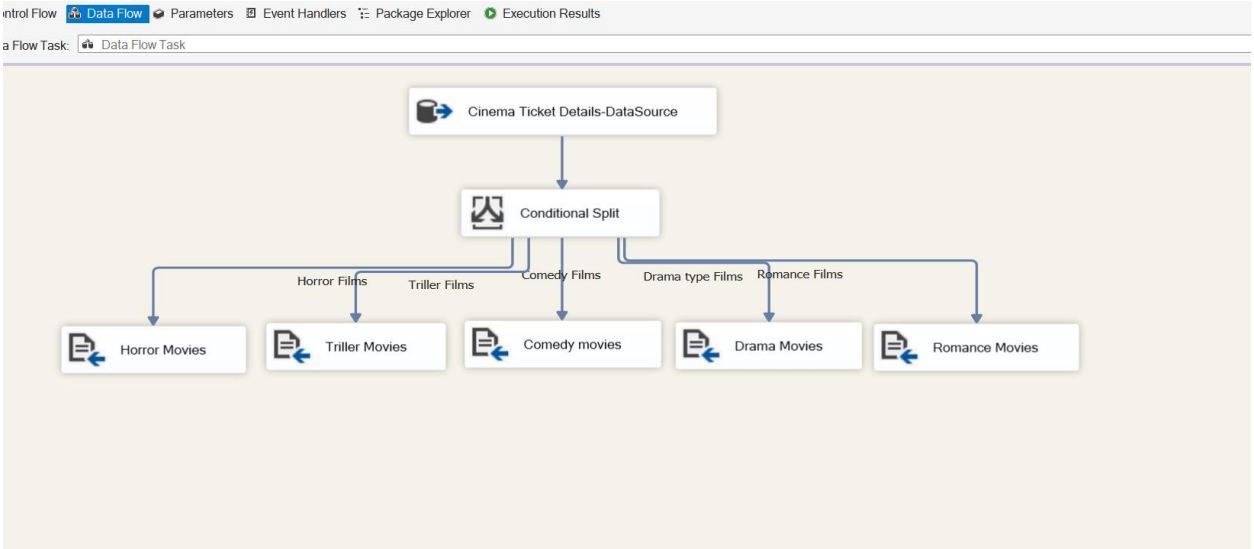


	Sl_no	Hospital_reg_ID	Hospital_name	State	Hospital_city	Hospital_area	Contact_no
1	6	451	Manipal Hospital	Karnataka	Bengaluru	HAL Airport Road	18001024647
2	3	528	Indraprastha Apollo Hospital	Delhi	New Delhi	Sarita Vihar	18605001066
3	8	561	Columbia Asia Referral Hospital	Karnataka	Bengaluru	Malleswaram West	8061656262
4	9	692	Artemis Hospital	Haryana	Gurgaon		01244511111
5	5	719	Nanavati Super Speciality Hospital	Maharashtra	Mumbai	Vile Parle(West)	09156514776
6	1	760	Apollo Hospital	Tamilnadu	Chennai	Greams Lane	04428293333
7	2	768	Fortis Escorts Heart Institute	Delhi	New Delhi	Okhla road	07669584409
8	10	782	Fortis Memorial Research Institute	Haryana	Gurgaon		01244962200
9	13	801	Fortis Hospital Anandpur	Kolkata	Anandpur		03366284444
10	11	845	Wockhardt Hospital	Maharashtra	Mumbai	Anand Nair Road	08108101104
11	12	901	Fortis Malar Hospital	Tamilnadu	Adyar	Gandhi nagar	09962599933
12	15	933	Maxcure Hospitals	Telangana	Hyderabad	Hitech City	4049404940
13	4	981	Fortis Hospital	Karnataka	Bengaluru	Bannerghatta road	09663367253
14	7	982	Max Super Speciality Hospital	Delhi	Saket	Mandir Marg	08182269400
15	14	988	Ruby Hall Clinic	Maharashtra	Pune	Sassoon Road	02066455100

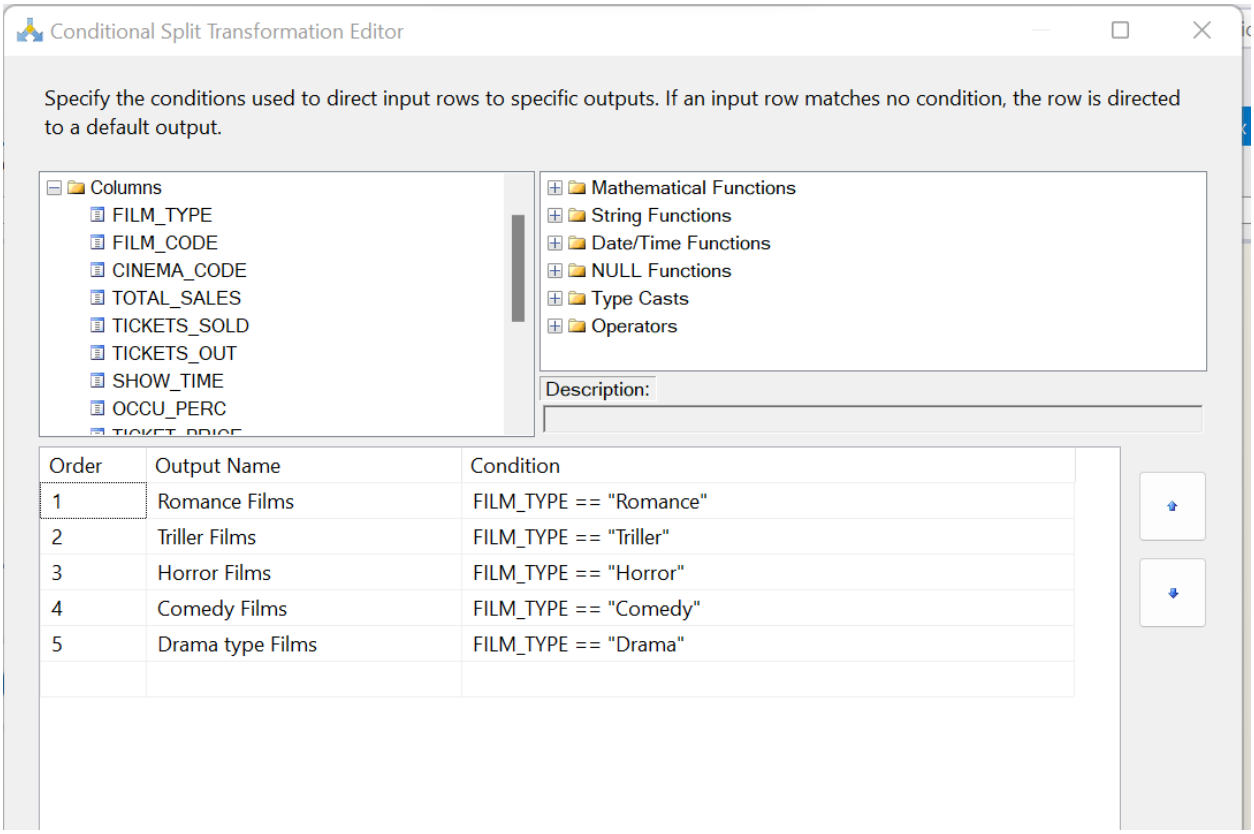
iv) Cinema Ticket Details with loading data in different targets based on film types.

Source – SQL server database

Destinations - SQL server database



Conditional Split Conditions:



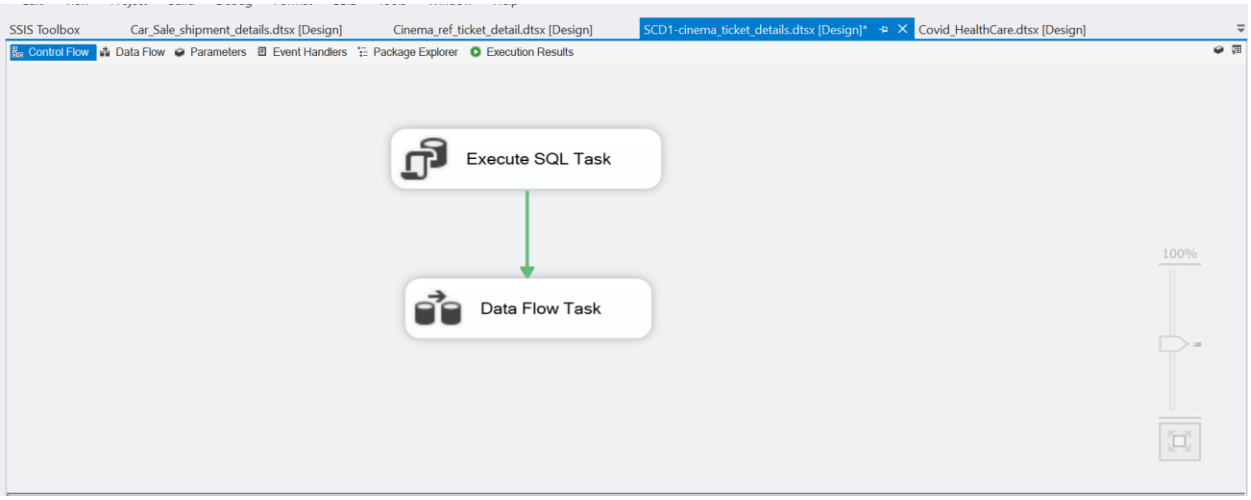
Result:

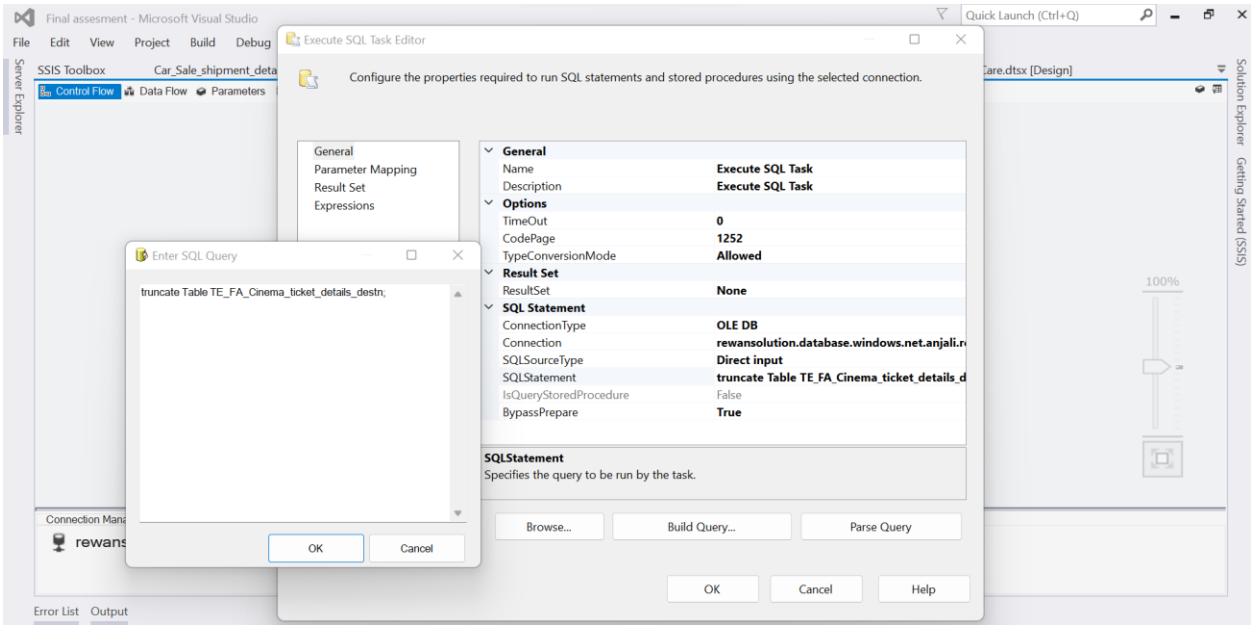
2. Slowly Changing Dimension

i) SCD type 1:

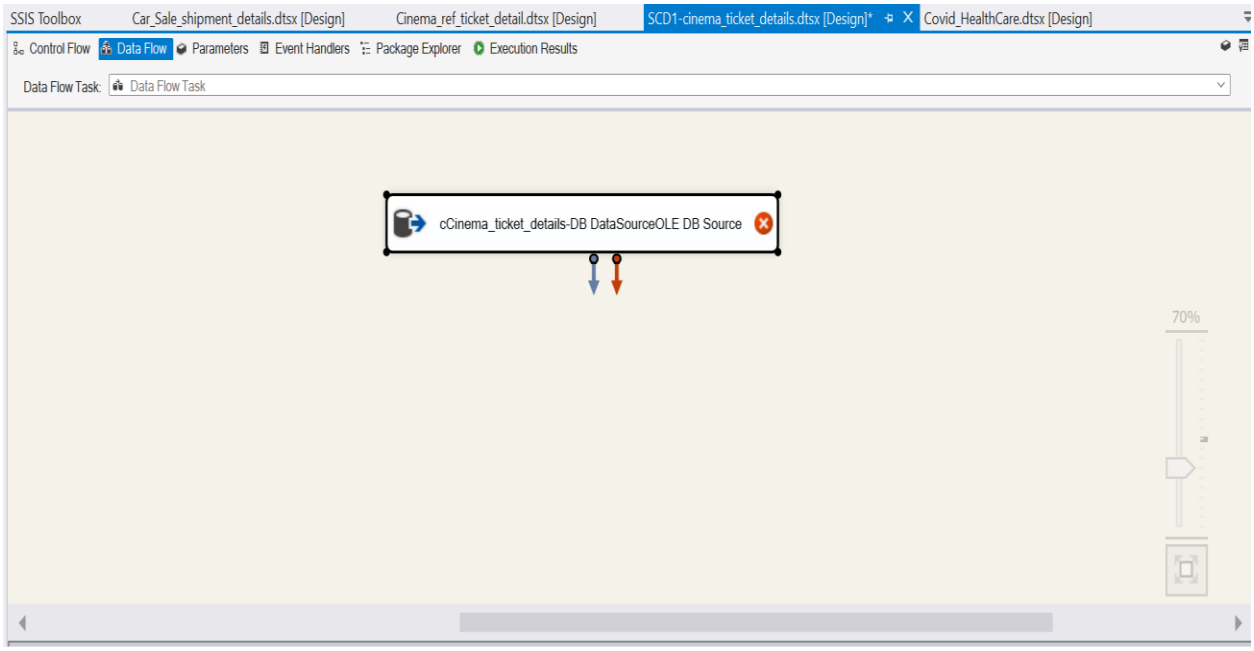
In Slowly changing dimension we will choose as changing attribute, we can update the for only changing attribute column and data will get updated without previous data in the table.

In Control Flow-

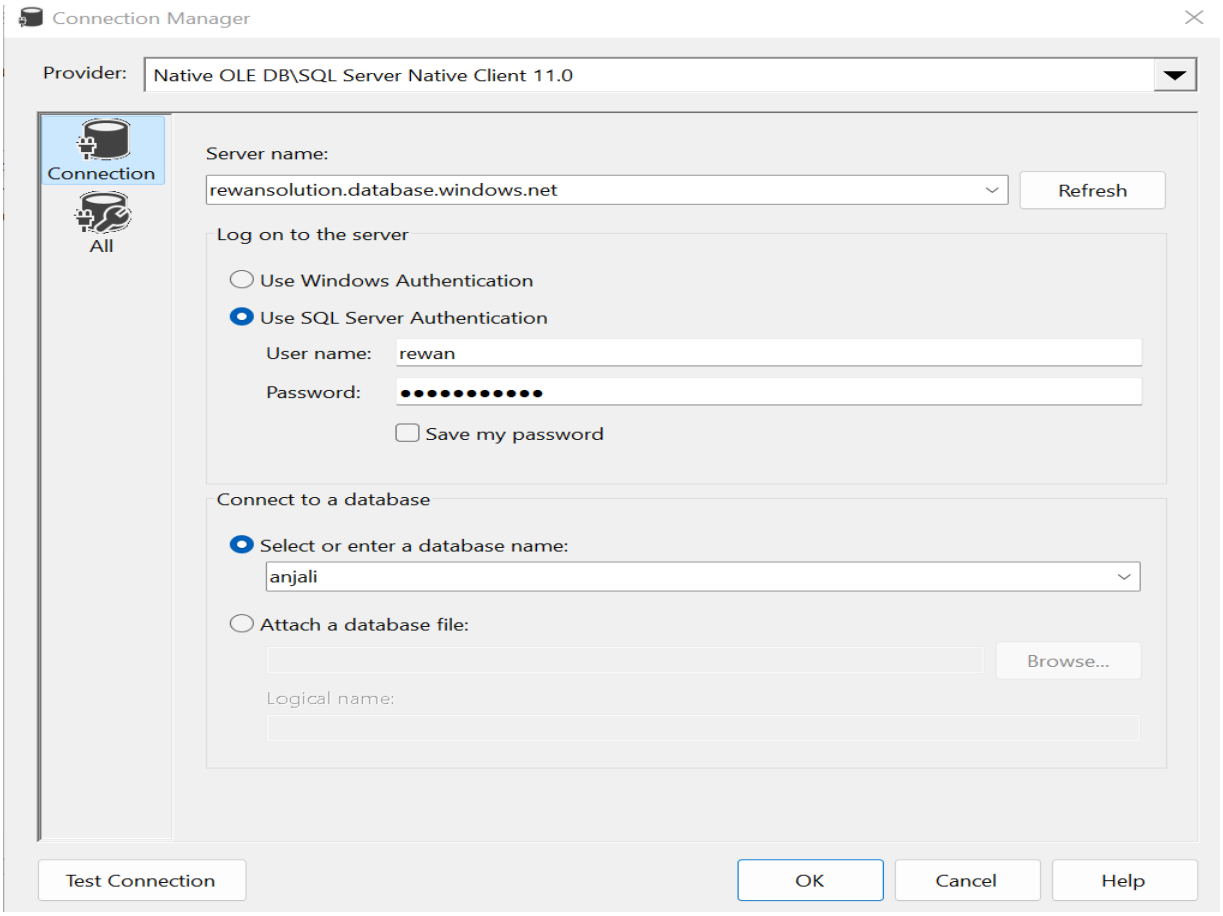


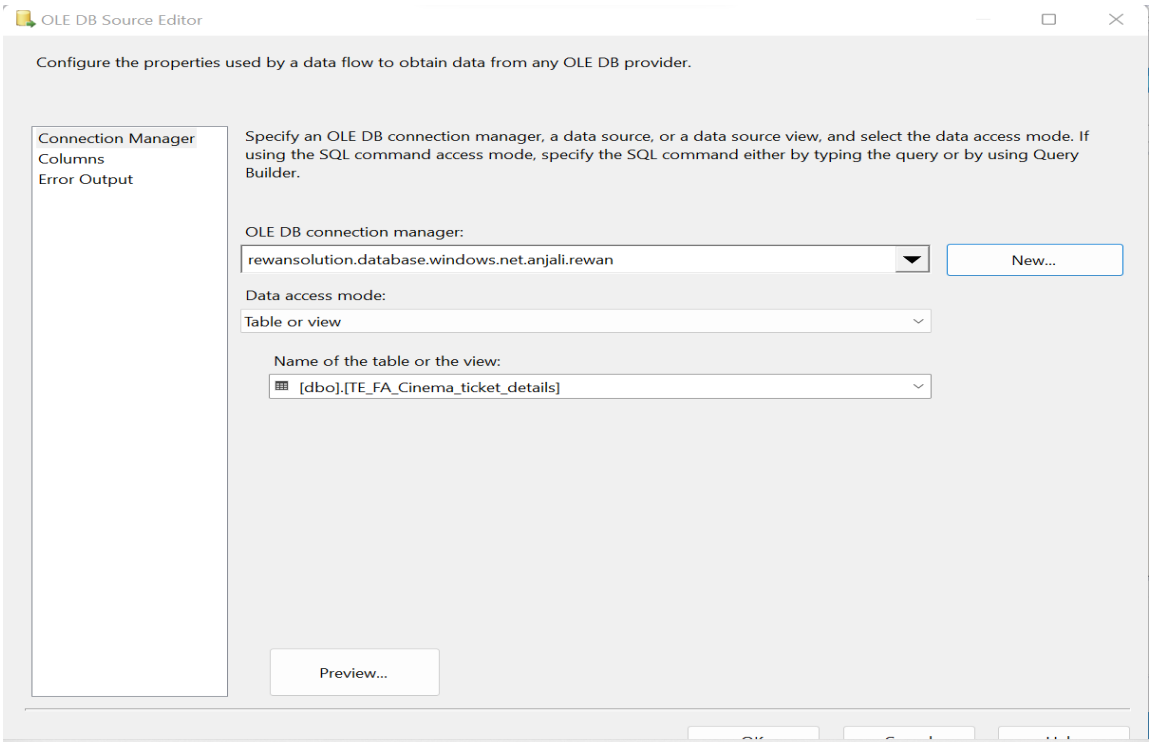


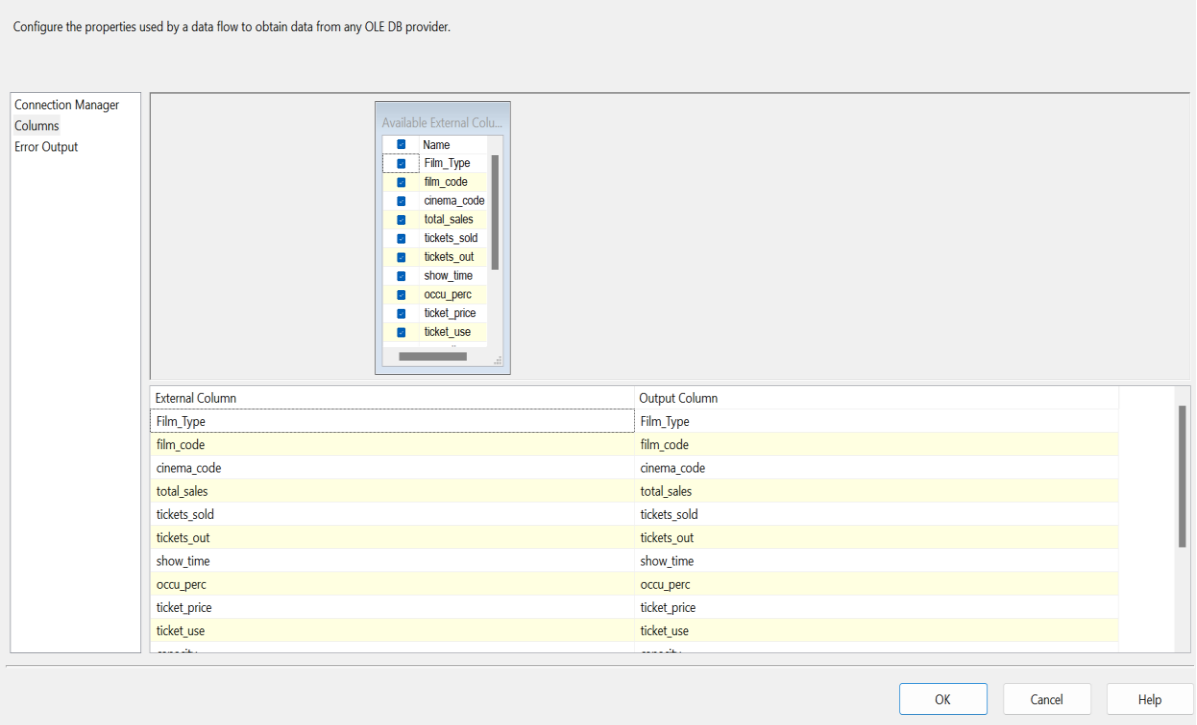
a) Source – Cinema Ticket Details



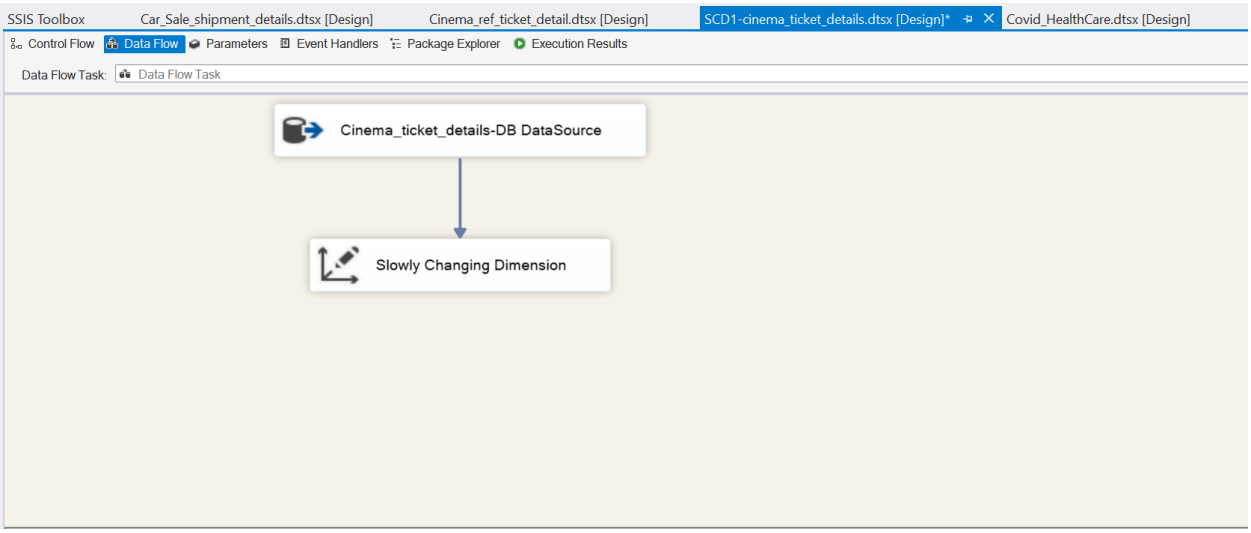
Connection


Connection Manager
Provider:
Native OLE DB\SQL Server Native Client 11.0
Connection
All
Server name:
rewansolution.database.windows.net
Refresh
Log on to the server
Use Windows Authentication
Use SQL Server Authentication
User name:
rewan
Password:
Save my password
Connect to a database
Select or enter a database name:
anjali
Attach a database file:
Browse...
Logical name:
Test Connection
OK
Cancel
Help


OLE DB Source Editor
Configure the properties used by a data flow to obtain data from any OLE DB provider.
Connection Manager
Columns
Error Output
Specify an OLE DB connection manager, a data source, or a data source view, and select the data access mode. If using the SQL command access mode, specify the SQL command either by typing the query or by using Query Builder.
OLE DB connection manager:
rewansolution.database.windows.net.anjali.rewan
New...
Data access mode:
Table or view
Name of the table or the view:
[dbo].[TE_FA_Cinema_ticket_details]
Preview...



b) Slowly Changing Dimension



Select a Dimension Table and Keys

Select a dimension table to load and map columns in the transformation input to columns in the dimension table.

Connection manager:

rewansolution.database.windows.net.anjali.rewan

Table or view:

[dbo].[TF_EA_Cinema_ticket_details]

Input Columns	Dimension Columns	Key Type
capacity	capacity	Not a key column
cinema_code	cinema_code	Business key
datee	datee	Not a key column
dayy	dayy	Not a key column
film_code	film_code	Not a key column
Film_Type	Film_Type	Not a key column
monthh	monthh	Not a key column
occu_perc	occu_perc	Not a key column
quarterr	quarterr	Not a key column
show_time	show_time	Not a key column
ticket_price	ticket_price	Not a key column
ticket_use	ticket_use	Not a key column
tickets_out	tickets_out	Not a key column
tickets_sold	tickets_sold	Not a key column
total_sales	total_sales	Not a key column

Slowly Changing Dimension Wizard

Slowly Changing Dimension Columns

Manage the changes to column data in your slowly changing dimensions by setting the change type for dimension columns.

Fixed Attribute

Select this type when the value in a column should not change. Changes are treated as errors.

Changing Attribute

Select this type when changed values should overwrite existing values. This is a Type 1 change.

Historical Attribute

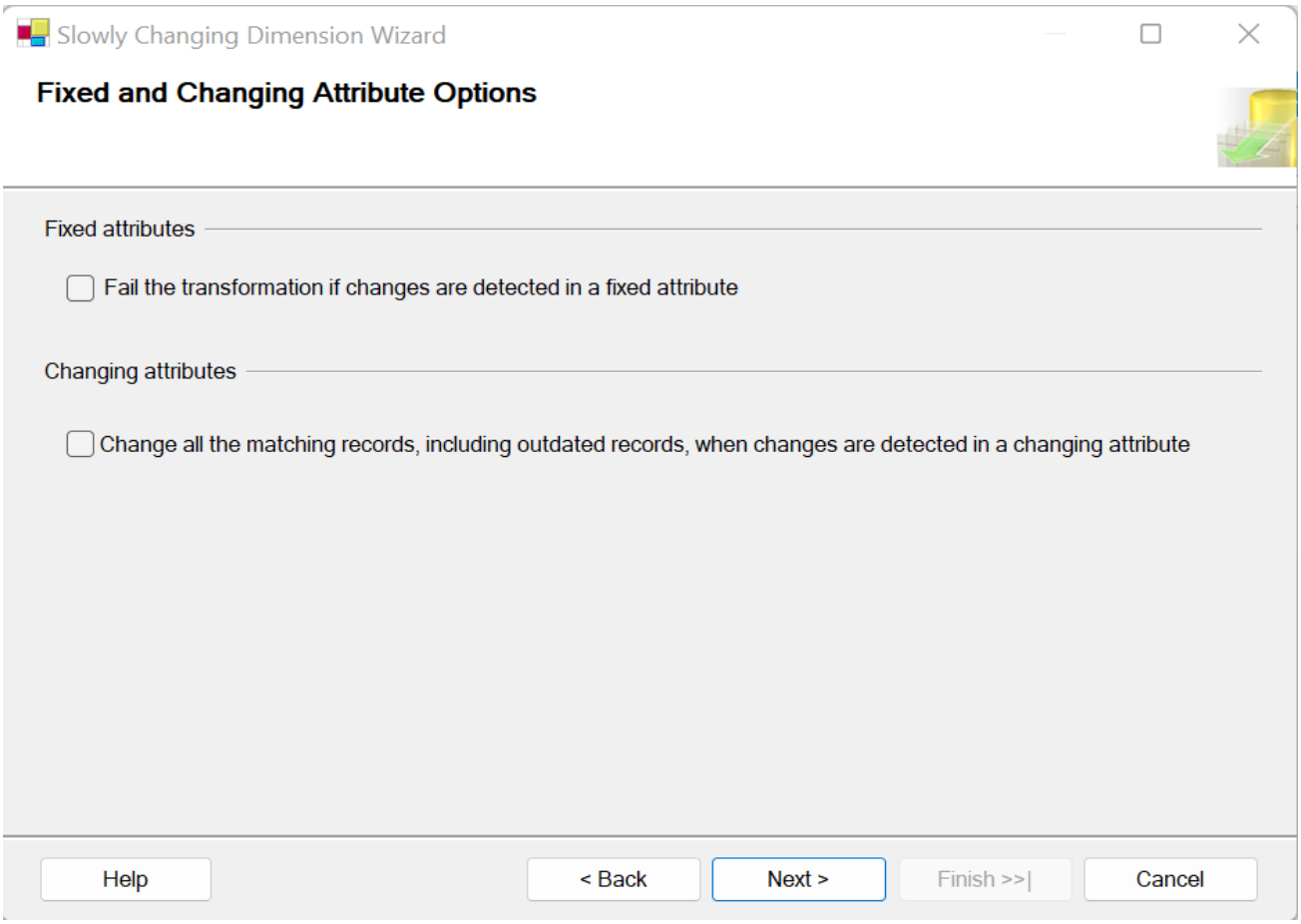
Select this type when changes in column values are saved in new records. Previous values are saved in records marked as outdated. This is a Type 2 change.

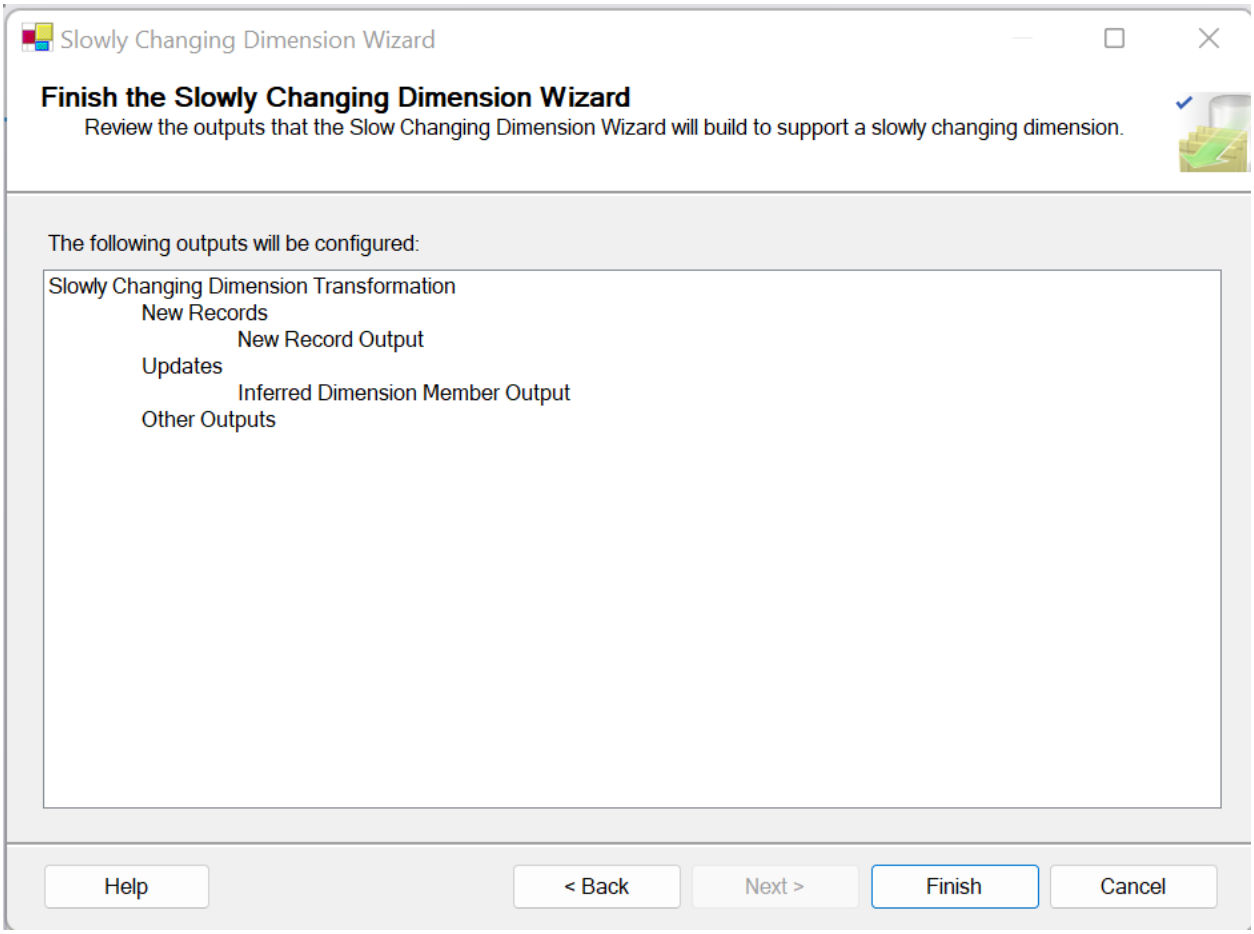
Select a change type for slowly changing dimension columns:

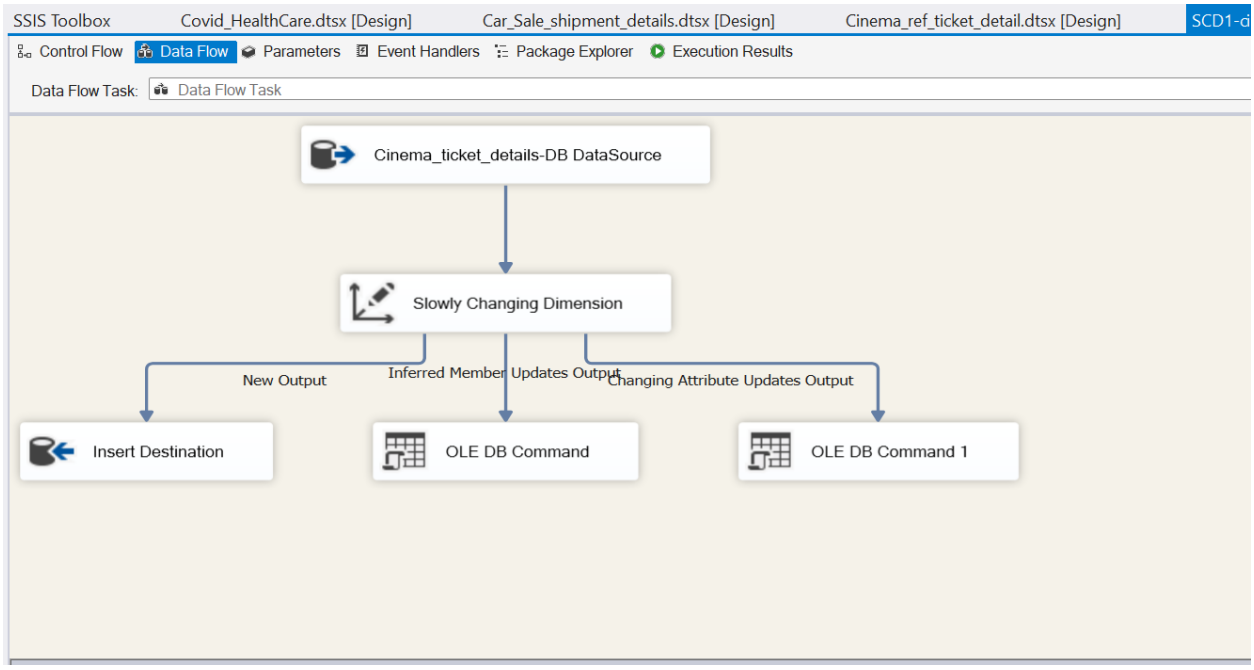
Dimension Columns	Change Type
capacity	Changing at...
datee	Changing at...
dayy	Changing at...
film_code	Fixed attribute
Film_Type	Fixed attribute
monthh	Fixed attribute
occu_perc	Changing at...
quarterr	Fixed attribute
show_time	Changing at...
ticket_price	Changing at...
ticket_use	Changing at...
tickets_out	Changing at...
tickets_sold	Changing at...
total_sales	Changing at...

Remove

Help | < Back | Next > | Finish >>| | Cancel


Slowly Changing Dimension Wizard
Fixed and Changing Attribute Options
Fixed attributes
Fail the transformation if changes are detected in a fixed attribute
Changing attributes
Change all the matching records, including outdated records, when changes are detected in a changing attribute
Help
< Back
Next >
Finish >>|
Cancel

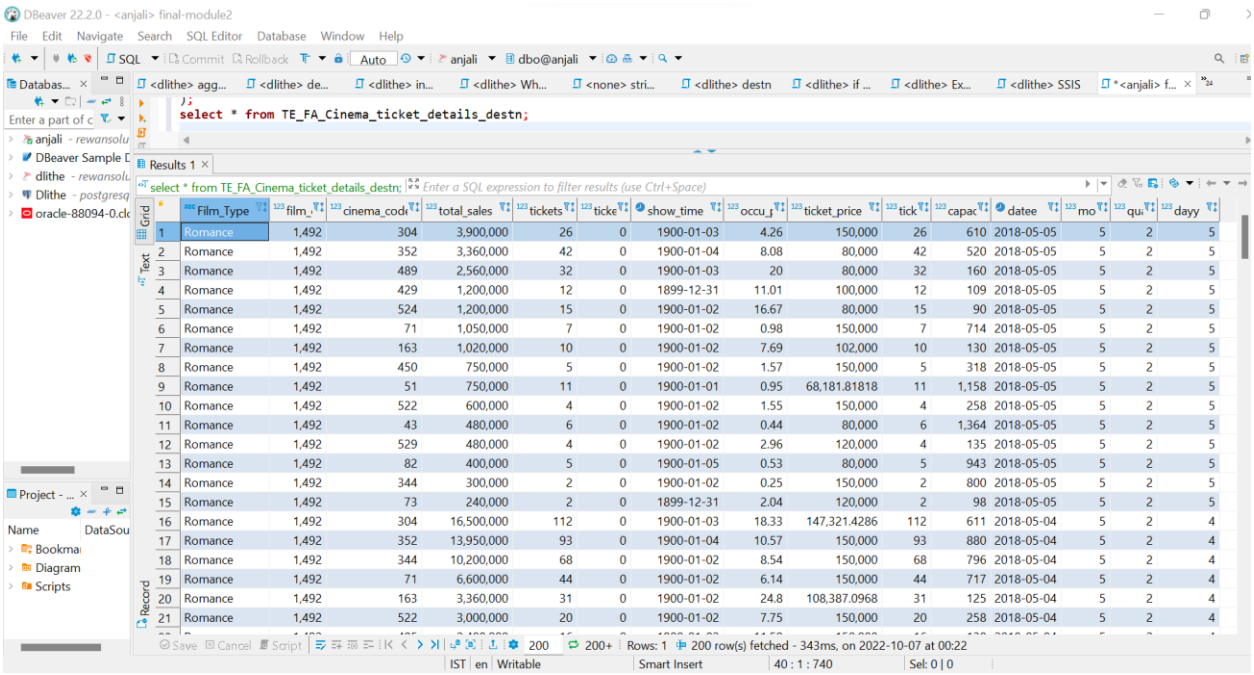

Slowly Changing Dimension Wizard
Finish the Slowly Changing Dimension Wizard
Review the outputs that the Slow Changing Dimension Wizard will build to support a slowly changing dimension.
The following outputs will be configured:
Slowly Changing Dimension Transformation
New Records
New Record Output
Updates
Inferred Dimension Member Output
Other Outputs
Help
< Back
Next >
Finish
Cancel


SSIS Toolbox
Covid_HealthCare.dtsx [Design]
Car_Sale_shipment_details.dtsx [Design]
Cinema_ref_ticket_detail.dtsx [Design]
SCD1-d
Control Flow
Data Flow
Parameters
Event Handlers
Package Explorer
Execution Results
Data Flow Task:
Data Flow Task
Cinema_ticket_details-DB DataSource
Slowly Changing Dimension
New Output
Inferred Member Updates Output
Changing Attribute Updates Output
Insert Destination
OLE DB Command
OLE DB Command 1

Result:

```
create table TE_FA_Cinema_ticket_details_destn
(
 Film_Type varchar(20),
 film_code int,
 cinema_code int,
 total_sales bigint,
 tickets_sold int,
 tickets_out int,
 show_time date,
 occu_perc   float,
 ticket_price float,
 ticket_use  int,
 capacity int,
 datee date,
 monthh int,
 quarterr int,
 dayy int,
 end_date date
);
select * from TE_FA_Cinema_ticket_details_destn;
```

Before updating



After updating –

Here total sales, ticket sold, price and film type are updated for particular cinema code.

```
update TE_FA_Cinema_ticket_details
set total_sales=99999,tickets_sold=9,occu_perc=0.09,ticket_price=9999,datee='2022-10-07' where cinema_code=304;
update TE_FA_Cinema_ticket_details
set total_sales=88888,tickets_sold=8,occu_perc=0.08,ticket_price=8888,datee='2022-09-08' where cinema_code=352;
update TE_FA_Cinema_ticket_details
set film_type='triller' where film_code=1492;
```

Statistics 1

Name	Value
Updated Rows	1260
Query	update TE_FA_Cinema_ticket_details
	set total_sales=99999,tickets_sold=9,occu_perc=0.09,ticket_price=9999,datee='2022-10-07' where cinema_code=304;
	update TE_FA_Cinema_ticket_details
	set total_sales=88888,tickets_sold=8,occu_perc=0.08,ticket_price=8888,datee='2022-09-08' where cinema_code=352;
	update TE_FA_Cinema_ticket_details

```
);
select * from TE_FA_Cinema_ticket_details_destn;
```

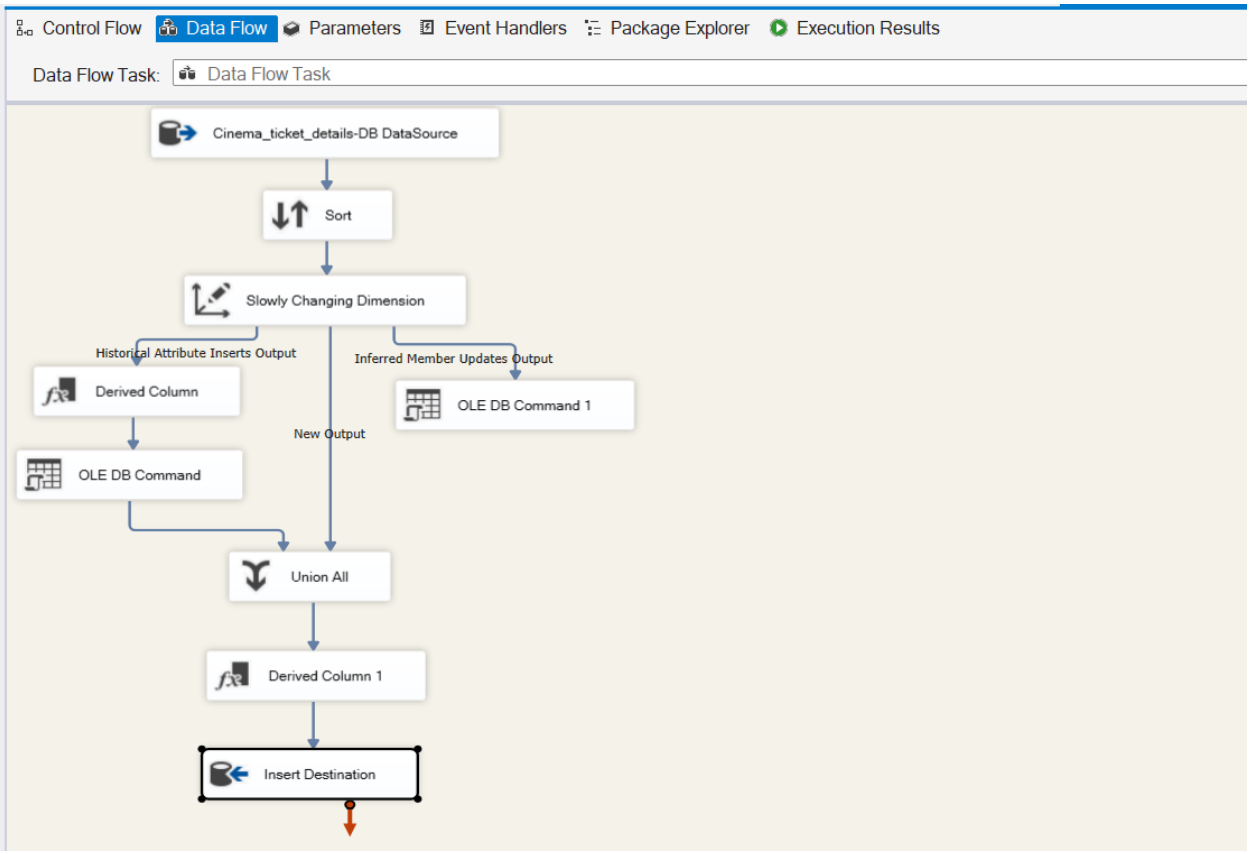
Results 1

select * from TE_FA_Cinema_ticket_details_destn; Enter a SQL expression to filter results (use Ctrl+Space)

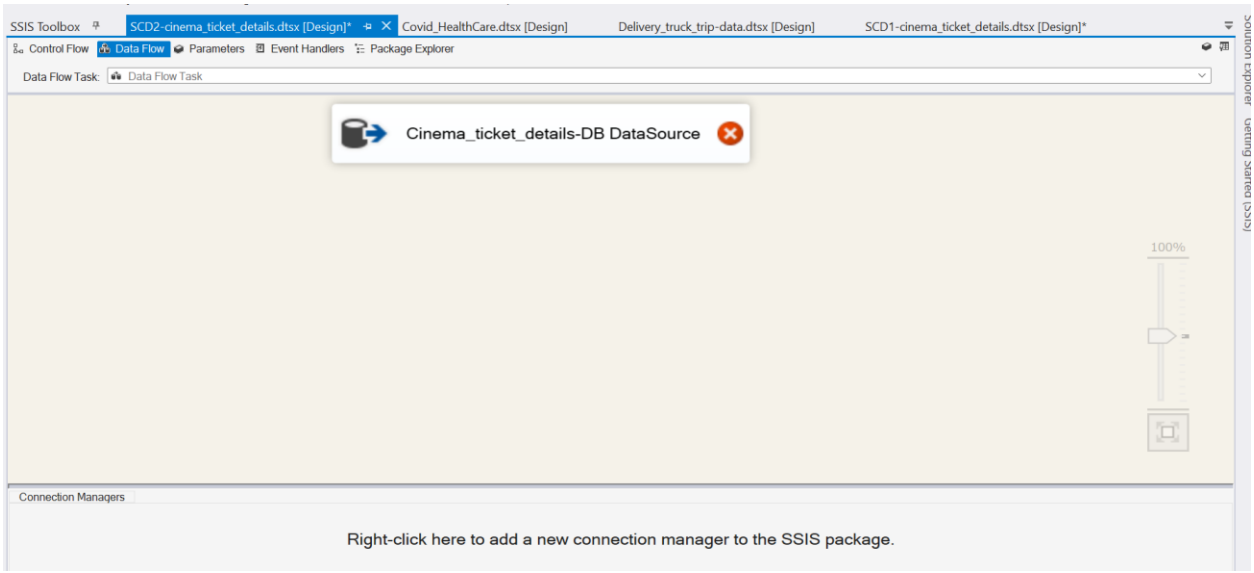
	Film_Type	film_code	cinema_code	total_sales	tickets_sold	tickets_out	show_time	occu_perc	ticket_price	ticket_use	capacity	datee
1	triller	1,492	304	99,998	9	0	1900-01-03	0.09	9,999	26	610	2022-1
2	triller	1,492	352	88,889	8	0	1900-01-04	0.08	8,888	42	520	2022-0
3	triller	1,492	489	2,560,000	32	0	1900-01-03	20	80,000	32	160	2018-0
4	triller	1,492	429	1,200,000	12	0	1899-12-31	11.01	100,000	12	109	2018-0
5	triller	1,492	524	1,200,000	15	0	1900-01-02	16.67	80,000	15	90	2018-0
6	triller	1,492	71	1,050,000	7	0	1900-01-02	0.98	150,000	7	714	2018-0
7	triller	1,492	163	1,020,000	10	0	1900-01-02	7.69	102,000	10	130	2018-0
8	triller	1,492	450	750,000	5	0	1900-01-02	1.57	150,000	5	318	2018-0
9	triller	1,492	51	750,000	11	0	1900-01-01	0.95	68,181.81818	11	1,158	2018-0
10	triller	1,492	522	600,000	4	0	1900-01-02	1.55	150,000	4	258	2018-0
11	triller	1,492	43	480,000	6	0	1900-01-02	0.44	80,000	6	1,364	2018-0
12	triller	1,492	529	480,000	4	0	1900-01-02	2.96	120,000	4	135	2018-0
13	triller	1,492	82	400,000	5	0	1900-01-05	0.53	80,000	5	943	2018-0
14	triller	1,492	344	300,000	2	0	1900-01-02	0.25	150,000	2	800	2018-0
15	triller	1,492	73	240,000	2	0	1899-12-31	2.04	120,000	2	98	2018-0
16	triller	1,492	304	99,998	9	0	1900-01-03	0.09	9,999	112	611	2022-1
17	triller	1,492	352	88,889	8	0	1900-01-04	0.08	8,888	93	880	2022-0
18	triller	1,492	344	10,200,000	68	0	1900-01-02	8.54	150,000	68	796	2018-0
19	triller	1,492	71	6,600,000	44	0	1900-01-02	6.14	150,000	44	717	2018-0
20	triller	1,492	163	3,360,000	31	0	1900-01-02	24.8	108,387.0968	31	125	2018-0

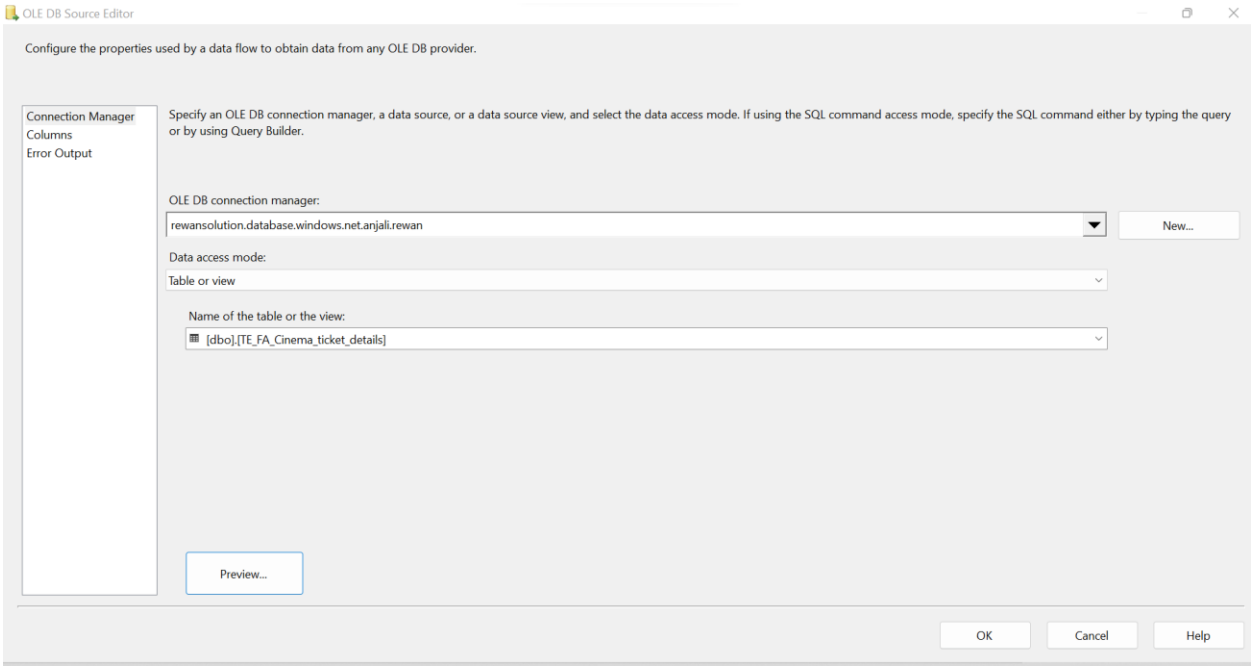
ii) SCD type2:

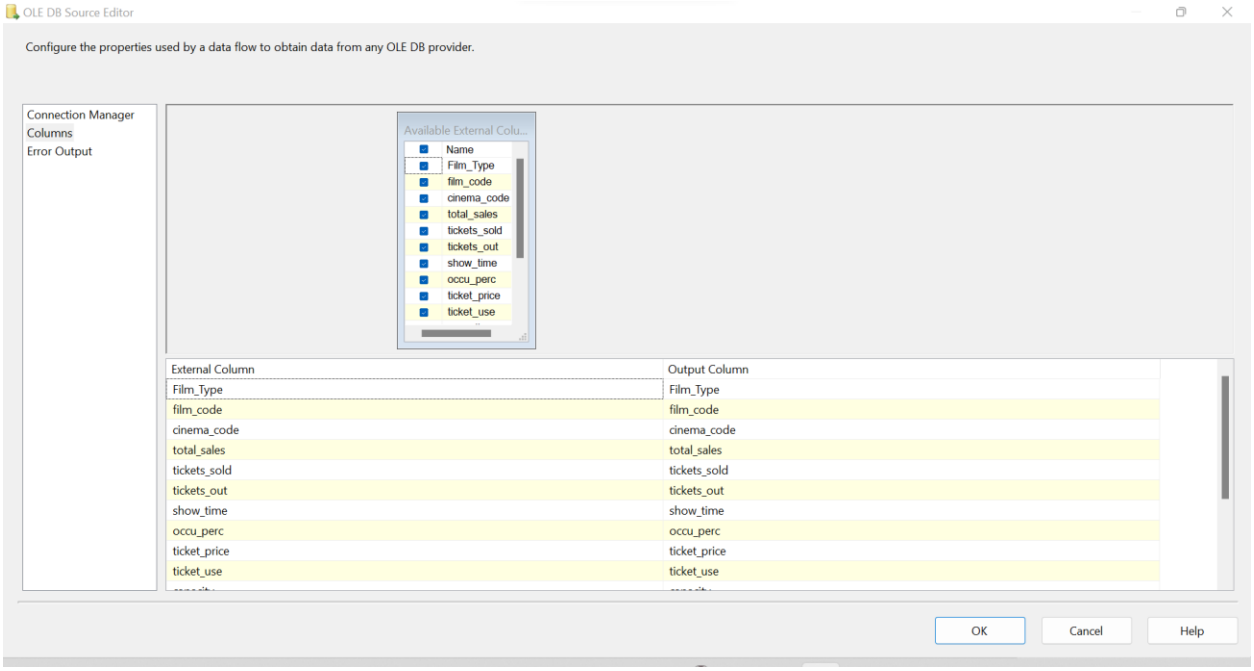
Here, when we update data we can also see the previous data, and we use historical attribute.



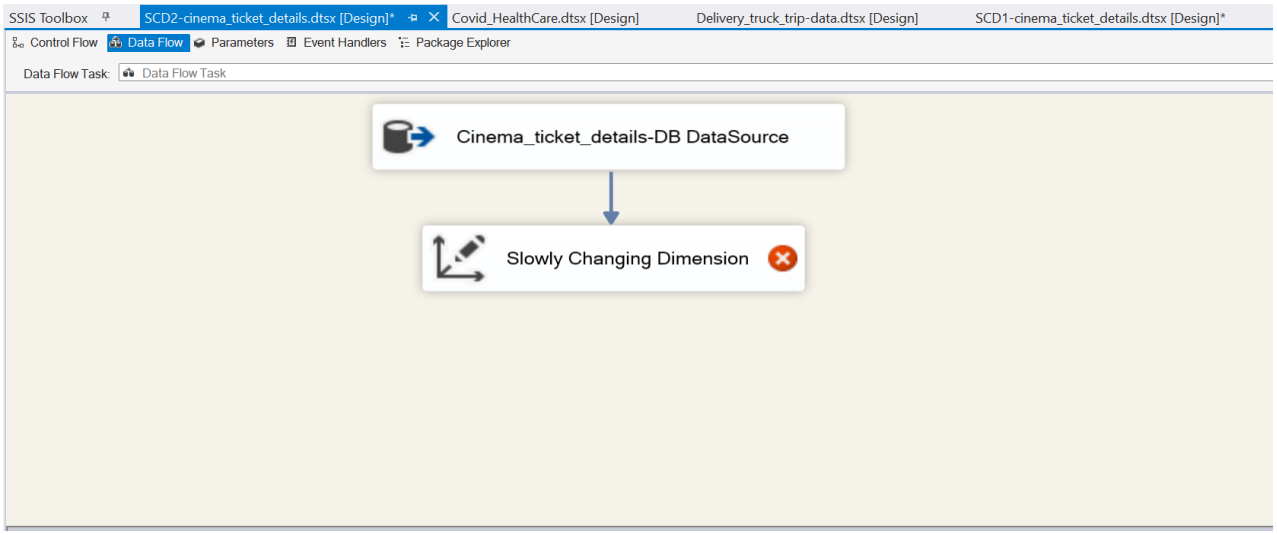
a) Source -

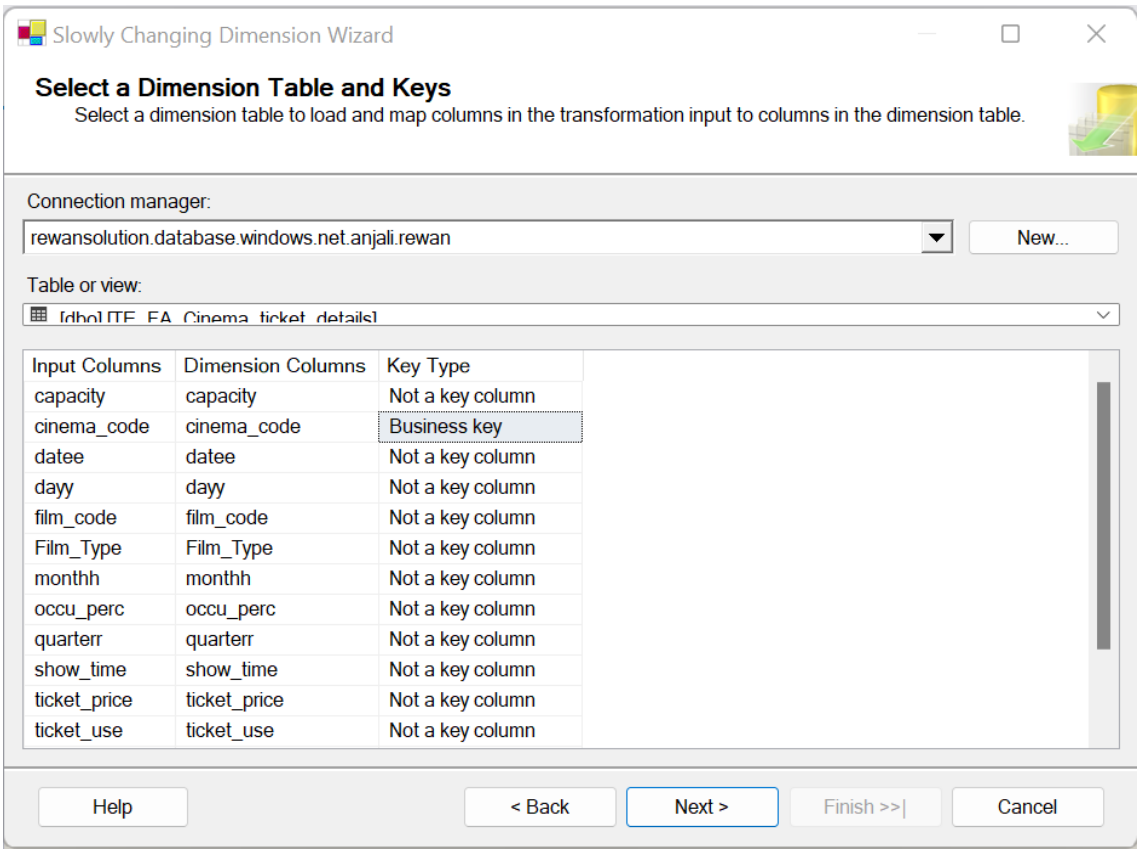


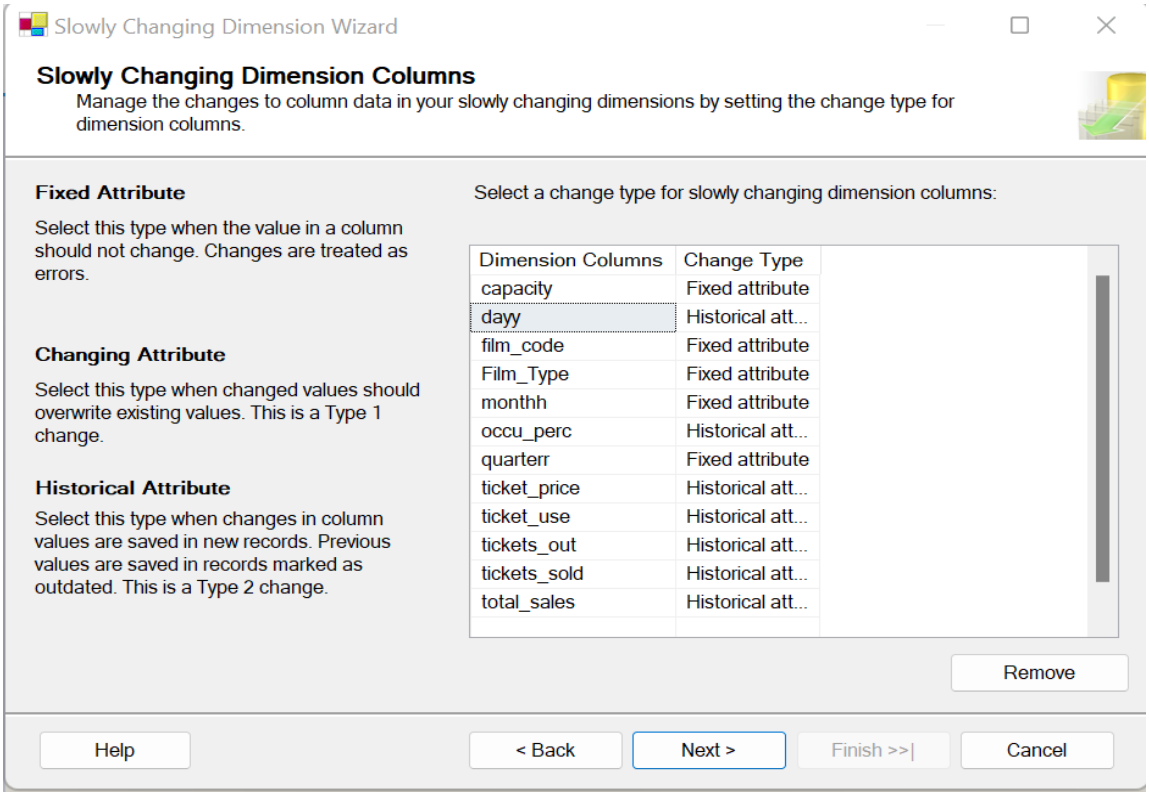

OLE DB Source Editor
Configure the properties used by a data flow to obtain data from any OLE DB provider.
Connection Manager
Columns
Error Output
Specify an OLE DB connection manager, a data source, or a data source view, and select the data access mode. If using the SQL command access mode, specify the SQL command either by typing the query or by using Query Builder.
OLE DB connection manager:
rewansolution.database.windows.net.anjali.rewan
New...
Data access mode:
Table or view
Name of the table or the view:
[dbo].[TE_FA_Cinema_ticket_details]
Preview...
OK
Cancel
Help

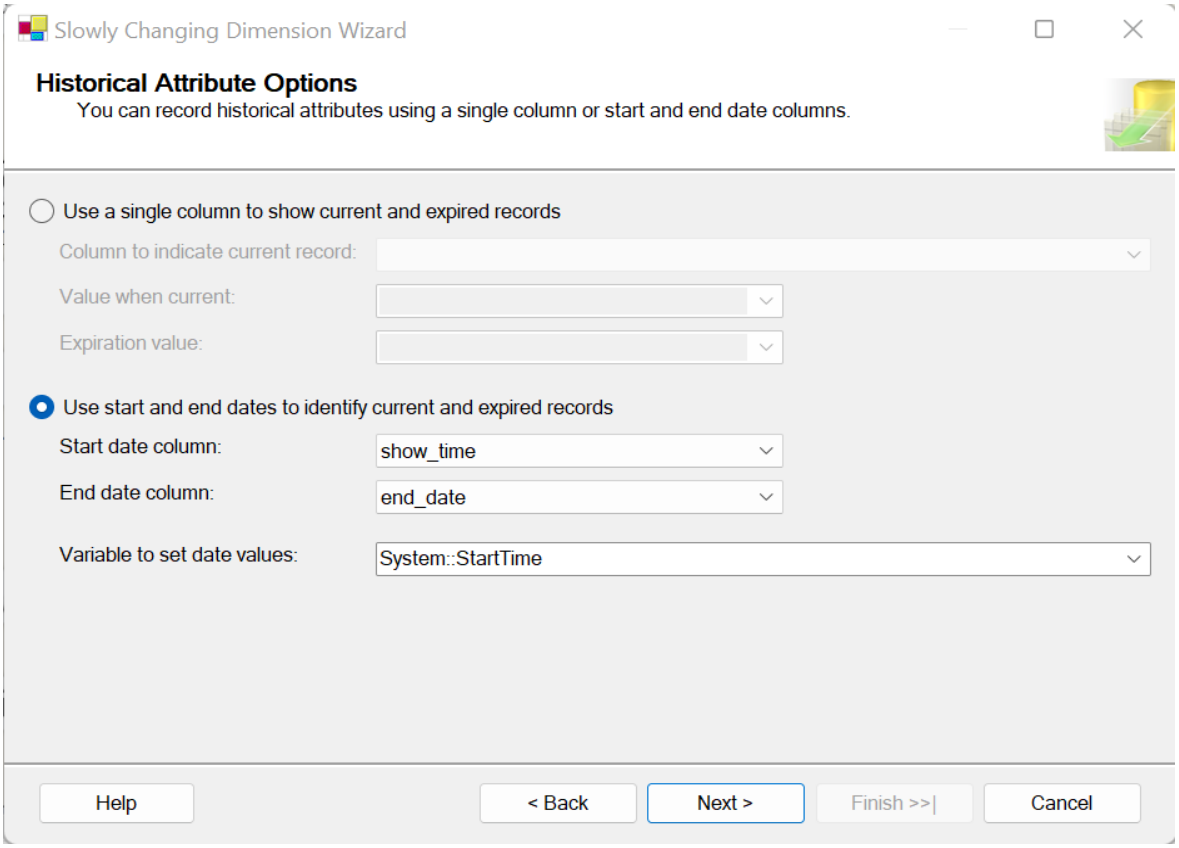

OLE DB Source Editor
Configure the properties used by a data flow to obtain data from any OLE DB provider.
Connection Manager
Columns
Error Output
Available External Colu...
Name
Film_Type
film_code
cinema_code
total_sales
tickets_sold
tickets_out
show_time
occu_perc
ticket_price
ticket_use
External Column
Output Column
Film_Type
film_code
cinema_code
total_sales
tickets_sold
tickets_out
show_time
occu_perc
ticket_price
ticket_use
OK
Cancel
Help

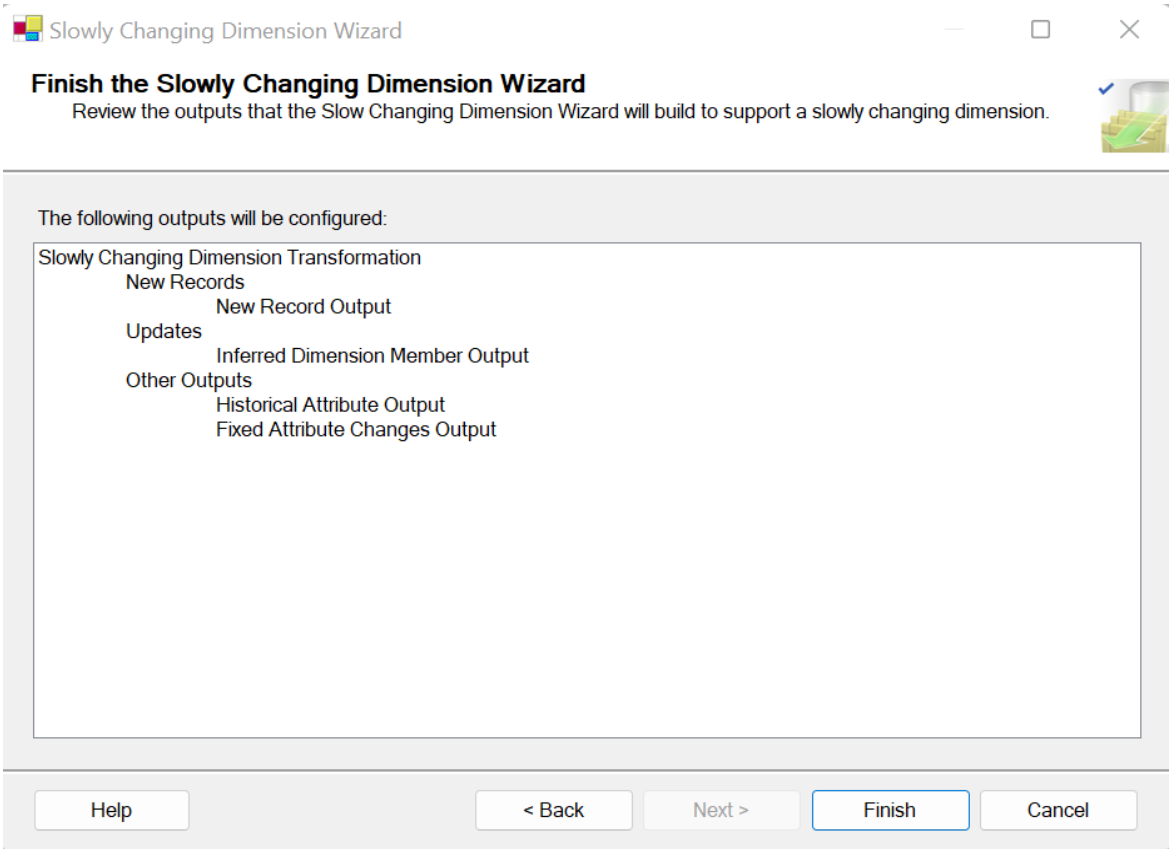
b) Slowly Changing Dimension-






Slowly Changing Dimension Wizard
Slowly Changing Dimension Columns
Manage the changes to column data in your slowly changing dimensions by setting the change type for dimension columns.
Fixed Attribute
Select this type when the value in a column should not change. Changes are treated as errors.
Changing Attribute
Select this type when changed values should overwrite existing values. This is a Type 1 change.
Historical Attribute
Select this type when changes in column values are saved in new records. Previous values are saved in records marked as outdated. This is a Type 2 change.
Select a change type for slowly changing dimension columns:
Dimension Columns
Change Type
capacity
Fixed attribute
dayy
Historical att...
film_code
Fixed attribute
Film_Type
Fixed attribute
monthh
Fixed attribute
occu_perc
Historical att...
quarterr
Fixed attribute
ticket_price
Historical att...
ticket_use
Historical att...
tickets_out
Historical att...
tickets_sold
Historical att...
total_sales
Historical att...
Remove
Help
< Back
Next >
Finish >>|
Cancel


Slowly Changing Dimension Wizard
Historical Attribute Options
You can record historical attributes using a single column or start and end date columns.
Use a single column to show current and expired records
Column to indicate current record:
Value when current:
Expiration value:
Use start and end dates to identify current and expired records
Start date column:
show_time
End date column:
end_date
Variable to set date values:
System::StartTime
Help
< Back
Next >
Finish >>|
Cancel

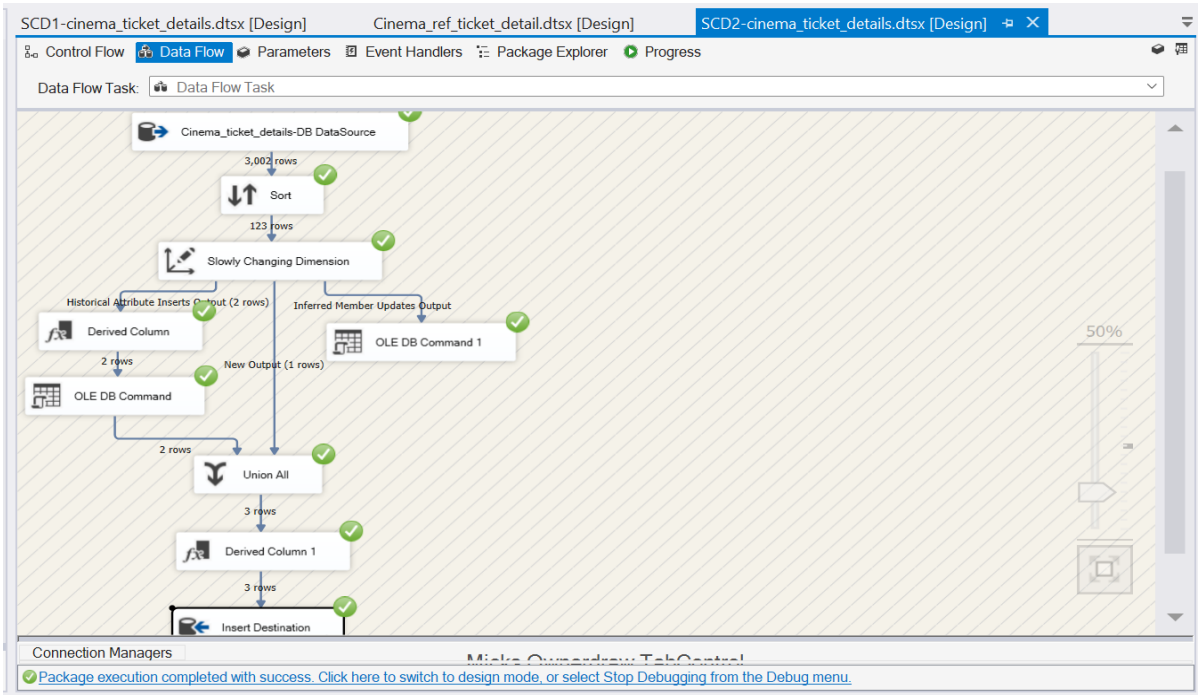


Result:

```
create table TE_FA_Cinema_ticket_details_destn
(
 Film_Type varchar(20),
 film_code int,
 cinema_code int,
 total_sales bigint,
 tickets_sold int,
 tickets_out int,
 show_time date,
 occu_perc   float,
 ticket_price float,
 ticket_use  int,
 capacity int,
 datee date,
 monthh int,
 quarterr int,
 dayy int,
 end_date date
);
select * from TE_FA_Cinema_ticket_details_destn;
```

After updating:

```
update TE_FA_Cinema_ticket_details
set total_sales=444444,tickets_sold=9,occu_perc=0.09,ticket_price=9999,datee='2022-10-07' where cinema_code=181;
update TE_FA_Cinema_ticket_details
set total_sales=555555,tickets_sold=8,occu_perc=0.08,ticket_price=8888,datee='2022-09-08' where cinema_code=464;
```




```
update TE_FA_Cinema_ticket_details
set total_sales=444444,tickets_sold=9,occu_perc=0.09,ticket_price=9999,datee='2022-10-07' where cinema_code=181;
update TE_FA_Cinema_ticket_details
set total_sales=555555,tickets_sold=8,occu_perc=0.08,ticket_price=8888,datee='2022-09-08' where cinema_code=464;
```


Results 1

```
select * from TE_FA_Cinema_ticket_details_destn;
```

Enter a SQL expression to filter results (use Ctrl+Space)

	Film_Type	filn	cin	total_sal	ticket	tick	show_tim	occ	ticket_pric	tick	cap	datee	m	quarterr	dayy	end_date
24	Romance	1,492	168	320,000	4	0	2022-10-07	1.71	80,000	4	234	2018-07-16	7	3	16	[NULL]
25	Romance	1,492	169	1,100,000	11	0	2022-10-07	5.31	100,000	11	207	2018-05-30	5	2	30	[NULL]
26	Thriller	1,486	172	1,500,000	15	0	2022-10-07	5.56	100,000	15	270	2018-04-02	4	2	2	[NULL]
27	Thriller	1,486	181	11,111	9	0	2022-10-07	0.09	9,999	23	632	2022-10-07	3	1	31	2022-10-07
28	Thriller	1,486	181	444,444	9	0	2022-10-07	0.09	9,999	23	632	2022-10-07	3	1	31	[NULL]
29	Thriller	1,486	187	6,520,000	109	0	2022-10-07	7.9	59,816.51376	109	1,380	2018-05-25	5	2	25	[NULL]
30	Romance	1,492	191	1,300,000	26	0	2022-10-07	1.65	50,000	26	1,576	2018-05-27	5	2	27	[NULL]
31	Thriller	1,486	196	2,360,000	59	0	2022-10-07	49.17	40,000	59	120	2018-04-17	4	2	17	[NULL]
32	Romance	1,492	198	280,000	4	0	2022-10-07	0.78	70,000	4	513	2018-05-09	5	2	9	[NULL]
33	Romance	1,492	201	1,540,000	22	0	2022-10-07	3.47	70,000	22	634	2018-06-09	6	2	9	[NULL]
34	Romance	1,492	204	560,000	8	0	2022-10-07	0.33	70,000	8	2,424	2018-06-11	6	2	11	[NULL]
35	Thriller	1,486	207	1,500,000	30	0	2022-10-07	1.92	50,000	30	1,563	2018-05-31	5	2	31	[NULL]
36	Thriller	1,486	210	8,400,000	105	0	2022-10-07	76.09	80,000	105	138	2018-04-02	4	2	2	[NULL]
37	Romance	1,492	214	150,000	3	0	2022-10-07	0.52	50,000	3	577	2018-07-11	7	3	11	[NULL]
38	Thriller	1,486	222	80,000	1	0	2022-10-07	0.6	80,000	1	167	2018-04-16	4	2	16	[NULL]
39	Thriller	1,486	225	1,470,000	21	0	2022-10-07	1.54	70,000	21	1,364	2018-03-31	3	1	31	[NULL]
40	Thriller	1,486	231	400,000	13	0	2022-10-07	0.63	30,769.23077	13	2,063	2018-03-27	3	1	27	[NULL]

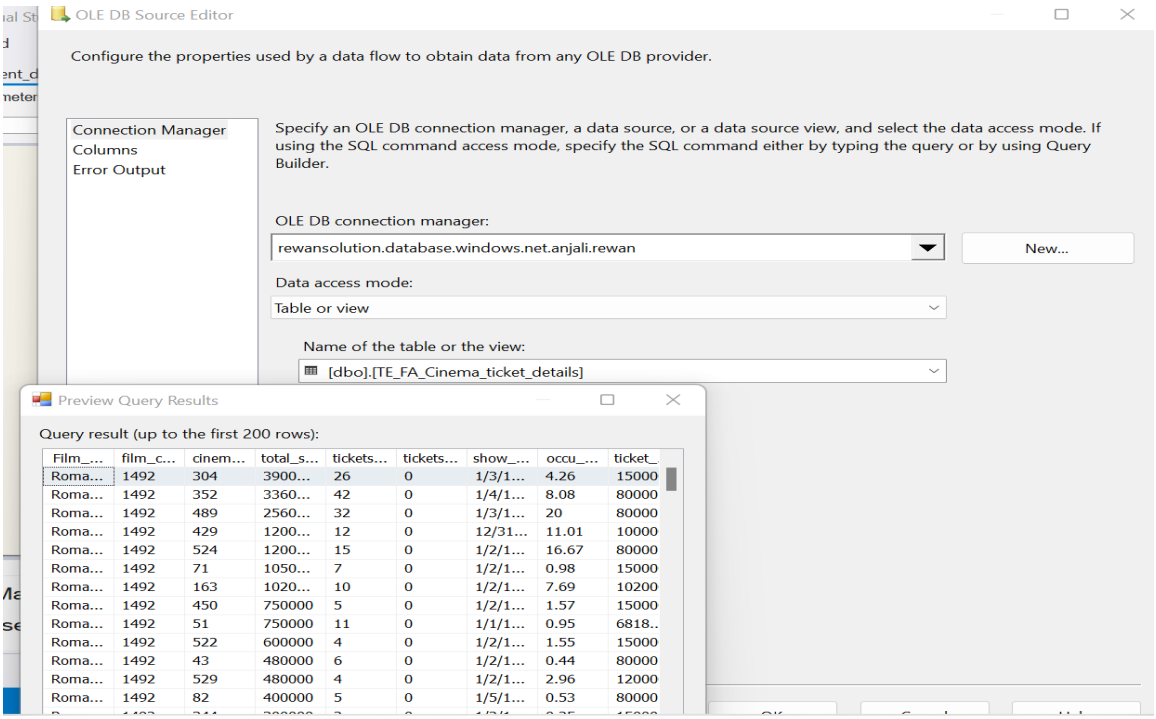
3. Aggregator

1. In SQL Server:

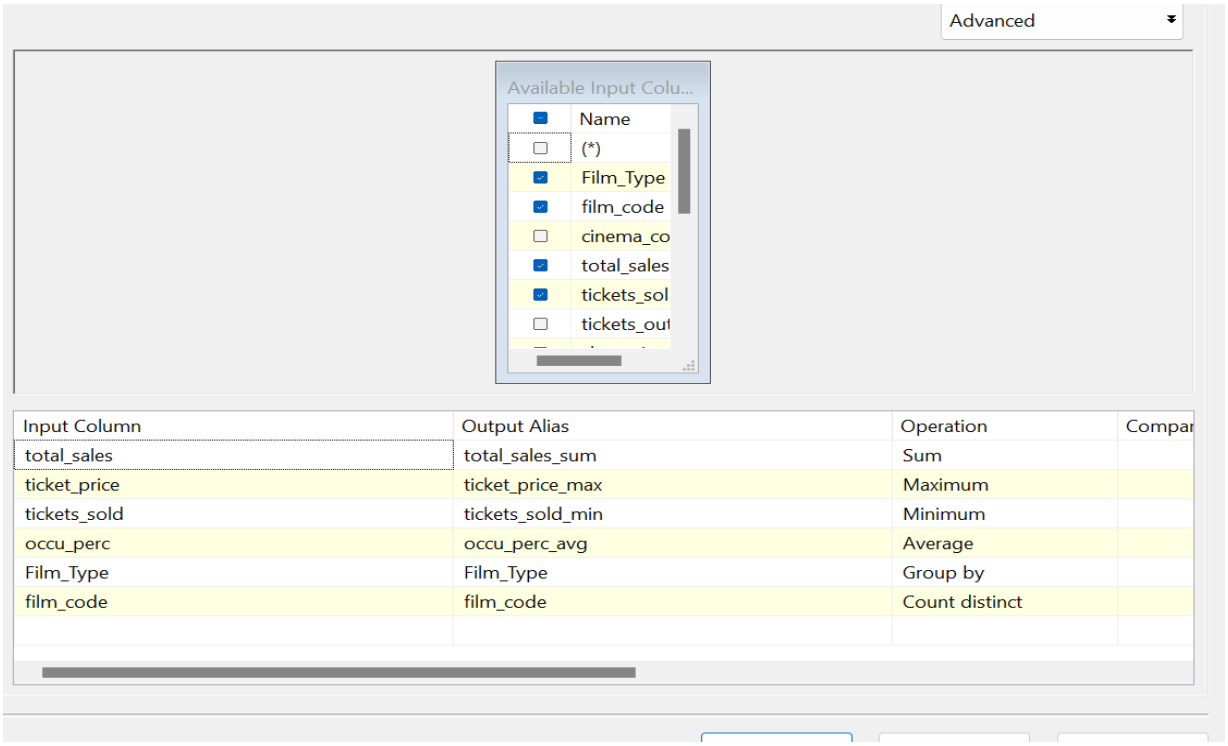
```
-----------------------------------------------------aggregate functions
---------------------------------------count
SELECT COUNT(1),film_type
FROM TE_FA_Cinema_ticket_details
WHERE film_type is NOT NULL
GROUP BY film_type
HAVING COUNT(1)>1
ORDER BY ticket_price DESC
---------------------------------------sum
SELECT SUM(total_sales) as total_sale_sum, film_type
FROM TE_FA_Cinema_ticket_details
WHERE total_sale is NOT NULL
GROUP BY film_type;
---------------------------------------average
SELECT AVG(total_sales) as avg_sales,film_type
FROM TE_FA_Cinema_ticket_details
WHERE total_sale is NOT NULL
GROUP BY film_type
---------------------------------------minimum
SELECT MIN(total_sales) as min_sale,film_type
FROM TE_FA_Cinema_ticket_details
WHERE total_sale is NOT NULL
GROUP BY film_type
---------------------------------------maximum
SELECT MAX(total_sale) as max_sale,film_type
FROM TE_FA_Cinema_ticket_details
WHERE total_sale is NOT NULL
GROUP BY film_type
```

2. In SSIS:

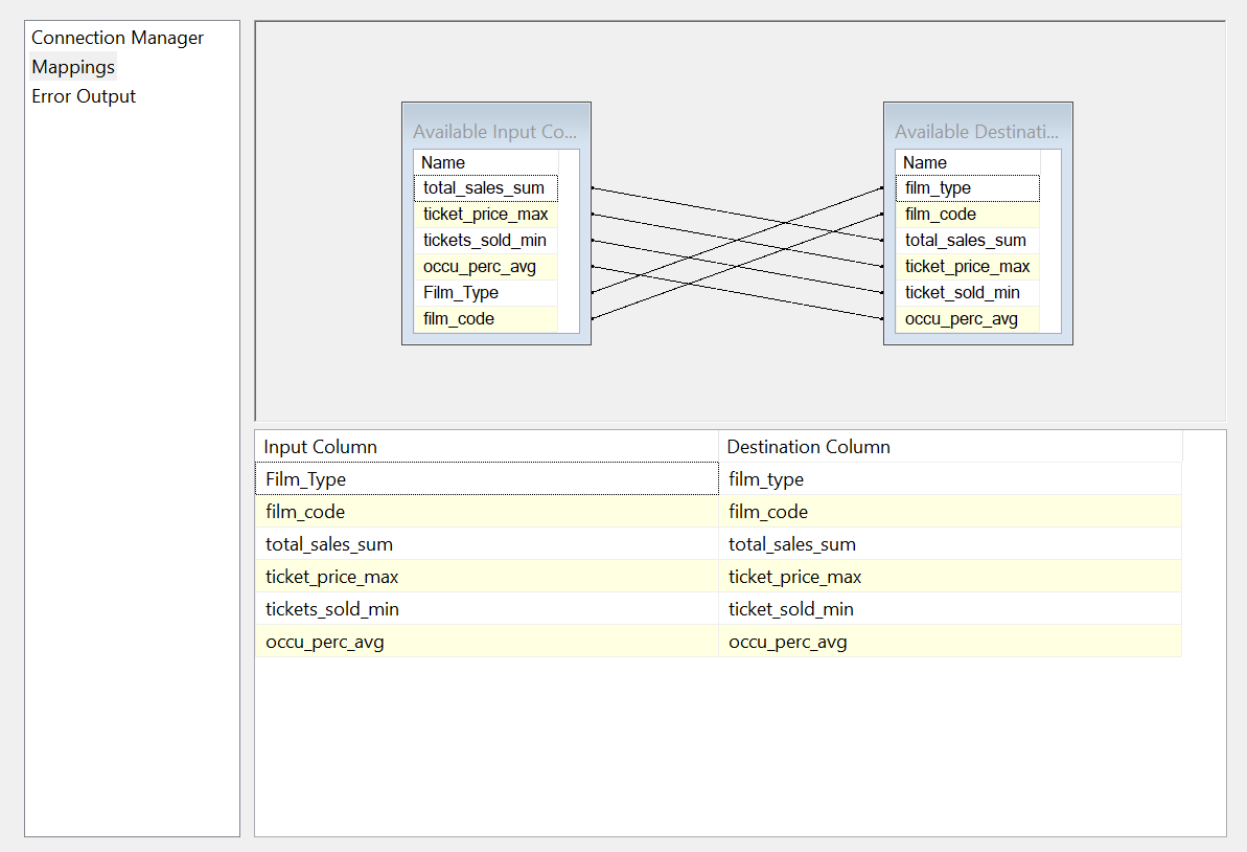
a) Source-



b) Aggregator:

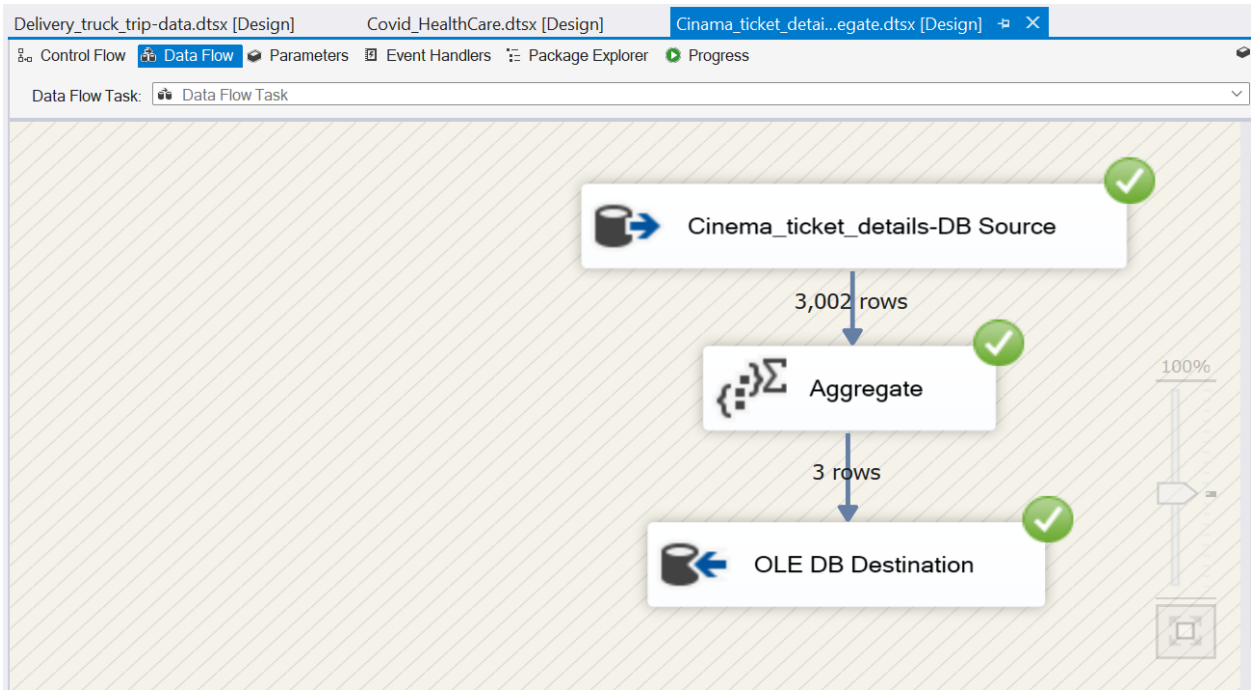


c) Target:



d) Result

```
create table TE_FA_Cinema_ticket_aggr
(
 film_type varchar(50),
 film_code int,
 total_sales_sum float,
 ticket_price_max float,
 ticket_sold_min float,
 occu_perc_avg float
);
      select * from TE_FA_Cinema_ticket_aggr;
```




```sql
create table TE_FA_Cinema_ticket_aggr
(
 film_type varchar(50),
 film_code int,
 total_sales_sum float,
 ticket_price_max float,
 ticket_sold_min float,
 occu_perc_avg float
);
select * from TE_FA_Cinema_ticket_aggr;
```

Results 1

```
select * from TE_FA_Cinema_ticket_aggr;
```

Enter a SQL expression to filter results (use Ctrl+Space)

Grid | Text | Record

	film_type	film_code	total_sales_sum	ticket_price_max	ticket_sold_min	occu_perc_avg
1	[NULL]	0	[NULL]	[NULL]	[NULL]	[NULL]
2	Romance	1	2,084,629,999	150,000	1	12.3565009208
3	Thriller	1	17,072,018,388	150,000	1	23.8121380031