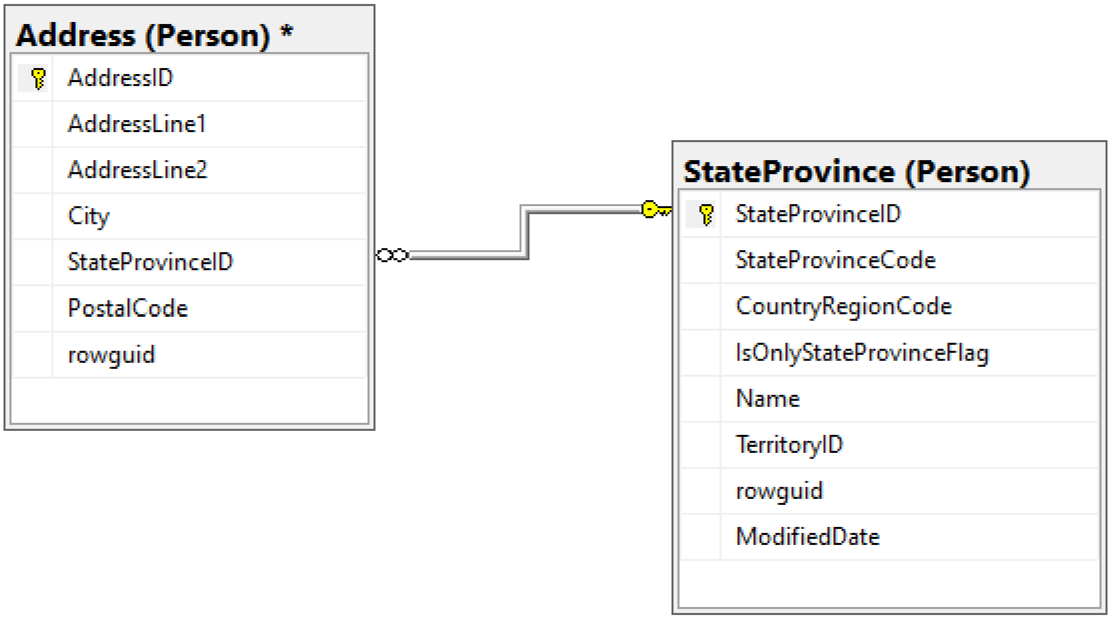
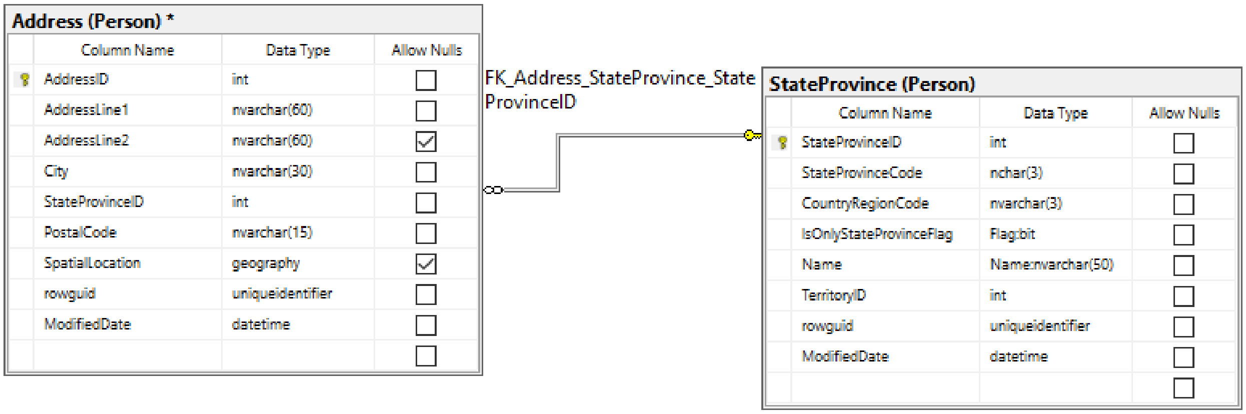
Proposition #1 (Simple)

Display for each distinct city, the name, ID, and code for the province it belongs to.





Address (Person) *

Column Name	Data Type	Allow Nulls
AddressID	int	□
AddressLine1	nvarchar(60)	□
AddressLine2	nvarchar(60)	☑
City	nvarchar(30)	□
StateProvinceID	int	□
PostalCode	nvarchar(15)	□
SpatialLocation	geography	☑
rowguid	uniqueidentifier	□
ModifiedDate	datetime	□
		□

FK_Address_StateProvince_StateProvinceID

StateProvince (Person)

Column Name	Data Type	Allow Nulls
StateProvinceID	int	□
StateProvinceCode	nchar(3)	□
CountryRegionCode	nvarchar(3)	□
IsOnlyStateProvinceFlag	Flag:bit	□
Name	Name:nvarchar(50)	□
TerritoryID	int	□
rowguid	uniqueidentifier	□
ModifiedDate	datetime	□
		□

Columns from Tables

Table Name	Column Name
StateProvince	StateProvinceCode, Name
Address	City, StateProvinceID

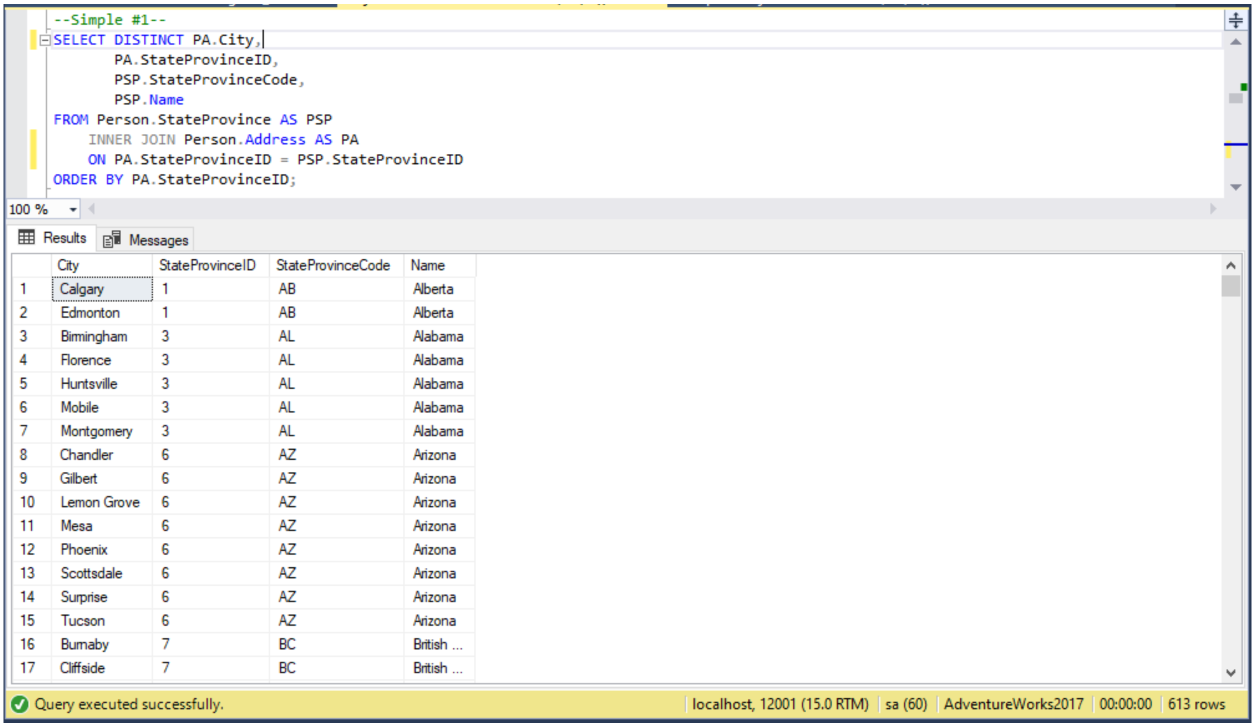
Order By

Table Name	Column Name	Sort Order
Address	StateProvinceID	ASC

Solution Query

```sql
USE AdventureWorks2017;

SELECT DISTINCT PA.City
        ,PA.StateProvinceID
        ,PSP.StateProvinceCode
        ,PSP.Name
FROM Person.StateProvince AS PSP
INNER JOIN Person.Address AS PA ON PA.StateProvinceID = PSP.StateProvinceID
ORDER BY PA.StateProvinceID;
```

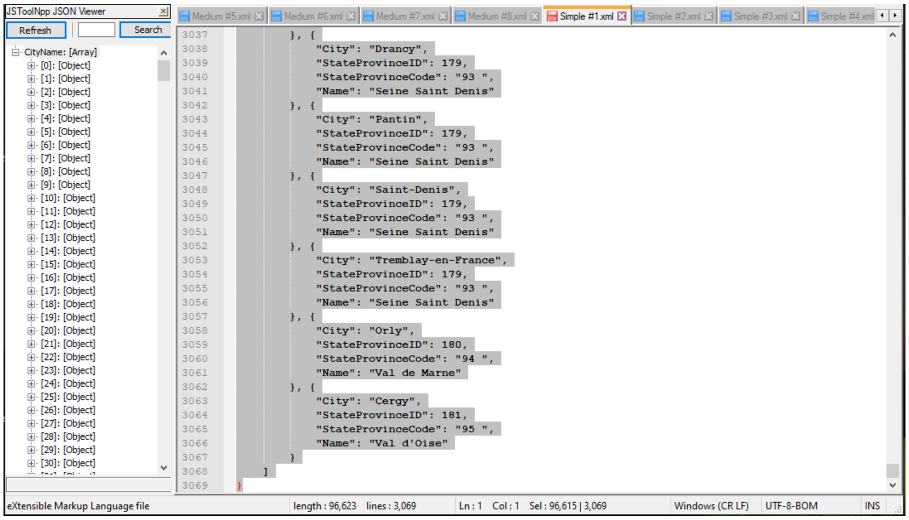
Output



```sql
--Simple #1--
SELECT DISTINCT PA.City,
        PA.StateProvinceID,
        PSP.StateProvinceCode,
        PSP.Name
FROM Person.StateProvince AS PSP
    INNER JOIN Person.Address AS PA
    ON PA.StateProvinceID = PSP.StateProvinceID
ORDER BY PA.StateProvinceID;
```

	City	StateProvinceID	StateProvinceCode	Name
1	Calgary	1	AB	Alberta
2	Edmonton	1	AB	Alberta
3	Birmingham	3	AL	Alabama
4	Florence	3	AL	Alabama
5	Huntsville	3	AL	Alabama
6	Mobile	3	AL	Alabama
7	Montgomery	3	AL	Alabama
8	Chandler	6	AZ	Arizona
9	Gilbert	6	AZ	Arizona
10	Lemon Grove	6	AZ	Arizona
11	Mesa	6	AZ	Arizona
12	Phoenix	6	AZ	Arizona
13	Scottsdale	6	AZ	Arizona
14	Surprise	6	AZ	Arizona
15	Tucson	6	AZ	Arizona
16	Burnaby	7	BC	British ...
17	Cliffside	7	BC	British ...

✓ Query executed successfully. | localhost, 12001 (15.0 RTM) | sa (60) | AdventureWorks2017 | 00:00:00 | 613 rows



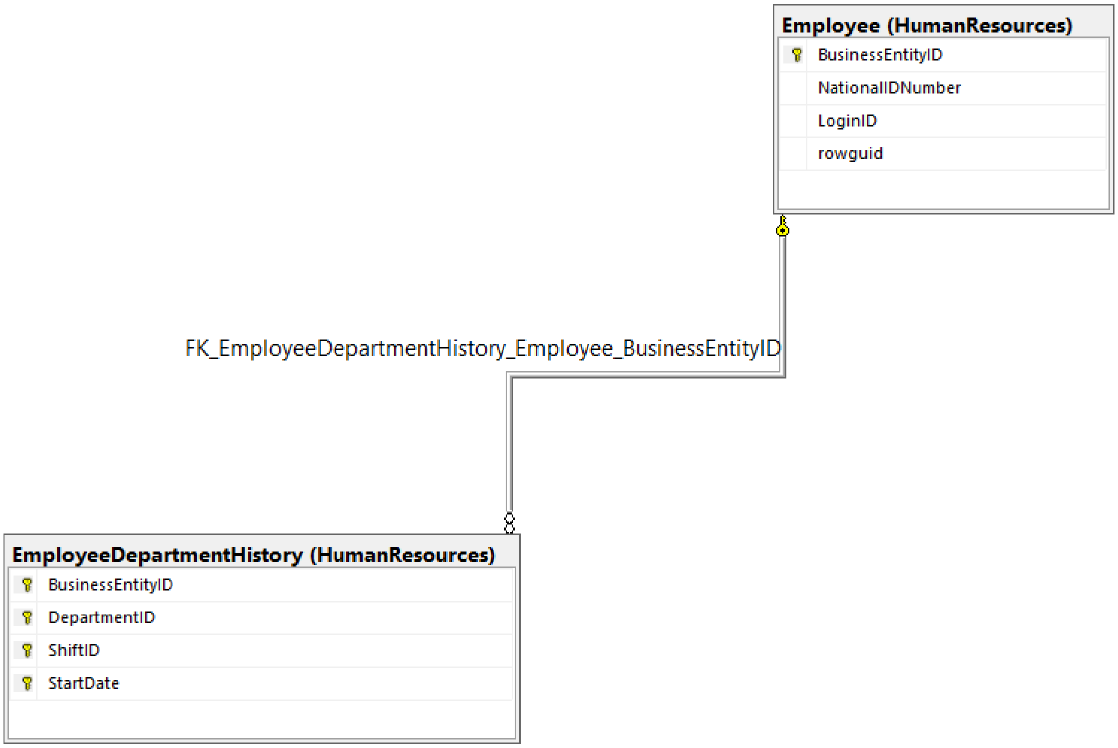
```
CityName: [Array]
    [0]: [Object]
    [1]: [Object]
    [2]: [Object]
    [3]: [Object]
    [4]: [Object]
    [5]: [Object]
    [6]: [Object]
    [7]: [Object]
    [8]: [Object]
    [9]: [Object]
    [10]: [Object]
    [11]: [Object]
    [12]: [Object]
    [13]: [Object]
    [14]: [Object]
    [15]: [Object]
    [16]: [Object]
    [17]: [Object]
    [18]: [Object]
    [19]: [Object]
    [20]: [Object]
    [21]: [Object]
    [22]: [Object]
    [23]: [Object]
    [24]: [Object]
    [25]: [Object]
    [26]: [Object]
    [27]: [Object]
    [28]: [Object]
    [29]: [Object]
    [30]: [Object]
```

```
        }, {
            "City": "Drancy",
            "StateProvinceID": 179,
            "StateProvinceCode": "93 ",
            "Name": "Seine Saint Denis"
        }, {
            "City": "Pantin",
            "StateProvinceID": 179,
            "StateProvinceCode": "93 ",
            "Name": "Seine Saint Denis"
        }, {
            "City": "Saint-Denis",
            "StateProvinceID": 179,
            "StateProvinceCode": "93 ",
            "Name": "Seine Saint Denis"
        }, {
            "City": "Tremblay-en-France",
            "StateProvinceID": 179,
            "StateProvinceCode": "93 ",
            "Name": "Seine Saint Denis"
        }, {
            "City": "Orly",
            "StateProvinceID": 180,
            "StateProvinceCode": "94 ",
            "Name": "Val de Marne"
        }, {
            "City": "Cergy",
            "StateProvinceID": 181,
            "StateProvinceCode": "95 ",
            "Name": "Val d'Oise"
        }
    ]
}
```

eXtensible Markup Language file | length : 96,623 lines : 3,069 | Ln : 1 Col : 1 Sel : 96,615 | 3,069 | Windows (CR LF) | UTF-8-BOM | INS

Proposition #2 (Simple)

Display for each employee: their business entity ID, the ID of their department, shift ID, and job title



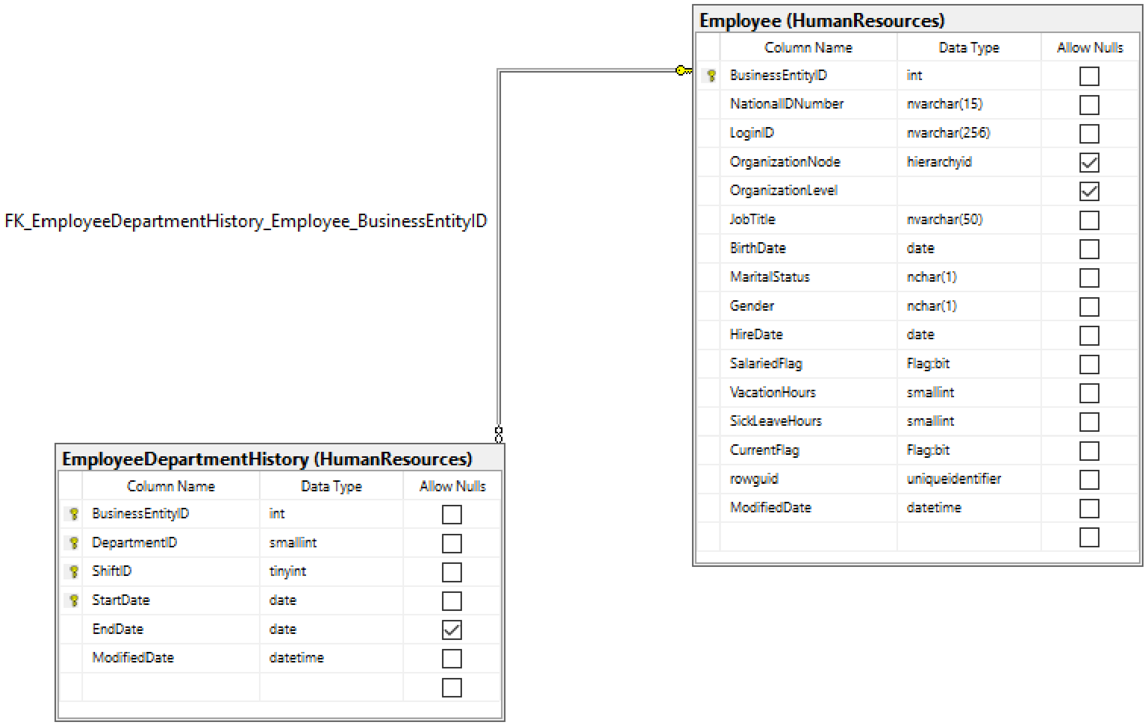
Employee (HumanResources)

- BusinessEntityID
- NationalIDNumber
- LoginID
- rowguid

FK_EmployeeDepartmentHistory_Employee_BusinessEntityID

EmployeeDepartmentHistory (HumanResources)

- BusinessEntityID
- DepartmentID
- ShiftID
- StartDate



Employee (HumanResources)

Column Name	Data Type	Allow Nulls
BusinessEntityID	int	☐
NationalIDNumber	nvarchar(15)	☐
LoginID	nvarchar(256)	☐
OrganizationNode	hierarchyid	☑
OrganizationLevel		☑
JobTitle	nvarchar(50)	☐
BirthDate	date	☐
MaritalStatus	nchar(1)	☐
Gender	nchar(1)	☐
HireDate	date	☐
SalariedFlag	Flag:bit	☐
VacationHours	smallint	☐
SickLeaveHours	smallint	☐
CurrentFlag	Flag:bit	☐
rowguid	uniqueidentifier	☐
ModifiedDate	datetime	☐
		☐

FK_EmployeeDepartmentHistory_Employee_BusinessEntityID

EmployeeDepartmentHistory (HumanResources)

Column Name	Data Type	Allow Nulls
BusinessEntityID	int	☐
DepartmentID	smallint	☐
ShiftID	tinyint	☐
StartDate	date	☐
EndDate	date	☑
ModifiedDate	datetime	☐
		☐

Columns from Tables

Table Name	Column Name
EmployeeDepartmentHistory	BusinessEntityID, DepartmentID, ShiftID
Employee	JobTitle

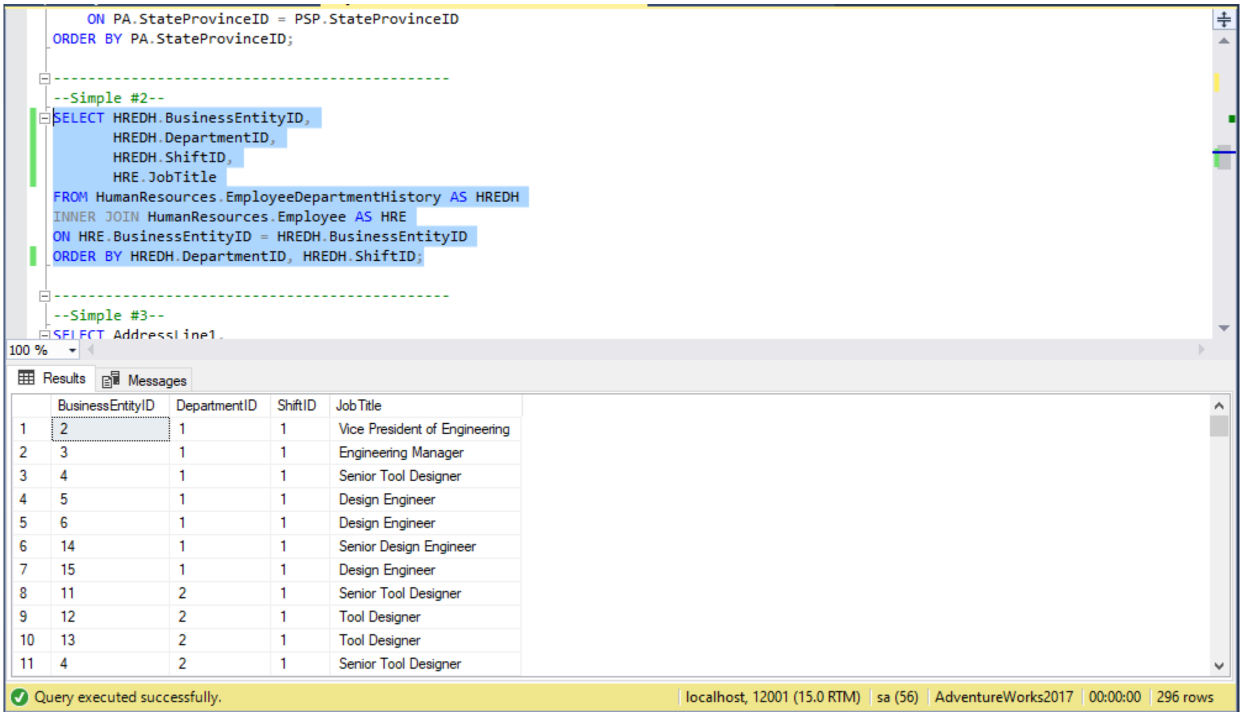
Order By

Table Name	Column Name	Sort Order
EmployeeDepartmentHistory	DepartmentID, ShiftID	ASC

Solution Query

```
USE AdventureWorks2017;

SELECT HREDH.BusinessEntityID
        ,HREDH.DepartmentID
        ,HREDH.ShiftID
        ,HRE.JobTitle
FROM HumanResources.EmployeeDepartmentHistory AS HREDH
INNER JOIN HumanResources.Employee AS HRE ON HRE.BusinessEntityID =
HREDH.BusinessEntityID
ORDER BY HREDH.DepartmentID
        ,HREDH.ShiftID;
```

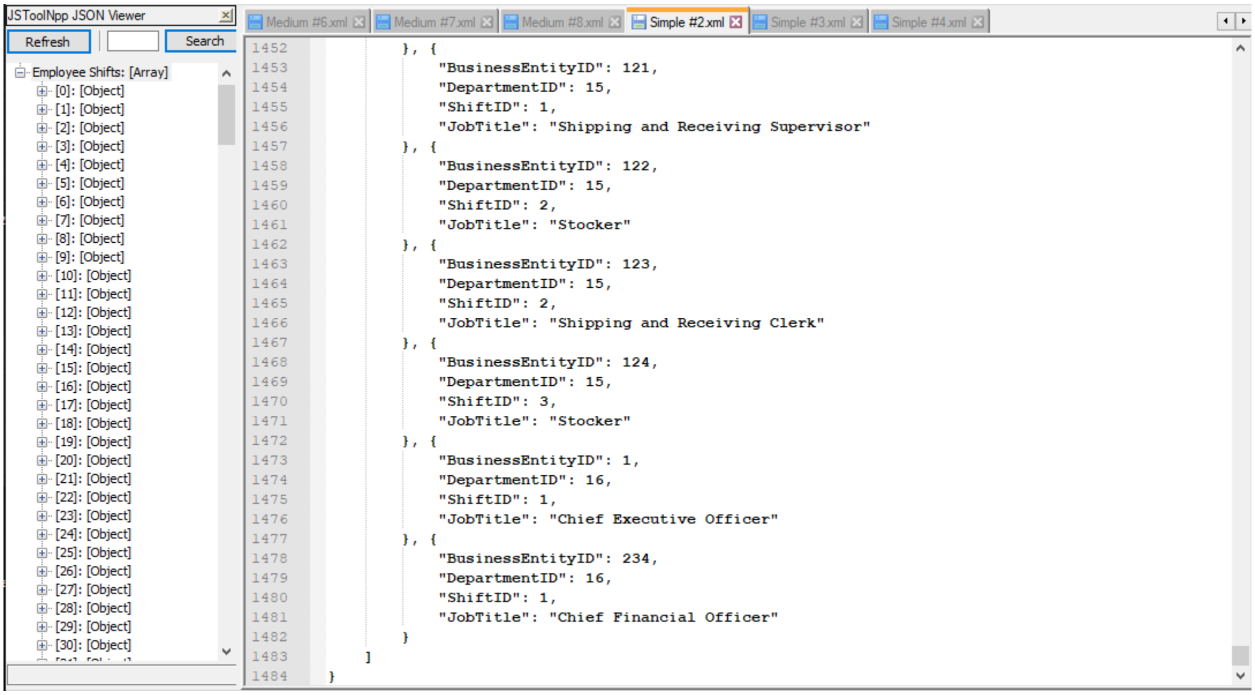
Output



```
    ON PA.StateProvinceID = PSP.StateProvinceID
ORDER BY PA.StateProvinceID;

--------------------------------------------------
--Simple #2--
SELECT HREDH.BusinessEntityID,
       HREDH.DepartmentID,
       HREDH.ShiftID,
       HRE.JobTitle
FROM HumanResources.EmployeeDepartmentHistory AS HREDH
INNER JOIN HumanResources.Employee AS HRE
ON HRE.BusinessEntityID = HREDH.BusinessEntityID
ORDER BY HREDH.DepartmentID, HREDH.ShiftID;

--------------------------------------------------
--Simple #3--
SELECT AddressLine1,
```

	BusinessEntityID	DepartmentID	ShiftID	JobTitle
1	2	1	1	Vice President of Engineering
2	3	1	1	Engineering Manager
3	4	1	1	Senior Tool Designer
4	5	1	1	Design Engineer
5	6	1	1	Design Engineer
6	14	1	1	Senior Design Engineer
7	15	1	1	Design Engineer
8	11	2	1	Senior Tool Designer
9	12	2	1	Tool Designer
10	13	2	1	Tool Designer
11	4	2	1	Senior Tool Designer

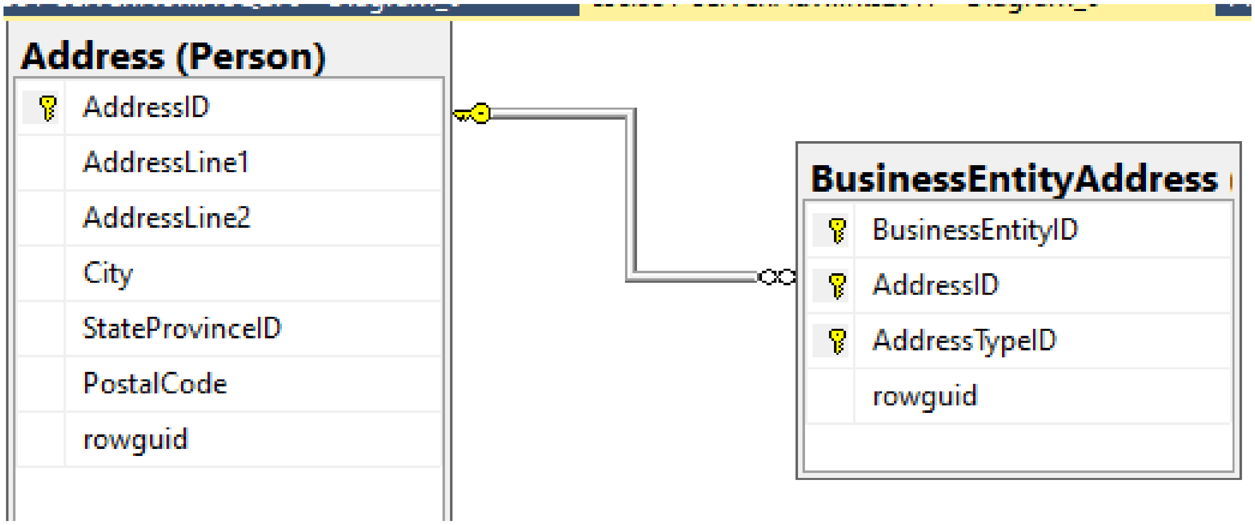
Query executed successfully. | localhost, 12001 (15.0 RTM) | sa (56) | AdventureWorks2017 | 00:00:00 | 296 rows



```
        }, {
            "BusinessEntityID": 121,
            "DepartmentID": 15,
            "ShiftID": 1,
            "JobTitle": "Shipping and Receiving Supervisor"
        }, {
            "BusinessEntityID": 122,
            "DepartmentID": 15,
            "ShiftID": 2,
            "JobTitle": "Stocker"
        }, {
            "BusinessEntityID": 123,
            "DepartmentID": 15,
            "ShiftID": 2,
            "JobTitle": "Shipping and Receiving Clerk"
        }, {
            "BusinessEntityID": 124,
            "DepartmentID": 15,
            "ShiftID": 3,
            "JobTitle": "Stocker"
        }, {
            "BusinessEntityID": 1,
            "DepartmentID": 16,
            "ShiftID": 1,
            "JobTitle": "Chief Executive Officer"
        }, {
            "BusinessEntityID": 234,
            "DepartmentID": 16,
            "ShiftID": 1,
            "JobTitle": "Chief Financial Officer"
        }
    ]
}
```

Proposition #3 (Simple)

Display for all known addresses that do not use the 2nd address line: their address line 1, postal code, city, and address type ID

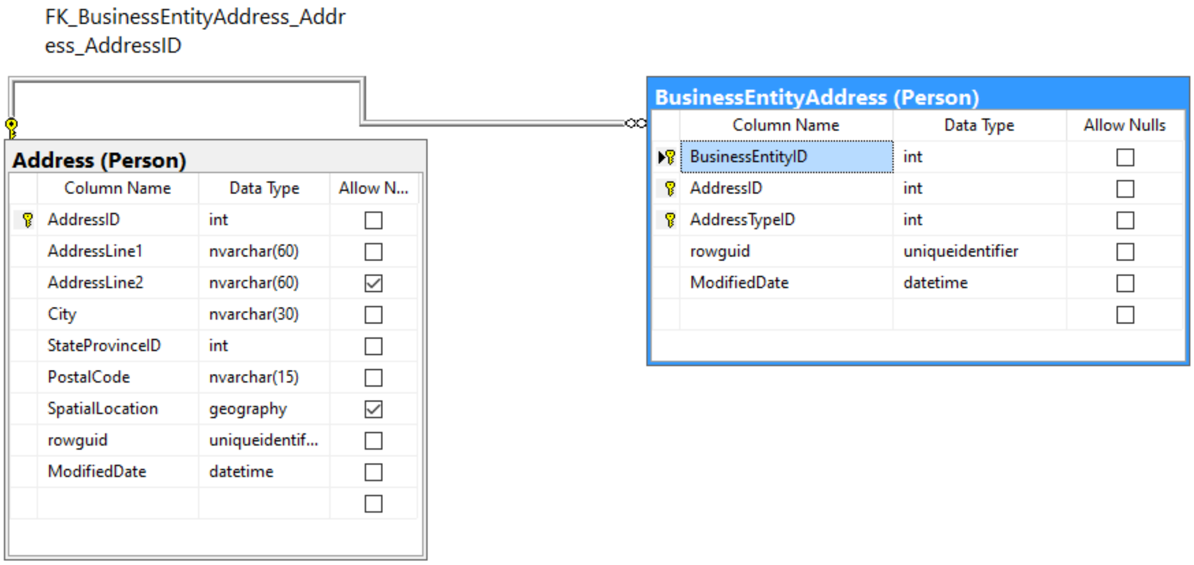


Address (Person)

- AddressID
- AddressLine1
- AddressLine2
- City
- StateProvinceID
- PostalCode
- rowguid

BusinessEntityAddress

- BusinessEntityID
- AddressID
- AddressTypeID
- rowguid



FK_BusinessEntityAddress_Address_AddressID

Address (Person)

Column Name	Data Type	Allow N...
AddressID	int	☐
AddressLine1	nvarchar(60)	☐
AddressLine2	nvarchar(60)	☑
City	nvarchar(30)	☐
StateProvinceID	int	☐
PostalCode	nvarchar(15)	☐
SpatialLocation	geography	☑
rowguid	uniqueidentif...	☐
ModifiedDate	datetime	☐
		☐

BusinessEntityAddress (Person)

Column Name	Data Type	Allow Nulls
BusinessEntityID	int	☐
AddressID	int	☐
AddressTypeID	int	☐
rowguid	uniqueidentifier	☐
ModifiedDate	datetime	☐
		☐

Columns from Tables

Table Name	Column Name
Address	AddressLine1, PostalCode, City
BusinessEntityAddress	AddressTypeID

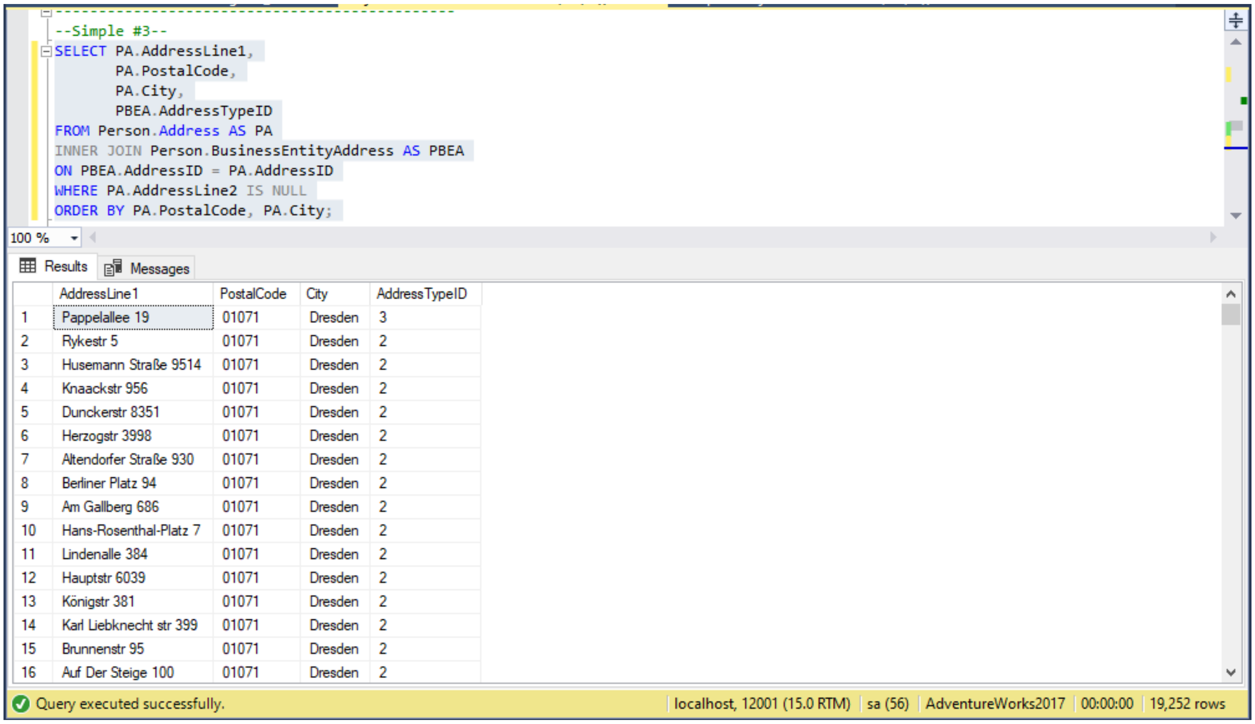
Order By

Table Name	Column Name	Sort Order
PersonAddress	PostalCode, City	DESC

Solution Query

```sql
USE AdventureWorks2017;

SELECT PA.AddressLine1
        ,PA.PostalCode
        ,PA.City
        ,PBEA.AddressTypeID
FROM Person.Address AS PA
INNER JOIN Person.BusinessEntityAddress AS PBEA ON PBEA.AddressID =
PA.AddressID
WHERE PA.AddressLine2 IS NULL
ORDER BY PA.PostalCode
        ,PA.City;
```

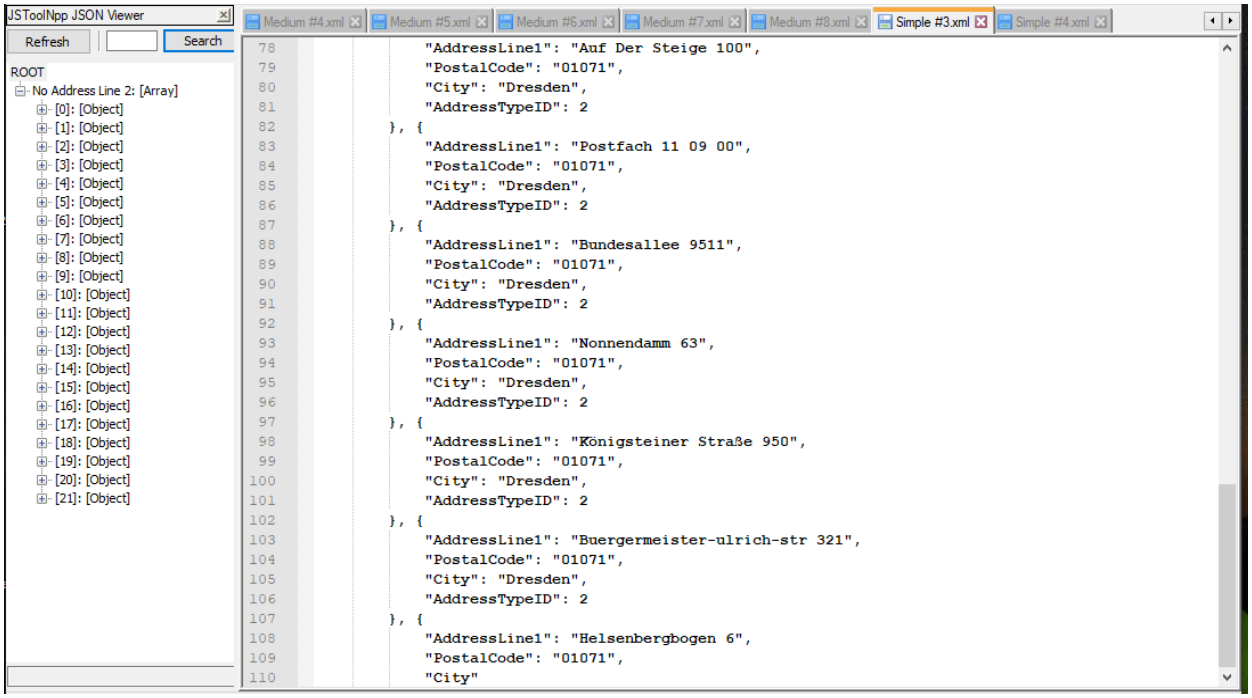
Output



```sql
--------------------------------------------------
--Simple #3--
SELECT PA.AddressLine1,
       PA.PostalCode,
       PA.City,
       PBEA.AddressTypeID
FROM Person.Address AS PA
INNER JOIN Person.BusinessEntityAddress AS PBEA
ON PBEA.AddressID = PA.AddressID
WHERE PA.AddressLine2 IS NULL
ORDER BY PA.PostalCode, PA.City;
```

	AddressLine1	PostalCode	City	AddressTypeID
1	Pappelallee 19	01071	Dresden	3
2	Rykestr 5	01071	Dresden	2
3	Husemann Straße 9514	01071	Dresden	2
4	Knaackstr 956	01071	Dresden	2
5	Dunckerstr 8351	01071	Dresden	2
6	Herzogstr 3998	01071	Dresden	2
7	Altendorfer Straße 930	01071	Dresden	2
8	Berliner Platz 94	01071	Dresden	2
9	Am Gallberg 686	01071	Dresden	2
10	Hans-Rosenthal-Platz 7	01071	Dresden	2
11	Lindenalle 384	01071	Dresden	2
12	Hauptstr 6039	01071	Dresden	2
13	Königstr 381	01071	Dresden	2
14	Karl Liebknecht str 399	01071	Dresden	2
15	Brunnenstr 95	01071	Dresden	2
16	Auf Der Steige 100	01071	Dresden	2

Query executed successfully. | localhost, 12001 (15.0 RTM) | sa (56) | AdventureWorks2017 | 00:00:00 | 19,252 rows

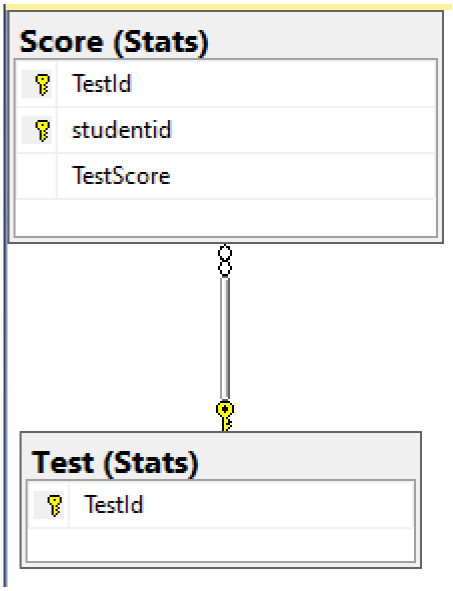


```
ROOT
  No Address Line 2: [Array]
    [0]: [Object]
    [1]: [Object]
    [2]: [Object]
    [3]: [Object]
    [4]: [Object]
    [5]: [Object]
    [6]: [Object]
    [7]: [Object]
    [8]: [Object]
    [9]: [Object]
    [10]: [Object]
    [11]: [Object]
    [12]: [Object]
    [13]: [Object]
    [14]: [Object]
    [15]: [Object]
    [16]: [Object]
    [17]: [Object]
    [18]: [Object]
    [19]: [Object]
    [20]: [Object]
    [21]: [Object]
```

```
            "AddressLine1": "Auf Der Steige 100",
            "PostalCode": "01071",
            "City": "Dresden",
            "AddressTypeID": 2
        }, {
            "AddressLine1": "Postfach 11 09 00",
            "PostalCode": "01071",
            "City": "Dresden",
            "AddressTypeID": 2
        }, {
            "AddressLine1": "Bundesallee 9511",
            "PostalCode": "01071",
            "City": "Dresden",
            "AddressTypeID": 2
        }, {
            "AddressLine1": "Nonnendamm 63",
            "PostalCode": "01071",
            "City": "Dresden",
            "AddressTypeID": 2
        }, {
            "AddressLine1": "Königsteiner Straße 950",
            "PostalCode": "01071",
            "City": "Dresden",
            "AddressTypeID": 2
        }, {
            "AddressLine1": "Buergermeister-ulrich-str 321",
            "PostalCode": "01071",
            "City": "Dresden",
            "AddressTypeID": 2
        }, {
            "AddressLine1": "Helsenbergbogen 6",
            "PostalCode": "01071",
            "City"
```

Proposition #4 (Simple)

Display for each student: their student ID, the test, and their test score for that test

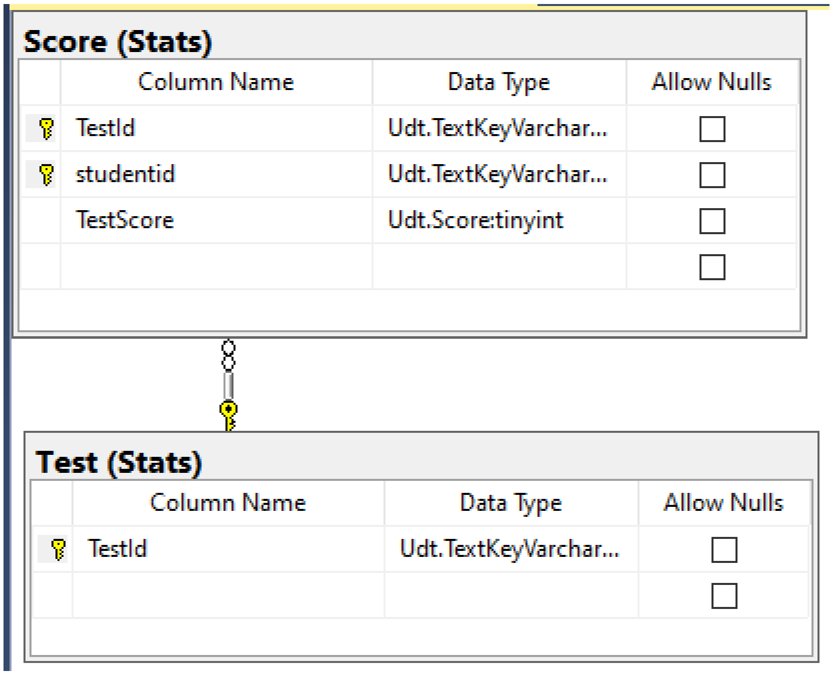


Score (Stats)

🔑	TestId
🔑	studentid
	TestScore

Test (Stats)

🔑	TestId



Score (Stats)

	Column Name	Data Type	Allow Nulls
🔑	TestId	Udt.TextKeyVarchar...	□
🔑	studentid	Udt.TextKeyVarchar...	□
	TestScore	Udt.Score:tinyint	□
			□

Test (Stats)

	Column Name	Data Type	Allow Nulls
🔑	TestId	Udt.TextKeyVarchar...	□
			□

Columns from Tables

Table Name	Column Name
Test	TestId, StudentId, TestScore
Score	

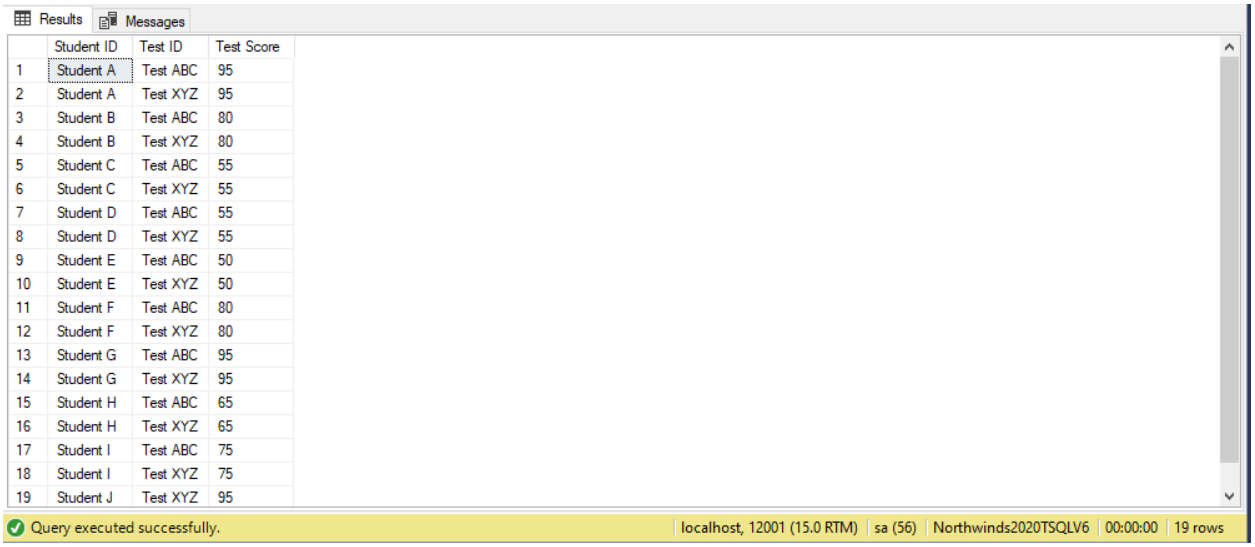
Order By

Table Name	Column Name	Sort Order
Test	StudentId, TestId	ASC

Solution Query

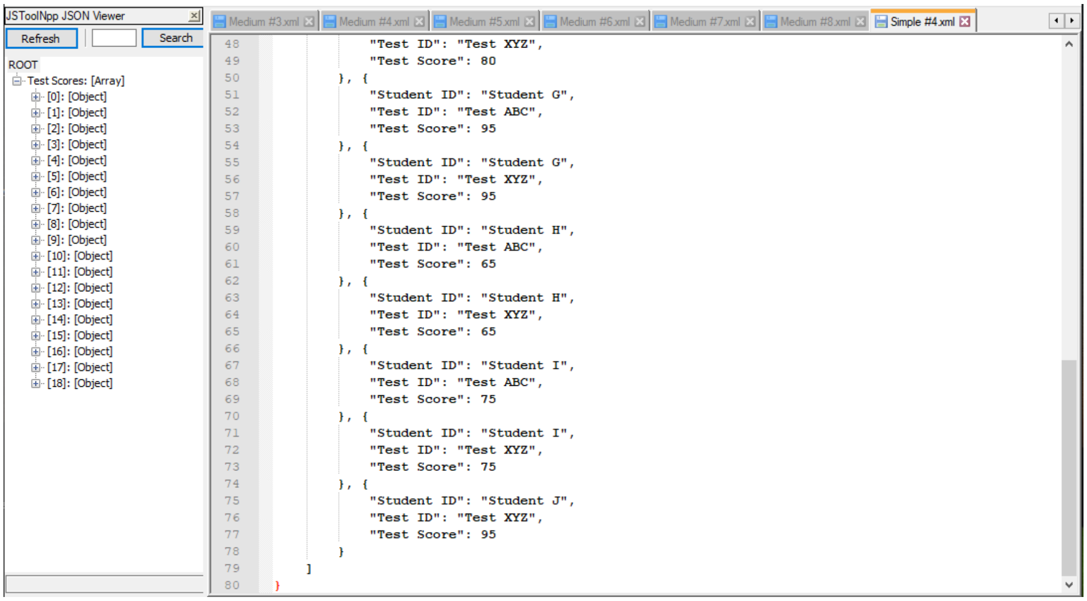
```sql
USE Northwinds2020TSQLV6;

SELECT SS.studentid AS 'Student ID'
        ,SS.TestId AS 'Test ID'
        ,SS.TestScore AS 'Test Score'
FROM Stats.Test AS ST
INNER JOIN Stats.Score AS SS ON ST.TestId = SS.TestId
ORDER BY SS.studentid
        ,[Test ID];
```

Output



	Student ID	Test ID	Test Score
1	Student A	Test ABC	95
2	Student A	Test XYZ	95
3	Student B	Test ABC	80
4	Student B	Test XYZ	80
5	Student C	Test ABC	55
6	Student C	Test XYZ	55
7	Student D	Test ABC	55
8	Student D	Test XYZ	55
9	Student E	Test ABC	50
10	Student E	Test XYZ	50
11	Student F	Test ABC	80
12	Student F	Test XYZ	80
13	Student G	Test ABC	95
14	Student G	Test XYZ	95
15	Student H	Test ABC	65
16	Student H	Test XYZ	65
17	Student I	Test ABC	75
18	Student I	Test XYZ	75
19	Student J	Test XYZ	95

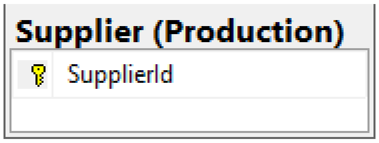
Query executed successfully. | localhost, 12001 (15.0 RTM) | sa (56) | Northwinds2020TSQLV6 | 00:00:00 | 19 rows



```json
                "Test ID": "Test XYZ",
                "Test Score": 80
            }, {
                "Student ID": "Student G",
                "Test ID": "Test ABC",
                "Test Score": 95
            }, {
                "Student ID": "Student G",
                "Test ID": "Test XYZ",
                "Test Score": 95
            }, {
                "Student ID": "Student H",
                "Test ID": "Test ABC",
                "Test Score": 65
            }, {
                "Student ID": "Student H",
                "Test ID": "Test XYZ",
                "Test Score": 65
            }, {
                "Student ID": "Student I",
                "Test ID": "Test ABC",
                "Test Score": 75
            }, {
                "Student ID": "Student I",
                "Test ID": "Test XYZ",
                "Test Score": 75
            }, {
                "Student ID": "Student J",
                "Test ID": "Test XYZ",
                "Test Score": 95
            }
    ]
}
```

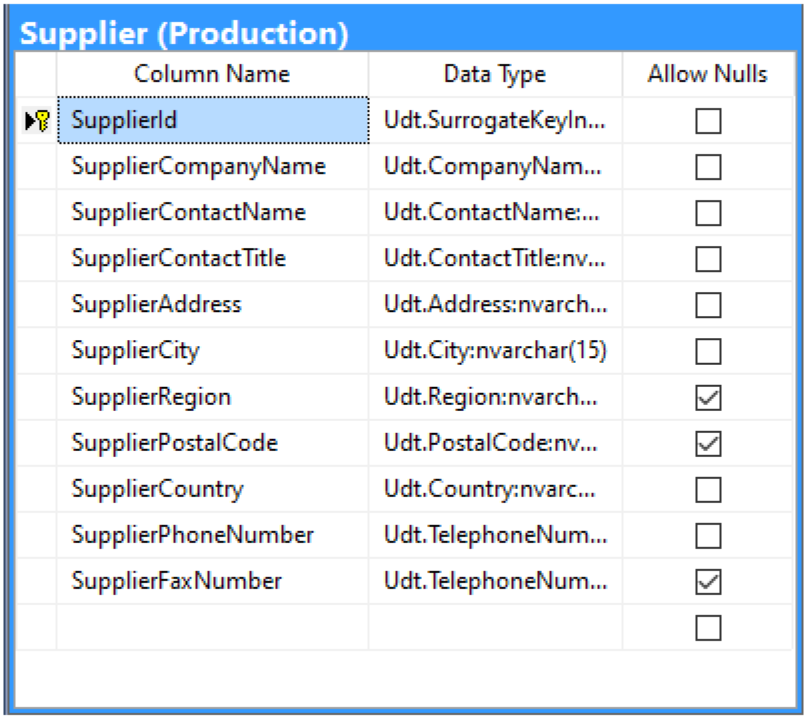
Proposition #5 (Simple)

Display for each supplier, their name, id, and phone number



Supplier (Production)

SupplierId



Supplier (Production)

Column Name	Data Type	Allow Nulls
SupplierId	Udt.SurrogateKeyIn...	□
SupplierCompanyName	Udt.CompanyNam...	□
SupplierContactName	Udt.ContactName:...	□
SupplierContactTitle	Udt.ContactTitle:nv...	□
SupplierAddress	Udt.Address:nvarch...	□
SupplierCity	Udt.City:nvarchar(15)	□
SupplierRegion	Udt.Region:nvarch...	☑
SupplierPostalCode	Udt.PostalCode:nv...	☑
SupplierCountry	Udt.Country:nvarc...	□
SupplierPhoneNumber	Udt.TelephoneNum...	□
SupplierFaxNumber	Udt.TelephoneNum...	☑
		□

Columns from Tables

Table Name	Column Name
Supplier	SupplierCompanyName, SupplierId, SupplierPhoneNumber

Order By

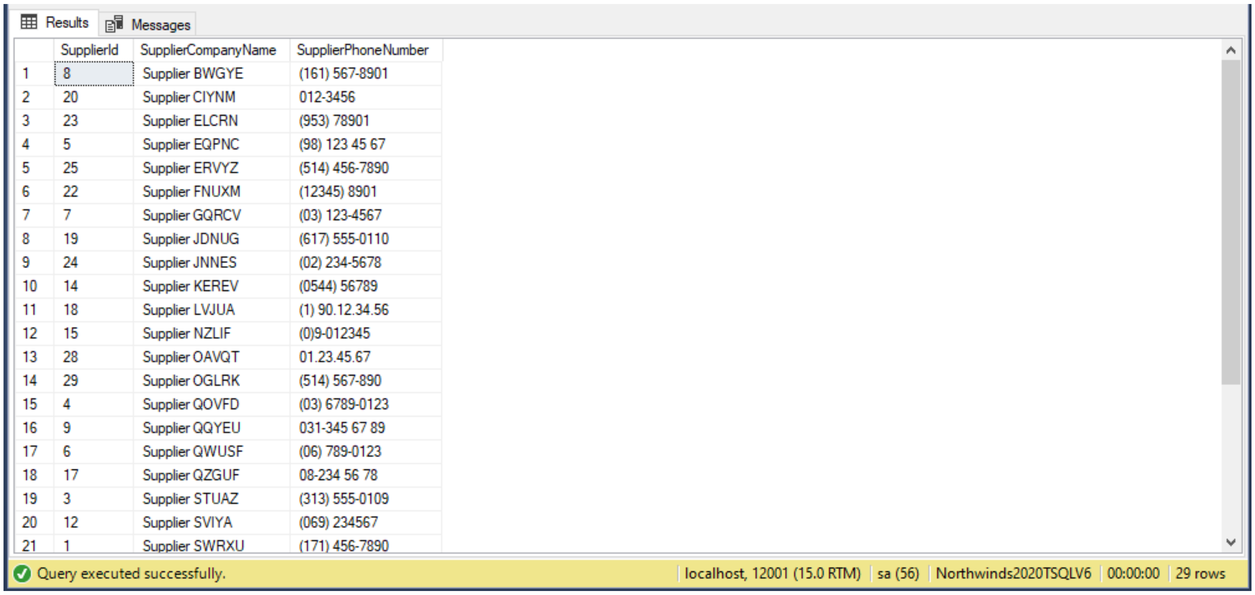
Table Name	Column Name	Sort Order
Supplier	SupplierCOmpnayName	ASC

Solution Query

```
USE AdventureWorks2017;

SELECT SupplierId
        ,SupplierCompanyName
        ,SupplierPhoneNumber
FROM Production.Supplier
```

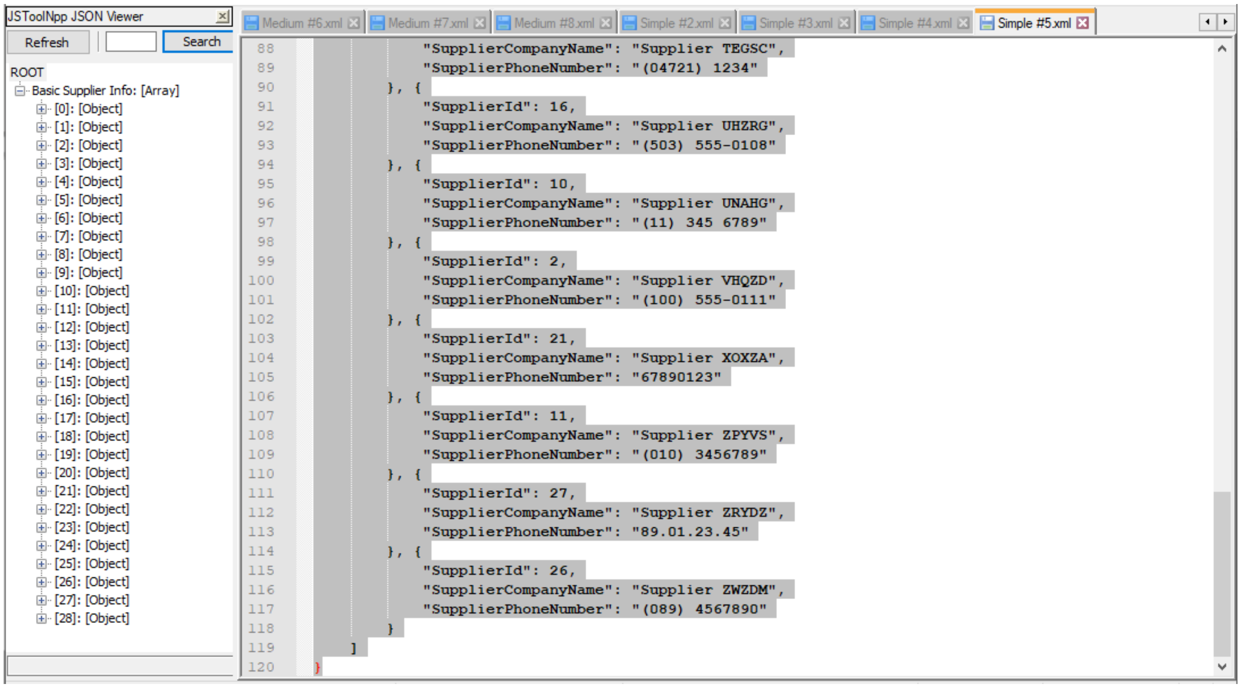
```sql
ORDER BY SupplierCompanyName;
```

Output



	SupplierId	SupplierCompanyName	SupplierPhoneNumber
1	8	Supplier BWGYE	(161) 567-8901
2	20	Supplier CIYNM	012-3456
3	23	Supplier ELCRN	(953) 78901
4	5	Supplier EQPNC	(98) 123 45 67
5	25	Supplier ERVYZ	(514) 456-7890
6	22	Supplier FNUXM	(12345) 8901
7	7	Supplier GQRCV	(03) 123-4567
8	19	Supplier JDNUG	(617) 555-0110
9	24	Supplier JNNES	(02) 234-5678
10	14	Supplier KEREV	(0544) 56789
11	18	Supplier LVJUA	(1) 90.12.34.56
12	15	Supplier NZLIF	(0)9-012345
13	28	Supplier OAVQT	01.23.45.67
14	29	Supplier OGLRK	(514) 567-890
15	4	Supplier QOVFD	(03) 6789-0123
16	9	Supplier QQYEU	031-345 67 89
17	6	Supplier QWUSF	(06) 789-0123
18	17	Supplier QZGUF	08-234 56 78
19	3	Supplier STUAZ	(313) 555-0109
20	12	Supplier SVIYA	(069) 234567
21	1	Supplier SWRXU	(171) 456-7890

```
Query executed successfully.    localhost, 12001 (15.0 RTM) | sa (56) | Northwinds2020TSQLV6 | 00:00:00 | 29 rows
```

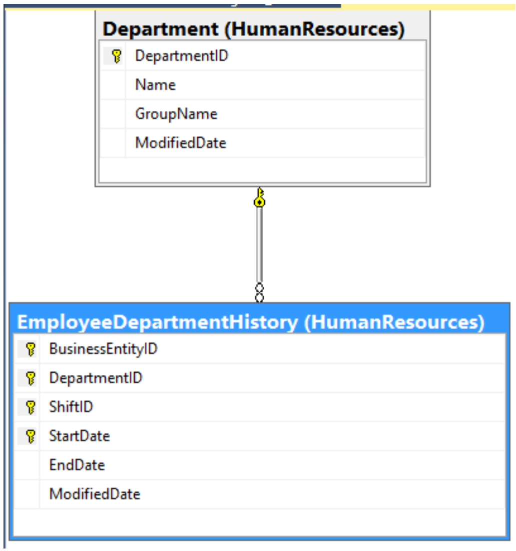


```
ROOT
 Basic Supplier Info: [Array]
   [0]: [Object]
   [1]: [Object]
   [2]: [Object]
   [3]: [Object]
   [4]: [Object]
   [5]: [Object]
   [6]: [Object]
   [7]: [Object]
   [8]: [Object]
   [9]: [Object]
   [10]: [Object]
   [11]: [Object]
   [12]: [Object]
   [13]: [Object]
   [14]: [Object]
   [15]: [Object]
   [16]: [Object]
   [17]: [Object]
   [18]: [Object]
   [19]: [Object]
   [20]: [Object]
   [21]: [Object]
   [22]: [Object]
   [23]: [Object]
   [24]: [Object]
   [25]: [Object]
   [26]: [Object]
   [27]: [Object]
   [28]: [Object]
```

```json
                "SupplierCompanyName": "Supplier TEGSC",
                "SupplierPhoneNumber": "(04721) 1234"
            }, {
                "SupplierId": 16,
                "SupplierCompanyName": "Supplier UHZRG",
                "SupplierPhoneNumber": "(503) 555-0108"
            }, {
                "SupplierId": 10,
                "SupplierCompanyName": "Supplier UNAHG",
                "SupplierPhoneNumber": "(11) 345 6789"
            }, {
                "SupplierId": 2,
                "SupplierCompanyName": "Supplier VHQZD",
                "SupplierPhoneNumber": "(100) 555-0111"
            }, {
                "SupplierId": 21,
                "SupplierCompanyName": "Supplier XOXZA",
                "SupplierPhoneNumber": "67890123"
            }, {
                "SupplierId": 11,
                "SupplierCompanyName": "Supplier ZPYVS",
                "SupplierPhoneNumber": "(010) 3456789"
            }, {
                "SupplierId": 27,
                "SupplierCompanyName": "Supplier ZRYDZ",
                "SupplierPhoneNumber": "89.01.23.45"
            }, {
                "SupplierId": 26,
                "SupplierCompanyName": "Supplier ZWZDM",
                "SupplierPhoneNumber": "(089) 4567890"
            }
        ]
}
```

Proposition #6 (Medium)

Display for each department: the department ID, the name of the department, the shift ID, and how many employees worked in that department during that shift

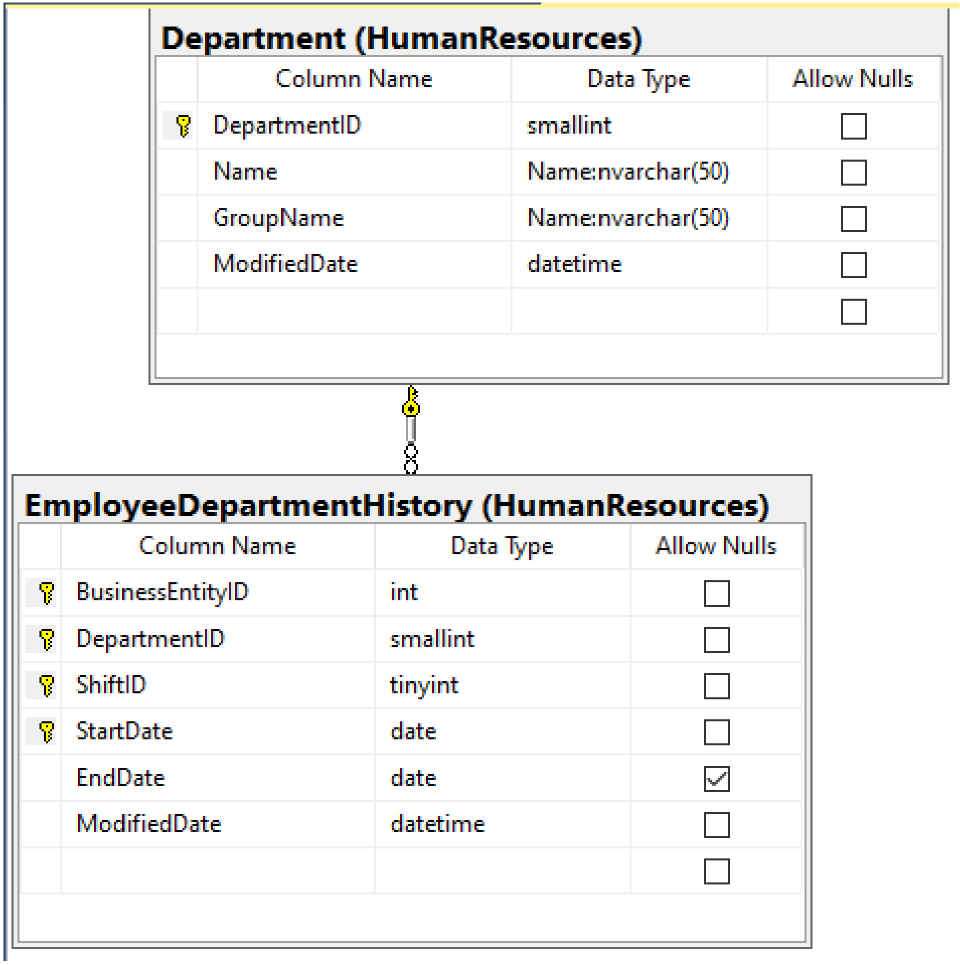


Department (HumanResources)

- DepartmentID
- Name
- GroupName
- ModifiedDate

EmployeeDepartmentHistory (HumanResources)

- BusinessEntityID
- DepartmentID
- ShiftID
- StartDate
- EndDate
- ModifiedDate



Department (HumanResources)

	Column Name	Data Type	Allow Nulls
🔑	DepartmentID	smallint	□
	Name	Name:nvarchar(50)	□
	GroupName	Name:nvarchar(50)	□
	ModifiedDate	datetime	□
			□

EmployeeDepartmentHistory (HumanResources)

	Column Name	Data Type	Allow Nulls
🔑	BusinessEntityID	int	□
🔑	DepartmentID	smallint	□
🔑	ShiftID	tinyint	□
🔑	StartDate	date	□
	EndDate	date	☑
	ModifiedDate	datetime	□
			□

Columns from Tables

Table Name	Column Name
Department	DepartmentName
EmployeeDepartmentHistory	DepartmentID, ShiftID

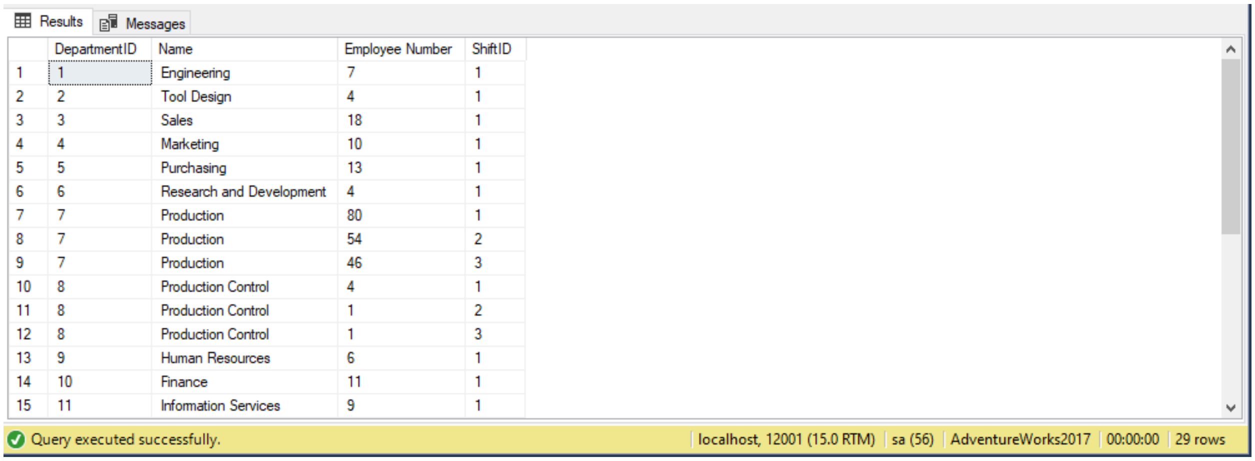
Order By

Table Name	Column Name	Sort Order
EmployeeDepartmentHistory	DepartmentID	ASC

Solution Query

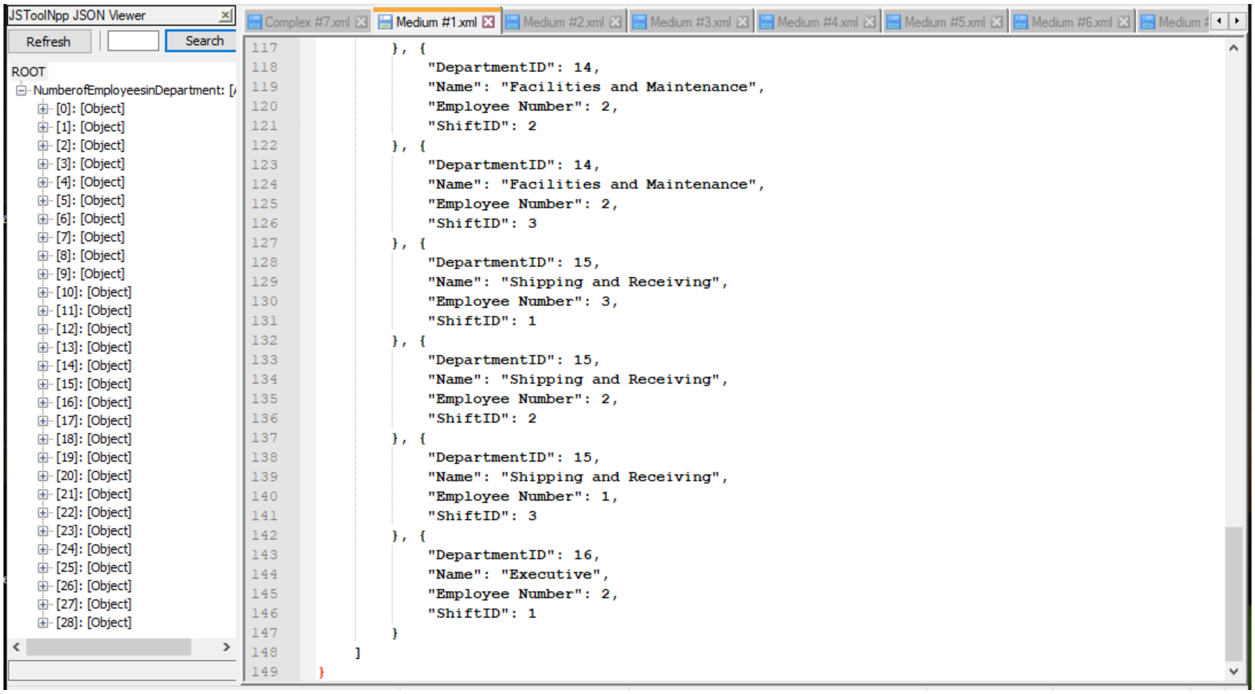
```
USE AdventureWorks2017;

SELECT HREDH.DepartmentID
        ,HRD.Name
        ,COUNT(HREDH.DepartmentID) AS 'Employee Number'
        ,HREDH.ShiftID
FROM HumanResources.Department AS HRD
INNER JOIN HumanResources.EmployeeDepartmentHistory AS HREDH ON
HRD.DepartmentID = HREDH.DepartmentID
GROUP BY HREDH.DepartmentID
        ,HREDH.ShiftID
        ,HRD.Name
ORDER BY HREDH.DepartmentID;
```

Output



	DepartmentID	Name	Employee Number	ShiftID
1	1	Engineering	7	1
2	2	Tool Design	4	1
3	3	Sales	18	1
4	4	Marketing	10	1
5	5	Purchasing	13	1
6	6	Research and Development	4	1
7	7	Production	80	1
8	7	Production	54	2
9	7	Production	46	3
10	8	Production Control	4	1
11	8	Production Control	1	2
12	8	Production Control	1	3
13	9	Human Resources	6	1
14	10	Finance	11	1
15	11	Information Services	9	1

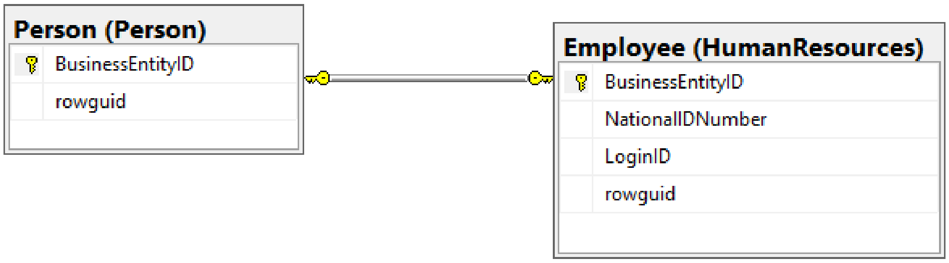
✓ Query executed successfully. | localhost, 12001 (15.0 RTM) | sa (56) | AdventureWorks2017 | 00:00:00 | 29 rows



```
        }, {
            "DepartmentID": 14,
            "Name": "Facilities and Maintenance",
            "Employee Number": 2,
            "ShiftID": 2
        }, {
            "DepartmentID": 14,
            "Name": "Facilities and Maintenance",
            "Employee Number": 2,
            "ShiftID": 3
        }, {
            "DepartmentID": 15,
            "Name": "Shipping and Receiving",
            "Employee Number": 3,
            "ShiftID": 1
        }, {
            "DepartmentID": 15,
            "Name": "Shipping and Receiving",
            "Employee Number": 2,
            "ShiftID": 2
        }, {
            "DepartmentID": 15,
            "Name": "Shipping and Receiving",
            "Employee Number": 1,
            "ShiftID": 3
        }, {
            "DepartmentID": 16,
            "Name": "Executive",
            "Employee Number": 2,
            "ShiftID": 1
        }
    ]
}
```

Proposition #7 (Medium)

Display for each employee that is not a buyer: their name (formatted with last name 1st), and their job title

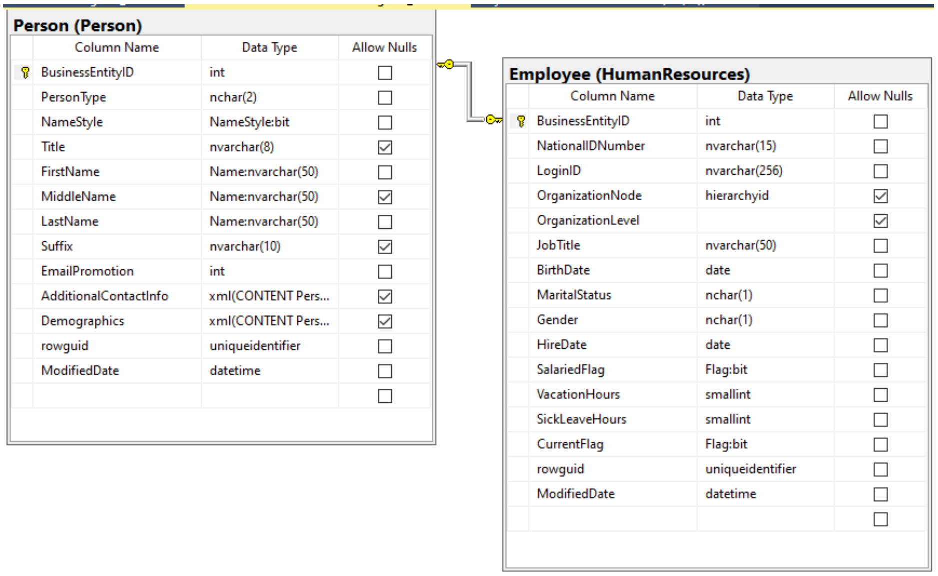


Person (Person)

- BusinessEntityID
- rowguid

Employee (HumanResources)

- BusinessEntityID
- NationalIDNumber
- LoginID
- rowguid



Person (Person)

Column Name	Data Type	Allow Nulls
BusinessEntityID	int	☐
PersonType	nchar(2)	☐
NameStyle	NameStyle:bit	☐
Title	nvarchar(8)	☑
FirstName	Name:nvarchar(50)	☐
MiddleName	Name:nvarchar(50)	☑
LastName	Name:nvarchar(50)	☐
Suffix	nvarchar(10)	☑
EmailPromotion	int	☐
AdditionalContactInfo	xml(CONTENT Pers...	☑
Demographics	xml(CONTENT Pers...	☑
rowguid	uniqueidentifier	☐
ModifiedDate	datetime	☐
		☐

Employee (HumanResources)

Column Name	Data Type	Allow Nulls
BusinessEntityID	int	☐
NationalIDNumber	nvarchar(15)	☐
LoginID	nvarchar(256)	☐
OrganizationNode	hierarchyid	☑
OrganizationLevel		☑
JobTitle	nvarchar(50)	☐
BirthDate	date	☐
MaritalStatus	nchar(1)	☐
Gender	nchar(1)	☐
HireDate	date	☐
SalariedFlag	Flag:bit	☐
VacationHours	smallint	☐
SickLeaveHours	smallint	☐
CurrentFlag	Flag:bit	☐
rowguid	uniqueidentifier	☐
ModifiedDate	datetime	☐
		☐

Columns from Tables

Table Name	Column Name
Employee	JobTitle
Person	LastName, FirstName

Order By

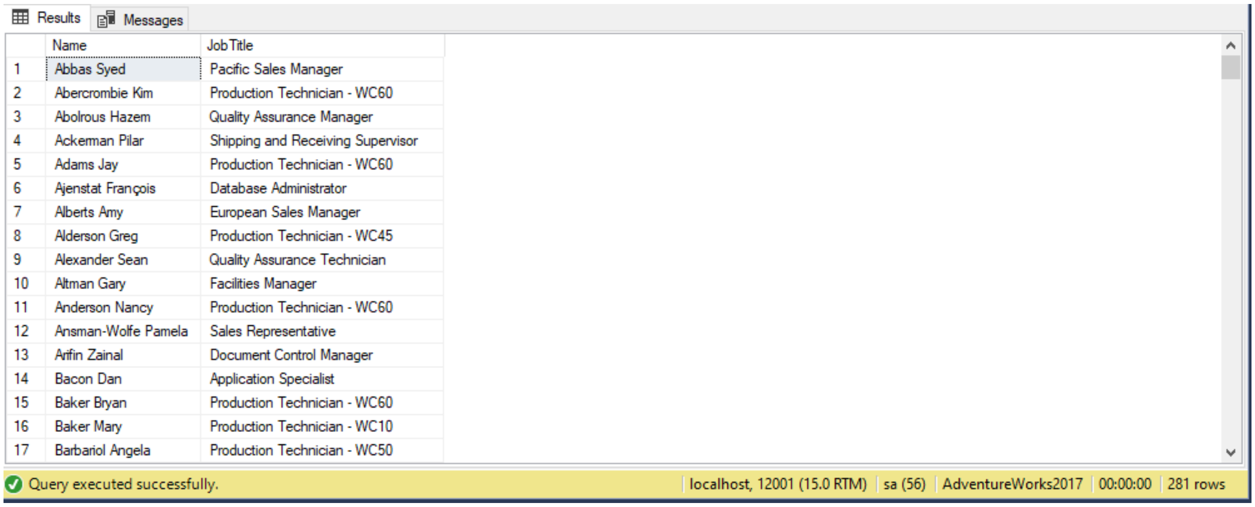
Table Name	Column Name	Sort Order
Employee	JobTitle	ASC

Solution Query

```
USE AdventureWorks2017;

SELECT CONCAT (
               PP.LastName
```

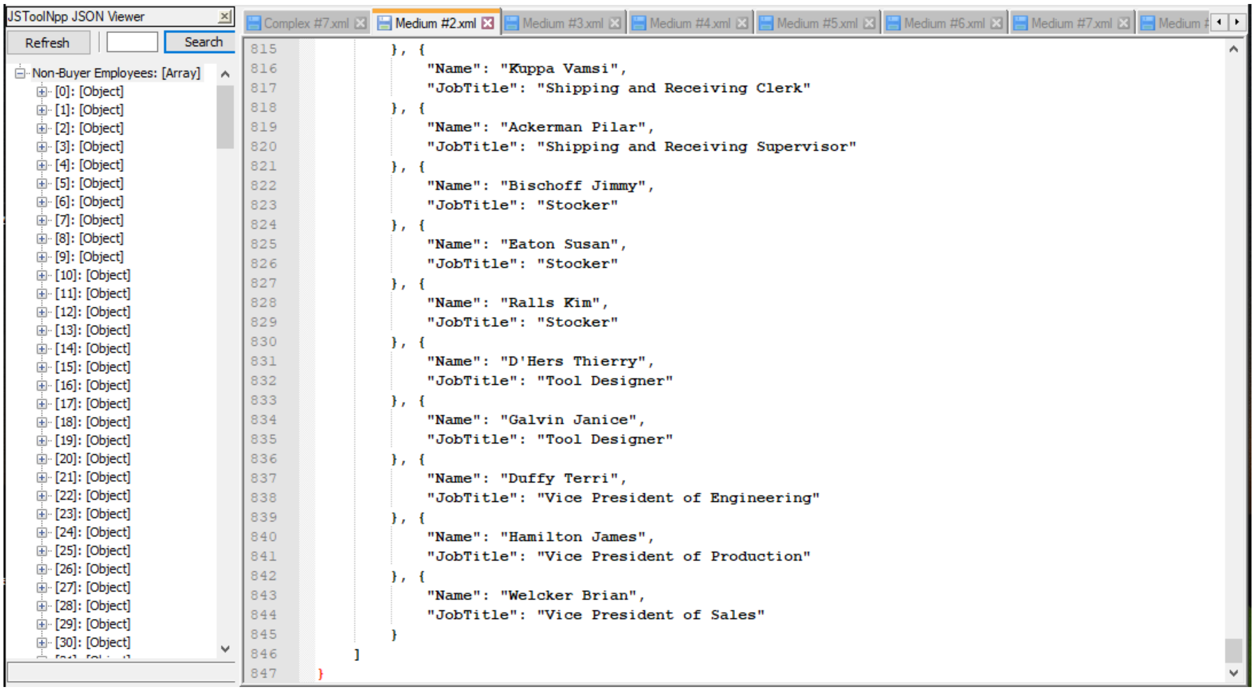
```
                ,' '
                ,PP.FirstName
                ) AS Name
        ,HRE.JobTitle
FROM HumanResources.Employee AS HRE
INNER JOIN Person.Person AS PP ON HRE.BusinessEntityID = PP.BusinessEntityID
WHERE HRE.JobTitle <> 'Buyer'
GROUP BY PP.LastName
        ,PP.FirstName
        ,HRE.JobTitle
ORDER BY HRE.JobTitle;
```

Output



	Name	JobTitle
1	Abbas Syed	Pacific Sales Manager
2	Abercrombie Kim	Production Technician - WC60
3	Abolrous Hazem	Quality Assurance Manager
4	Ackerman Pilar	Shipping and Receiving Supervisor
5	Adams Jay	Production Technician - WC60
6	Ajenstat François	Database Administrator
7	Alberts Amy	European Sales Manager
8	Alderson Greg	Production Technician - WC45
9	Alexander Sean	Quality Assurance Technician
10	Altman Gary	Facilities Manager
11	Anderson Nancy	Production Technician - WC60
12	Ansman-Wolfe Pamela	Sales Representative
13	Arifin Zainal	Document Control Manager
14	Bacon Dan	Application Specialist
15	Baker Bryan	Production Technician - WC60
16	Baker Mary	Production Technician - WC10
17	Barbariol Angela	Production Technician - WC50

Query executed successfully. | localhost, 12001 (15.0 RTM) | sa (56) | AdventureWorks2017 | 00:00:00 | 281 rows

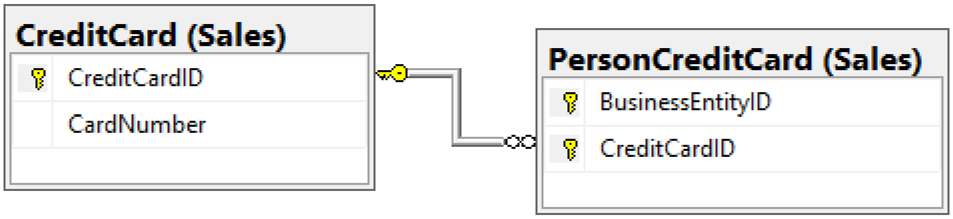


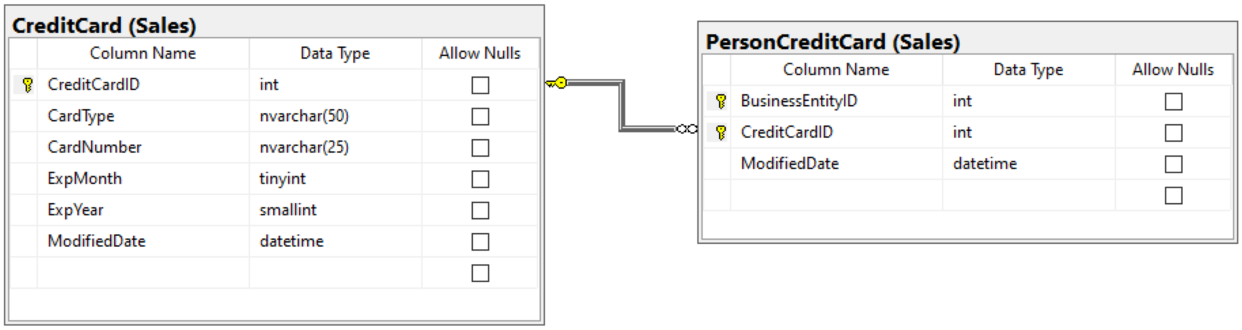
```
Non-Buyer Employees: [Array]
    [0]: [Object]
    [1]: [Object]
    [2]: [Object]
    [3]: [Object]
    [4]: [Object]
    [5]: [Object]
    [6]: [Object]
    [7]: [Object]
    [8]: [Object]
    [9]: [Object]
    [10]: [Object]
    [11]: [Object]
    [12]: [Object]
    [13]: [Object]
    [14]: [Object]
    [15]: [Object]
    [16]: [Object]
    [17]: [Object]
    [18]: [Object]
    [19]: [Object]
    [20]: [Object]
    [21]: [Object]
    [22]: [Object]
    [23]: [Object]
    [24]: [Object]
    [25]: [Object]
    [26]: [Object]
    [27]: [Object]
    [28]: [Object]
    [29]: [Object]
    [30]: [Object]
```

```
        }, {
            "Name": "Kuppa Vamsi",
            "JobTitle": "Shipping and Receiving Clerk"
        }, {
            "Name": "Ackerman Pilar",
            "JobTitle": "Shipping and Receiving Supervisor"
        }, {
            "Name": "Bischoff Jimmy",
            "JobTitle": "Stocker"
        }, {
            "Name": "Eaton Susan",
            "JobTitle": "Stocker"
        }, {
            "Name": "Ralls Kim",
            "JobTitle": "Stocker"
        }, {
            "Name": "D'Hers Thierry",
            "JobTitle": "Tool Designer"
        }, {
            "Name": "Galvin Janice",
            "JobTitle": "Tool Designer"
        }, {
            "Name": "Duffy Terri",
            "JobTitle": "Vice President of Engineering"
        }, {
            "Name": "Hamilton James",
            "JobTitle": "Vice President of Production"
        }, {
            "Name": "Welcker Brian",
            "JobTitle": "Vice President of Sales"
        }
    ]
}
```

Proposition #8 (Medium)

Display for each credit card company the number of cards that expired in 2008 with the last date it was modified not being in 2011.





CreditCard (Sales)

Column Name	Data Type	Allow Nulls
CreditCardID	int	☐
CardType	nvarchar(50)	☐
CardNumber	nvarchar(25)	☐
ExpMonth	tinyint	☐
ExpYear	smallint	☐
ModifiedDate	datetime	☐
		☐

PersonCreditCard (Sales)

Column Name	Data Type	Allow Nulls
BusinessEntityID	int	☐
CreditCardID	int	☐
ModifiedDate	datetime	☐
		☐

Columns from Tables

Table Name	Column Name
CreditCard	CardType, COUNT(CardType) AS number of cards expired

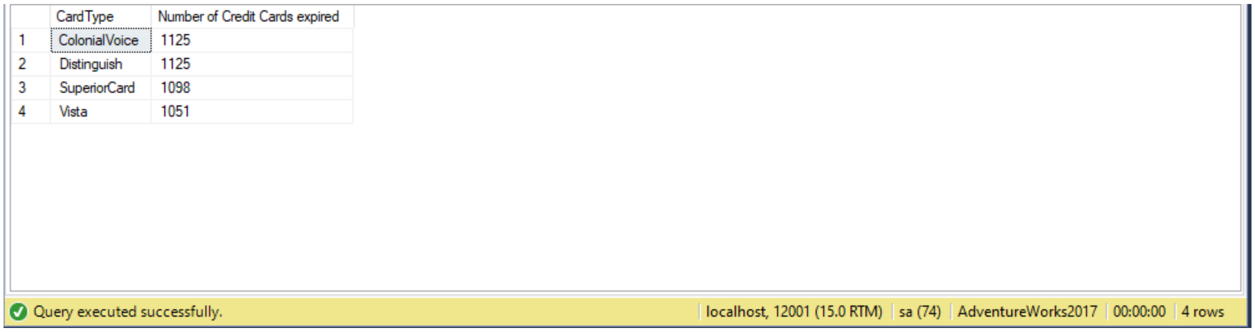
Order By

Table Name	Column Name	Sort Order
CreditCard	CardType	ASC

Solution Query

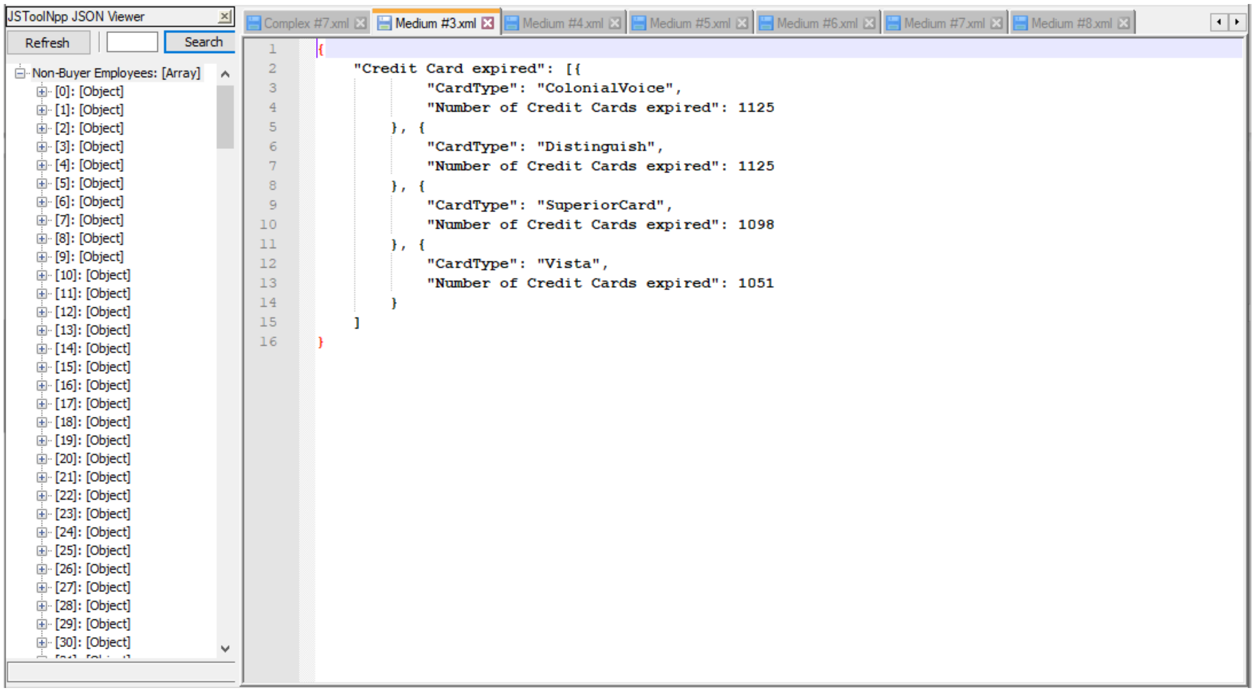
```
USE AdventureWorks2017

SELECT SCC.CardType
        ,COUNT(SCC.CardType) AS 'Number of Credit Cards expired'
FROM Sales.CreditCard AS SCC
INNER JOIN Sales.PersonCreditCard AS SPCC ON SCC.CreditCardID =
SPCC.CreditCardID
WHERE SCC.ExpYear = '2008'
       AND YEAR(SPCC.ModifiedDate) <> '2011'
GROUP BY SCC.CardType
        ,SCC.ExpYear
ORDER BY SCC.CardType ASC;
```

Output



	CardType	Number of Credit Cards expired
1	ColonialVoice	1125
2	Distinguish	1125
3	SuperiorCard	1098
4	Vista	1051

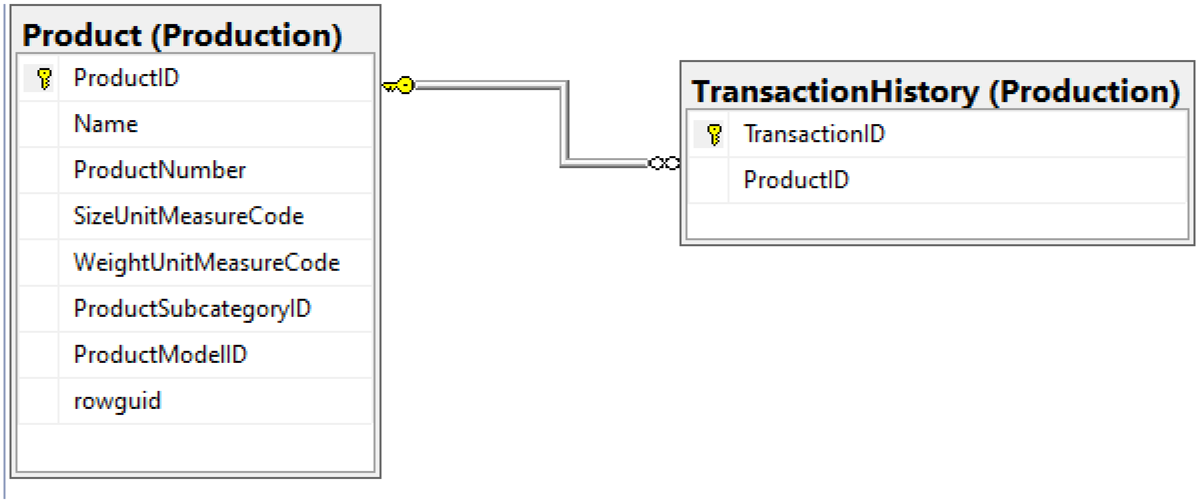
Query executed successfully. | localhost, 12001 (15.0 RTM) | sa (74) | AdventureWorks2017 | 00:00:00 | 4 rows



```
{
    "Credit Card expired": [{
            "CardType": "ColonialVoice",
            "Number of Credit Cards expired": 1125
        }, {
            "CardType": "Distinguish",
            "Number of Credit Cards expired": 1125
        }, {
            "CardType": "SuperiorCard",
            "Number of Credit Cards expired": 1098
        }, {
            "CardType": "Vista",
            "Number of Credit Cards expired": 1051
        }
    ]
}
```

Proposition #9 (Medium)

Display for each product: the product ID, the total number of that product sold, and the name of that product

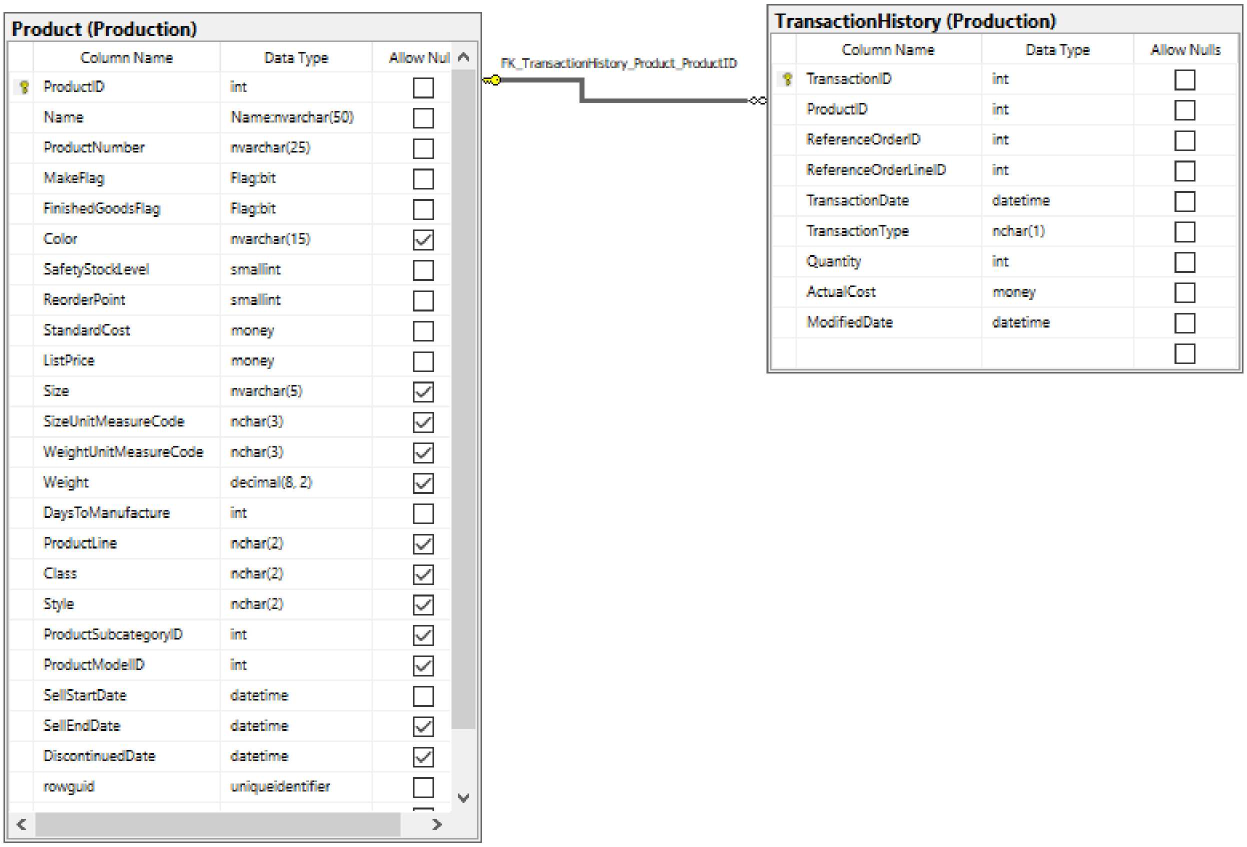


Product (Production)

- ProductID
- Name
- ProductNumber
- SizeUnitMeasureCode
- WeightUnitMeasureCode
- ProductSubcategoryID
- ProductModelID
- rowguid

TransactionHistory (Production)

- TransactionID
- ProductID



Product (Production)

	Column Name	Data Type	Allow Nul
🔑	ProductID	int	□
	Name	Name:nvarchar(50)	□
	ProductNumber	nvarchar(25)	□
	MakeFlag	Flag:bit	□
	FinishedGoodsFlag	Flag:bit	□
	Color	nvarchar(15)	☑
	SafetyStockLevel	smallint	□
	ReorderPoint	smallint	□
	StandardCost	money	□
	ListPrice	money	□
	Size	nvarchar(5)	☑
	SizeUnitMeasureCode	nchar(3)	☑
	WeightUnitMeasureCode	nchar(3)	☑
	Weight	decimal(8, 2)	☑
	DaysToManufacture	int	□
	ProductLine	nchar(2)	☑
	Class	nchar(2)	☑
	Style	nchar(2)	☑
	ProductSubcategoryID	int	☑
	ProductModelID	int	☑
	SellStartDate	datetime	□
	SellEndDate	datetime	☑
	DiscontinuedDate	datetime	☑
	rowguid	uniqueidentifier	□

TransactionHistory (Production)

	Column Name	Data Type	Allow Nulls
🔑	TransactionID	int	□
	ProductID	int	□
	ReferenceOrderID	int	□
	ReferenceOrderLineID	int	□
	TransactionDate	datetime	□
	TransactionType	nchar(1)	□
	Quantity	int	□
	ActualCost	money	□
	ModifiedDate	datetime	□
			□

Columns from Tables

Table Name	Column Name
TransactionHistory	ProductID
Product	COUNT(PP.ProductID) AS Number of Items sold, ProductName

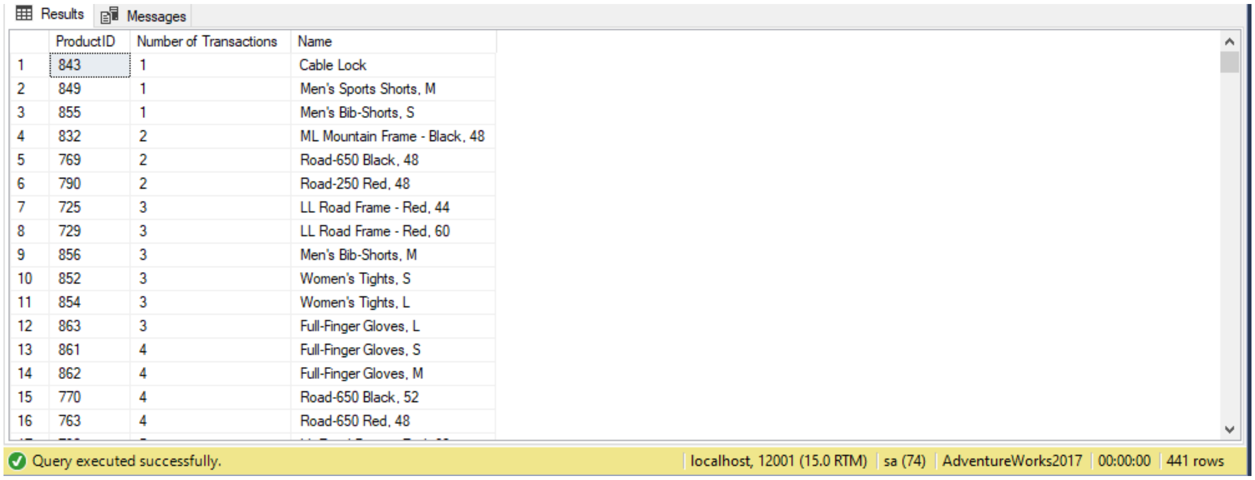
Order By

Table Name	Column Name	Sort Order
Product	Number of Items Sold	ASC

Solution Query

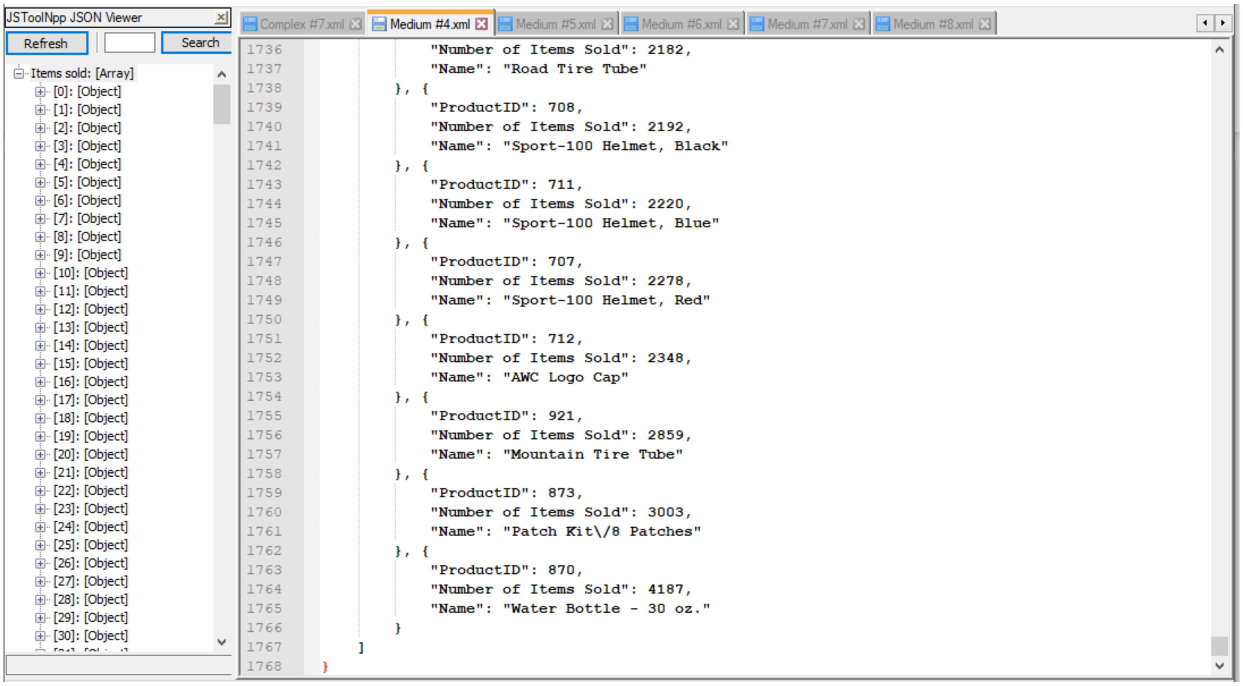
```
USE AdventureWorks2017

SELECT PTH.ProductID,
       COUNT(PP.ProductID) AS 'Number of Items Sold',
       PP.Name
FROM Production.Product AS PP
    INNER JOIN Production.TransactionHistory AS PTH
        ON PP.ProductID = PTH.ProductID
GROUP BY PTH.ProductID,
         PP.Name
ORDER BY [Number of Items Sold];
```

Output



	ProductID	Number of Transactions	Name
1	843	1	Cable Lock
2	849	1	Men's Sports Shorts, M
3	855	1	Men's Bib-Shorts, S
4	832	2	ML Mountain Frame - Black, 48
5	769	2	Road-650 Black, 48
6	790	2	Road-250 Red, 48
7	725	3	LL Road Frame - Red, 44
8	729	3	LL Road Frame - Red, 60
9	856	3	Men's Bib-Shorts, M
10	852	3	Women's Tights, S
11	854	3	Women's Tights, L
12	863	3	Full-Finger Gloves, L
13	861	4	Full-Finger Gloves, S
14	862	4	Full-Finger Gloves, M
15	770	4	Road-650 Black, 52
16	763	4	Road-650 Red, 48

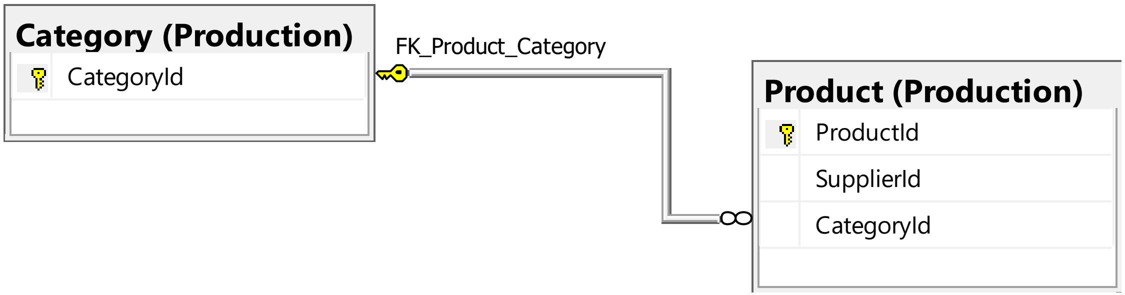
Query executed successfully. | localhost, 12001 (15.0 RTM) | sa (74) | AdventureWorks2017 | 00:00:00 | 441 rows

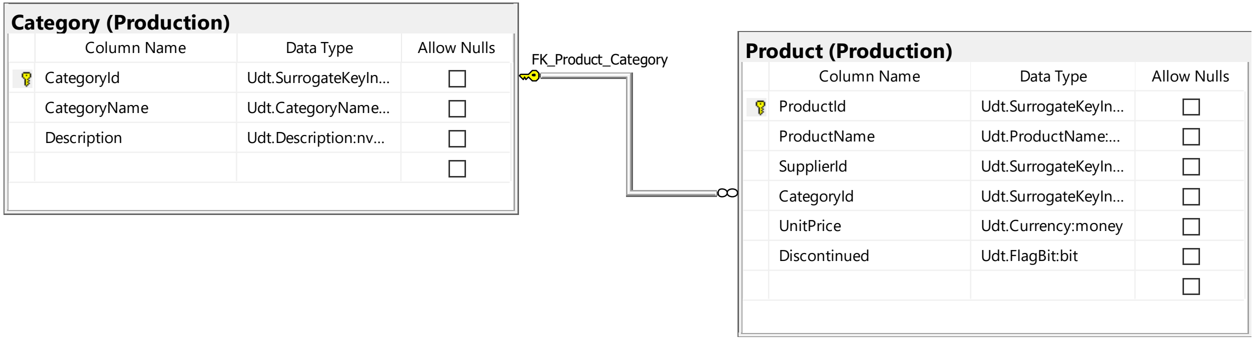


```
            "Number of Items Sold": 2182,
            "Name": "Road Tire Tube"
        }, {
            "ProductID": 708,
            "Number of Items Sold": 2192,
            "Name": "Sport-100 Helmet, Black"
        }, {
            "ProductID": 711,
            "Number of Items Sold": 2220,
            "Name": "Sport-100 Helmet, Blue"
        }, {
            "ProductID": 707,
            "Number of Items Sold": 2278,
            "Name": "Sport-100 Helmet, Red"
        }, {
            "ProductID": 712,
            "Number of Items Sold": 2348,
            "Name": "AWC Logo Cap"
        }, {
            "ProductID": 921,
            "Number of Items Sold": 2859,
            "Name": "Mountain Tire Tube"
        }, {
            "ProductID": 873,
            "Number of Items Sold": 3003,
            "Name": "Patch Kit\/8 Patches"
        }, {
            "ProductID": 870,
            "Number of Items Sold": 4187,
            "Name": "Water Bottle - 30 oz."
        }
    ]
}
```

Proposition #10 (Medium)

Display for each category: the number of products it contains, the category name, and the description of the category





Category (Production)

	Column Name	Data Type	Allow Nulls
🔑	CategoryId	Udt.SurrogateKeyIn...	□
	CategoryName	Udt.CategoryName...	□
	Description	Udt.Description:nv...	□
			□

Product (Production)

	Column Name	Data Type	Allow Nulls
🔑	ProductId	Udt.SurrogateKeyIn...	□
	ProductName	Udt.ProductName:...	□
	SupplierId	Udt.SurrogateKeyIn...	□
	CategoryId	Udt.SurrogateKeyIn...	□
	UnitPrice	Udt.Currency:money	□
	Discontinued	Udt.FlagBit:bit	□
			□

Columns from Tables

Table Name	Column Name
Category	CategoryName, Description
Product	COUNT(ProductId) AS Number of Products in this category

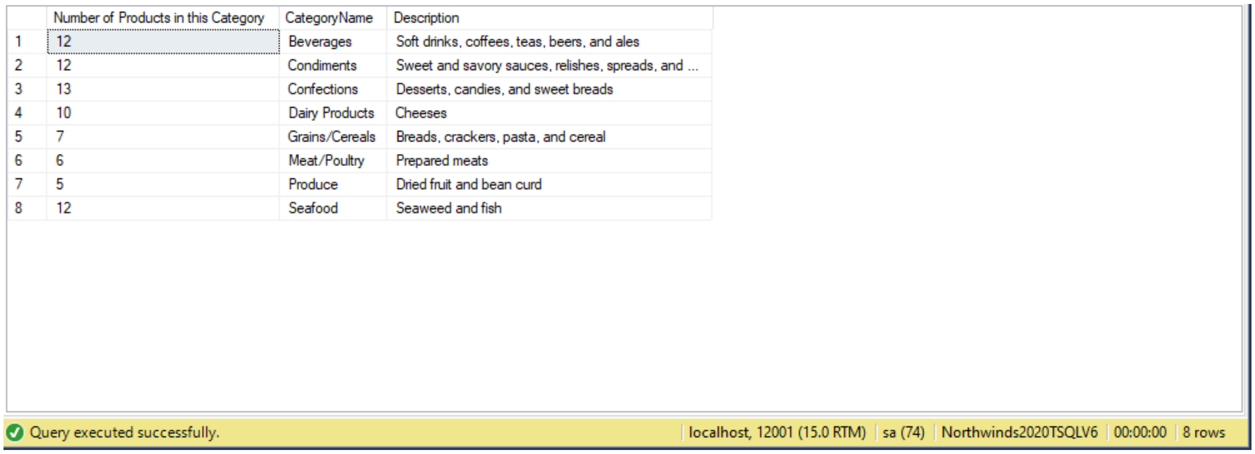
Order By

Table Name	Column Name	Sort Order
Category	CategoryName	ASC

Solution Query

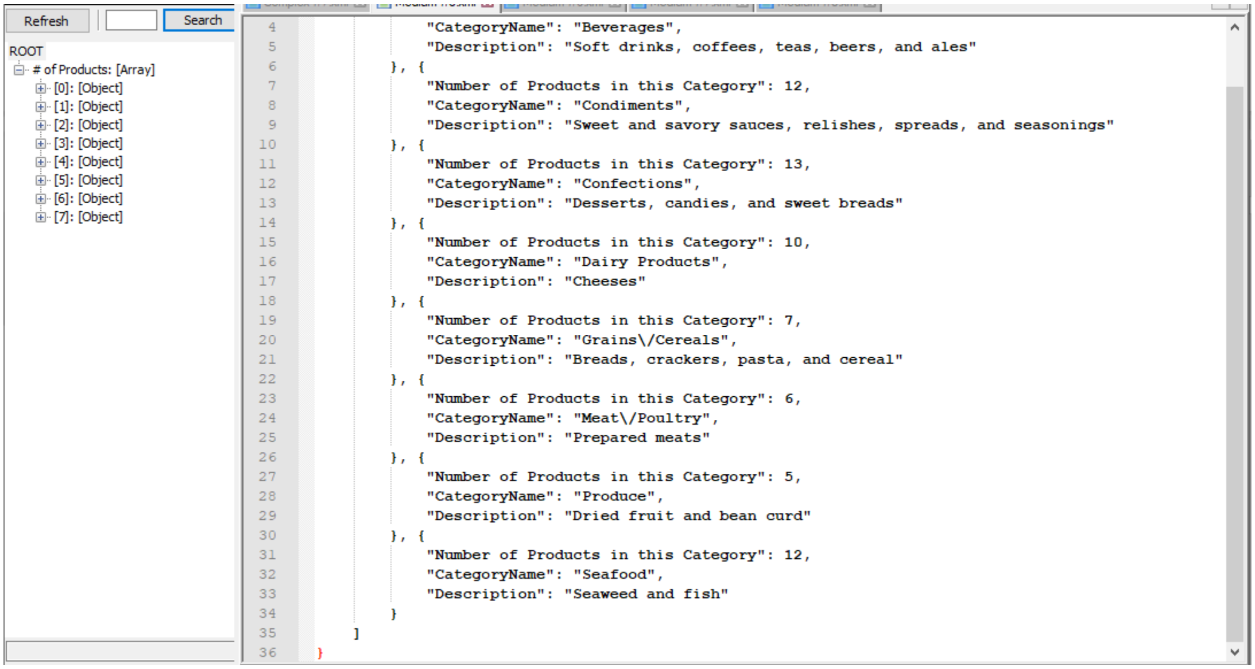
```
USE Northwinds2020TSQLV6;

SELECT COUNT(PP.CategoryId) AS 'Number of Products in this Category'
        ,PC.CategoryName
        ,PC.Description
FROM Production.Product AS PP
INNER JOIN Production.Category AS PC ON PP.CategoryId = PC.CategoryId
GROUP BY PC.CategoryName
        ,PC.Description
ORDER BY PC.CategoryName;
```

Output



	Number of Products in this Category	CategoryName	Description
1	12	Beverages	Soft drinks, coffees, teas, beers, and ales
2	12	Condiments	Sweet and savory sauces, relishes, spreads, and ...
3	13	Confections	Desserts, candies, and sweet breads
4	10	Dairy Products	Cheeses
5	7	Grains/Cereals	Breads, crackers, pasta, and cereal
6	6	Meat/Poultry	Prepared meats
7	5	Produce	Dried fruit and bean curd
8	12	Seafood	Seaweed and fish

Query executed successfully. | localhost, 12001 (15.0 RTM) | sa (74) | Northwinds2020TSQLV6 | 00:00:00 | 8 rows

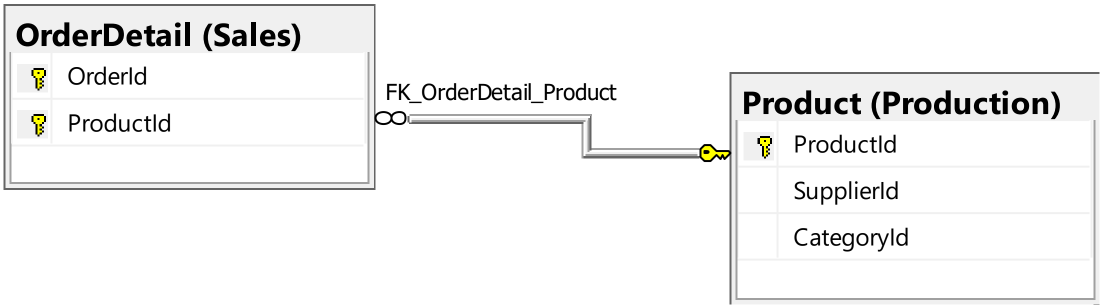


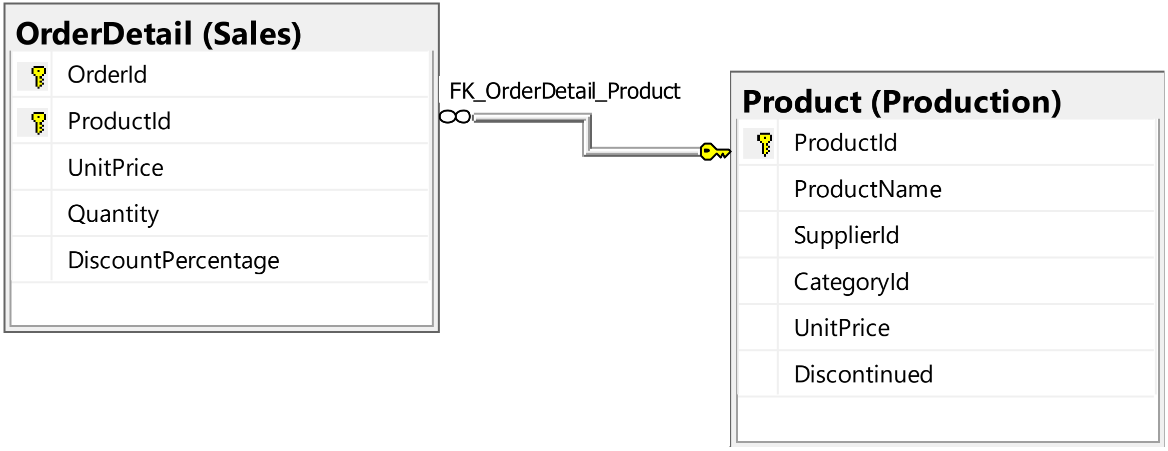
ROOT
# of Products: [Array]
[0]: [Object]
[1]: [Object]
[2]: [Object]
[3]: [Object]
[4]: [Object]
[5]: [Object]
[6]: [Object]
[7]: [Object]

```
            "CategoryName": "Beverages",
            "Description": "Soft drinks, coffees, teas, beers, and ales"
        }, {
            "Number of Products in this Category": 12,
            "CategoryName": "Condiments",
            "Description": "Sweet and savory sauces, relishes, spreads, and seasonings"
        }, {
            "Number of Products in this Category": 13,
            "CategoryName": "Confections",
            "Description": "Desserts, candies, and sweet breads"
        }, {
            "Number of Products in this Category": 10,
            "CategoryName": "Dairy Products",
            "Description": "Cheeses"
        }, {
            "Number of Products in this Category": 7,
            "CategoryName": "Grains\/Cereals",
            "Description": "Breads, crackers, pasta, and cereal"
        }, {
            "Number of Products in this Category": 6,
            "CategoryName": "Meat\/Poultry",
            "Description": "Prepared meats"
        }, {
            "Number of Products in this Category": 5,
            "CategoryName": "Produce",
            "Description": "Dried fruit and bean curd"
        }, {
            "Number of Products in this Category": 12,
            "CategoryName": "Seafood",
            "Description": "Seaweed and fish"
        }
    ]
}
```

Proposition #11 (Medium)

Display for each product: their ID, name, and price of that product.





Columns from Tables

Table Name	Column Name
Product	ProductName, UnitPrice
OrderDetails	ProductID

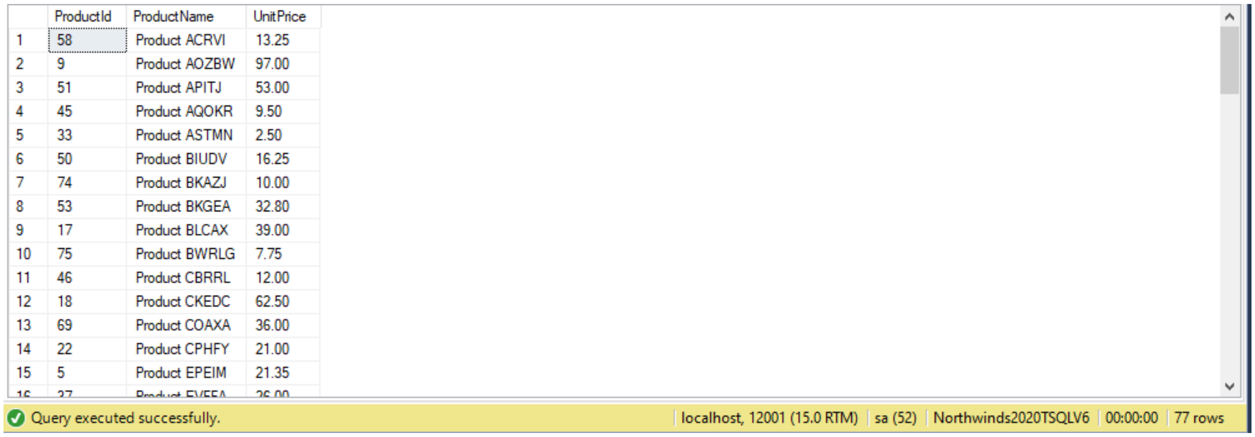
Order By

Table Name	Column Name	Sort Order
Product	ProductName	ASC

Solution Query

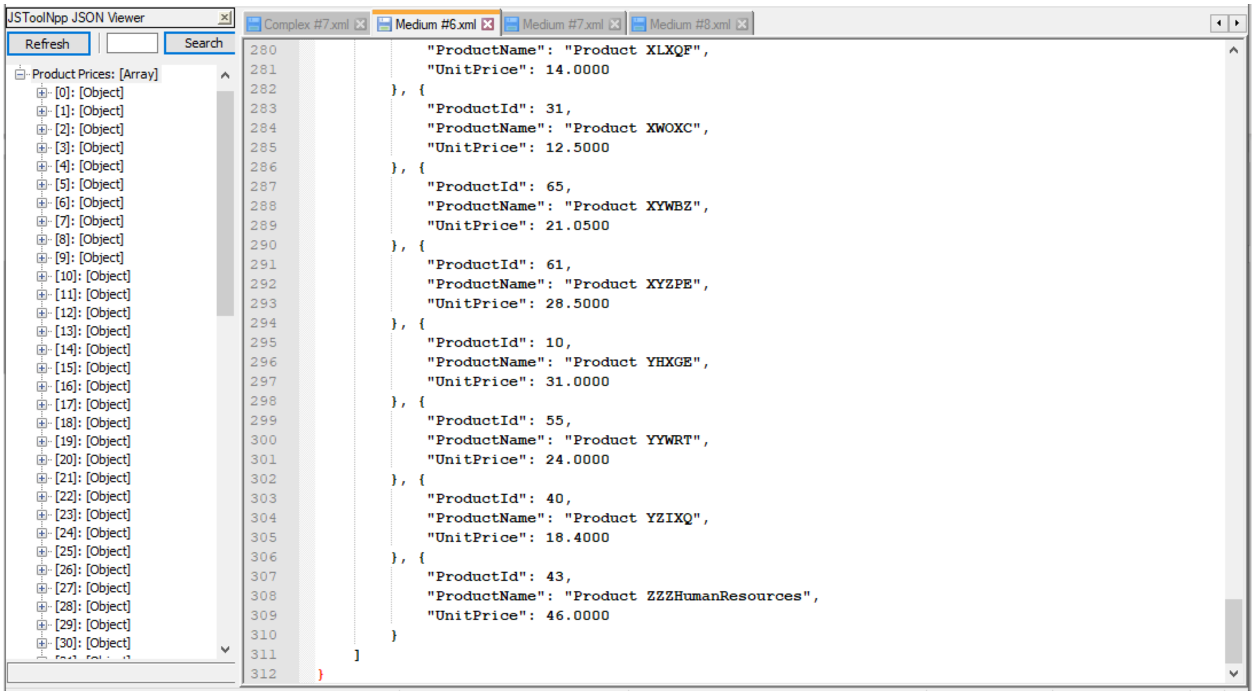
```
USE Northwinds2020TSQLV6;

SELECT SOD.ProductId
       ,PP.ProductName
       ,PP.UnitPrice
FROM Sales.OrderDetail AS SOD
INNER JOIN Production.Product AS PP ON SOD.ProductId = PP.ProductId
GROUP BY SOD.ProductId
       ,PP.ProductName
       ,PP.UnitPrice;
```

Output



	ProductId	ProductName	UnitPrice
1	58	Product ACRVI	13.25
2	9	Product AOZBW	97.00
3	51	Product APITJ	53.00
4	45	Product AQOKR	9.50
5	33	Product ASTMN	2.50
6	50	Product BIUDV	16.25
7	74	Product BKAZJ	10.00
8	53	Product BKGEA	32.80
9	17	Product BLCAX	39.00
10	75	Product BWRLG	7.75
11	46	Product CBRRL	12.00
12	18	Product CKEDC	62.50
13	69	Product COAXA	36.00
14	22	Product CPHFY	21.00
15	5	Product EPEIM	21.35
16	37	Product EVFFA	26.00

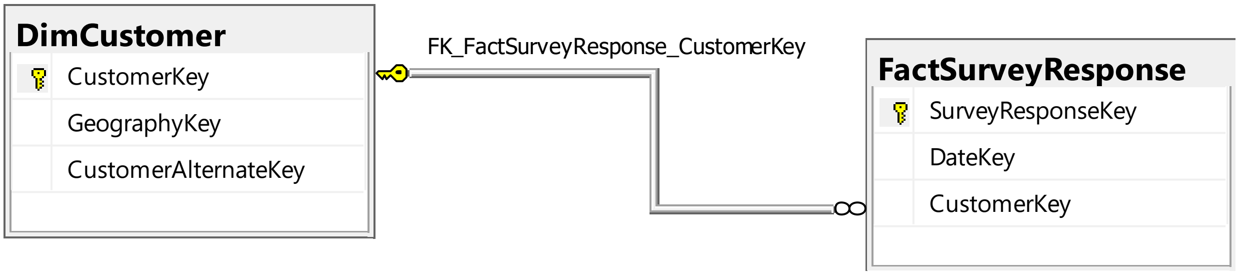
Query executed successfully. | localhost, 12001 (15.0 RTM) | sa (52) | Northwinds2020TSQLV6 | 00:00:00 | 77 rows



```
            "ProductName": "Product XLXQF",
            "UnitPrice": 14.0000
        }, {
            "ProductId": 31,
            "ProductName": "Product XWOXC",
            "UnitPrice": 12.5000
        }, {
            "ProductId": 65,
            "ProductName": "Product XYWBZ",
            "UnitPrice": 21.0500
        }, {
            "ProductId": 61,
            "ProductName": "Product XYZPE",
            "UnitPrice": 28.5000
        }, {
            "ProductId": 10,
            "ProductName": "Product YHXGE",
            "UnitPrice": 31.0000
        }, {
            "ProductId": 55,
            "ProductName": "Product YYWRT",
            "UnitPrice": 24.0000
        }, {
            "ProductId": 40,
            "ProductName": "Product YZIXQ",
            "UnitPrice": 18.4000
        }, {
            "ProductId": 43,
            "ProductName": "Product ZZZHumanResources",
            "UnitPrice": 46.0000
        }
    ]
}
```

Proposition #12 (Medium)

Display for each customer: their first and last name, and the date of their last survey response



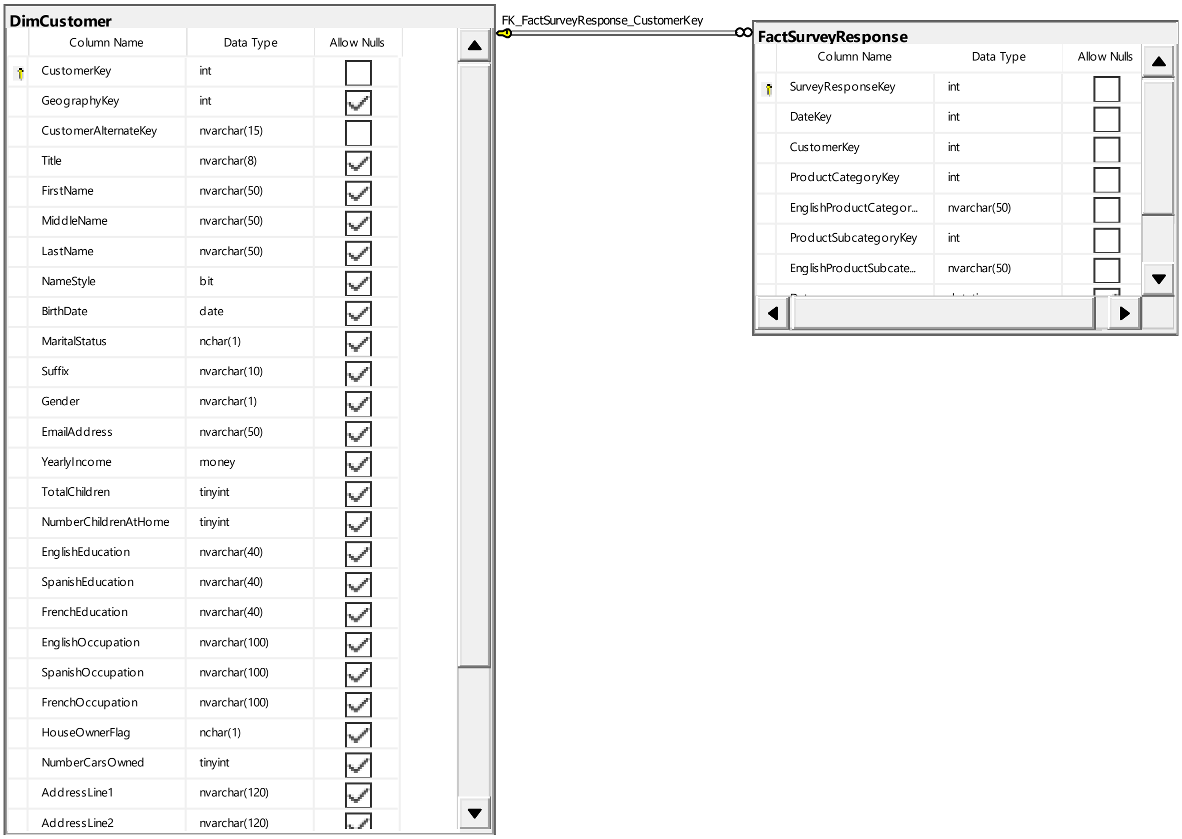
FK_FactSurveyResponse_CustomerKey

DimCustomer

- CustomerKey
- GeographyKey
- CustomerAlternateKey

FactSurveyResponse

- SurveyResponseKey
- DateKey
- CustomerKey



FK_FactSurveyResponse_CustomerKey

DimCustomer

Column Name	Data Type	Allow Nulls
CustomerKey	int	□
GeographyKey	int	☑
CustomerAlternateKey	nvarchar(15)	□
Title	nvarchar(8)	☑
FirstName	nvarchar(50)	☑
MiddleName	nvarchar(50)	☑
LastName	nvarchar(50)	☑
NameStyle	bit	☑
BirthDate	date	☑
MaritalStatus	nchar(1)	☑
Suffix	nvarchar(10)	☑
Gender	nvarchar(1)	☑
EmailAddress	nvarchar(50)	☑
YearlyIncome	money	☑
TotalChildren	tinyint	☑
NumberChildrenAtHome	tinyint	☑
EnglishEducation	nvarchar(40)	☑
SpanishEducation	nvarchar(40)	☑
FrenchEducation	nvarchar(40)	☑
EnglishOccupation	nvarchar(100)	☑
SpanishOccupation	nvarchar(100)	☑
FrenchOccupation	nvarchar(100)	☑
HouseOwnerFlag	nchar(1)	☑
NumberCarsOwned	tinyint	☑
AddressLine1	nvarchar(120)	☑
AddressLine2	nvarchar(120)	☑

FactSurveyResponse

Column Name	Data Type	Allow Nulls
SurveyResponseKey	int	□
DateKey	int	□
CustomerKey	int	□
ProductCategoryKey	int	□
EnglishProductCategor...	nvarchar(50)	□
ProductSubcategoryKey	int	□
EnglishProductSubcate...	nvarchar(50)	□

Columns from Tables

Table Name	Column Name
DimCustomer	FirstName, LastName
FactSurveyResponse	Date

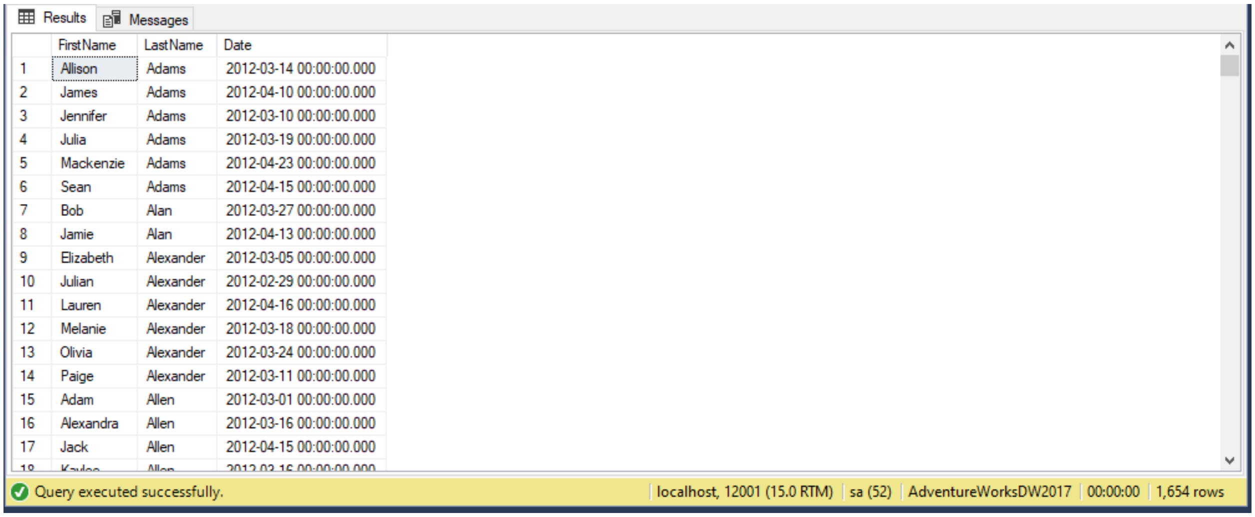
Order By

Table Name	Column Name	Sort Order
DimCustomer	LastName	ASC

Solution Query

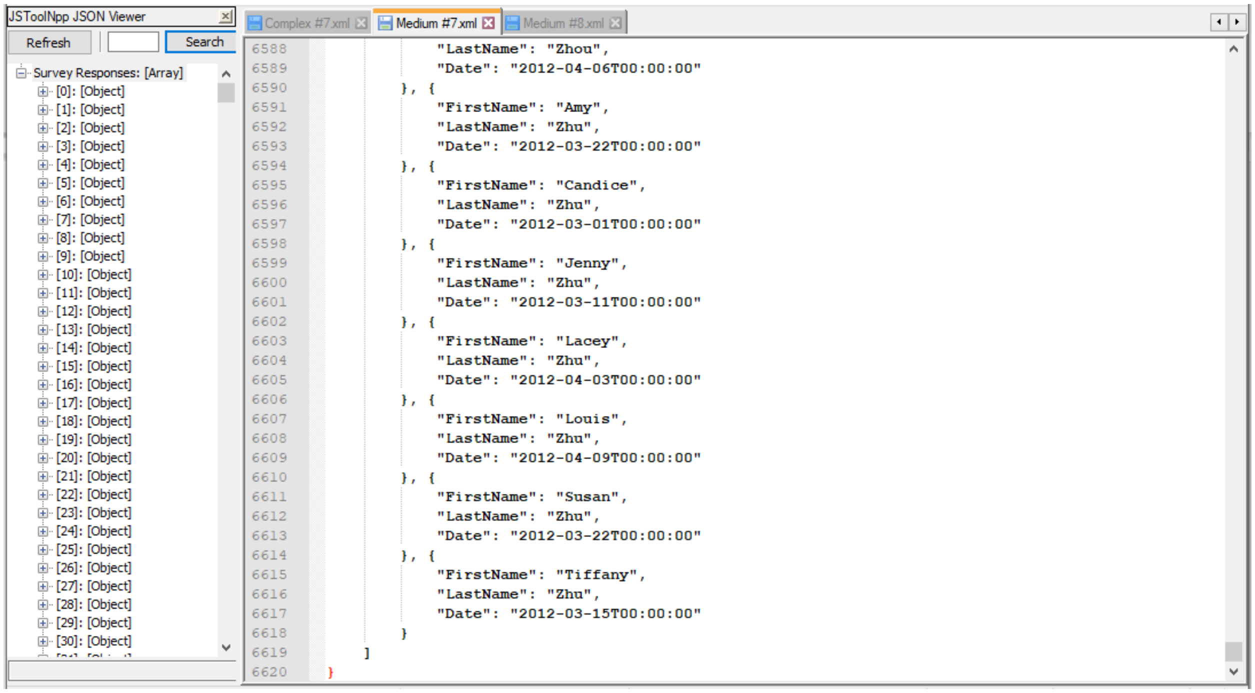
```
USE AdventureWorksDW2017;

SELECT DBC.FirstName
        ,DBC.LastName
        ,MAX(DFSR.DATE) AS DATE
FROM dbo.DimCustomer AS DBC
INNER JOIN dbo.FactSurveyResponse AS DFSR ON DBC.CustomerKey =
DFSR.CustomerKey
GROUP BY DBC.FirstName
        ,DBC.LastName
ORDER BY DBC.LastName;
```

Output



	FirstName	LastName	Date
1	Allison	Adams	2012-03-14 00:00:00.000
2	James	Adams	2012-04-10 00:00:00.000
3	Jennifer	Adams	2012-03-10 00:00:00.000
4	Julia	Adams	2012-03-19 00:00:00.000
5	Mackenzie	Adams	2012-04-23 00:00:00.000
6	Sean	Adams	2012-04-15 00:00:00.000
7	Bob	Alan	2012-03-27 00:00:00.000
8	Jamie	Alan	2012-04-13 00:00:00.000
9	Elizabeth	Alexander	2012-03-05 00:00:00.000
10	Julian	Alexander	2012-02-29 00:00:00.000
11	Lauren	Alexander	2012-04-16 00:00:00.000
12	Melanie	Alexander	2012-03-18 00:00:00.000
13	Olivia	Alexander	2012-03-24 00:00:00.000
14	Paige	Alexander	2012-03-11 00:00:00.000
15	Adam	Allen	2012-03-01 00:00:00.000
16	Alexandra	Allen	2012-03-16 00:00:00.000
17	Jack	Allen	2012-04-15 00:00:00.000
18	Kaylee	Allen	2012-03-16 00:00:00.000

```
Query executed successfully.    localhost, 12001 (15.0 RTM) | sa (52) | AdventureWorksDW2017 | 00:00:00 | 1,654 rows
```

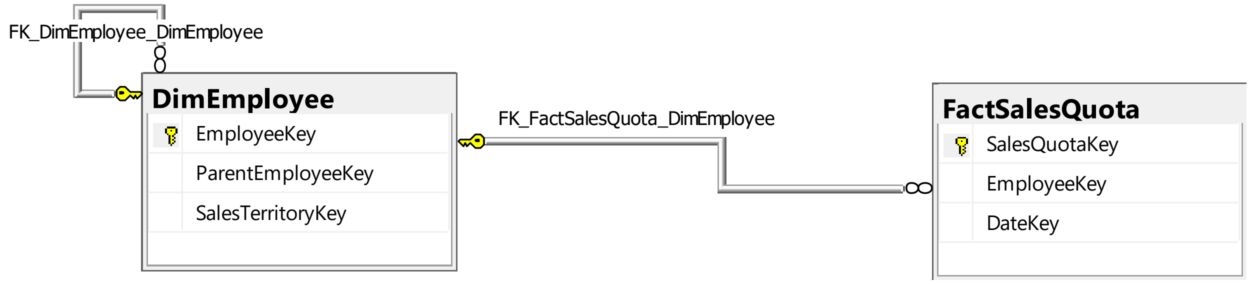


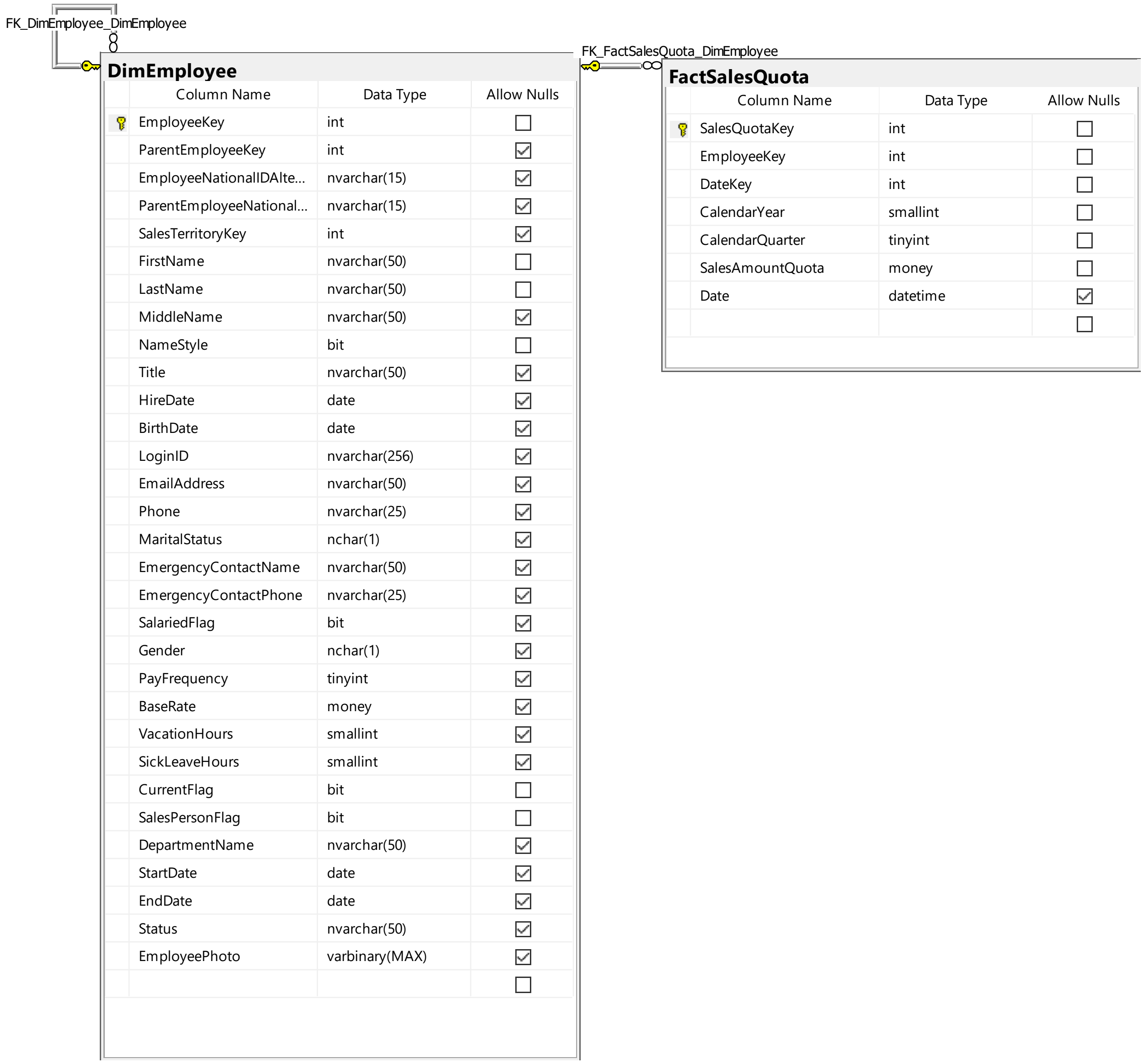
```
Survey Responses: [Array]
    [0]: [Object]
    [1]: [Object]
    [2]: [Object]
    [3]: [Object]
    [4]: [Object]
    [5]: [Object]
    [6]: [Object]
    [7]: [Object]
    [8]: [Object]
    [9]: [Object]
    [10]: [Object]
    [11]: [Object]
    [12]: [Object]
    [13]: [Object]
    [14]: [Object]
    [15]: [Object]
    [16]: [Object]
    [17]: [Object]
    [18]: [Object]
    [19]: [Object]
    [20]: [Object]
    [21]: [Object]
    [22]: [Object]
    [23]: [Object]
    [24]: [Object]
    [25]: [Object]
    [26]: [Object]
    [27]: [Object]
    [28]: [Object]
    [29]: [Object]
    [30]: [Object]
```

```
                "LastName": "Zhou",
                "Date": "2012-04-06T00:00:00"
            }, {
                "FirstName": "Amy",
                "LastName": "Zhu",
                "Date": "2012-03-22T00:00:00"
            }, {
                "FirstName": "Candice",
                "LastName": "Zhu",
                "Date": "2012-03-01T00:00:00"
            }, {
                "FirstName": "Jenny",
                "LastName": "Zhu",
                "Date": "2012-03-11T00:00:00"
            }, {
                "FirstName": "Lacey",
                "LastName": "Zhu",
                "Date": "2012-04-03T00:00:00"
            }, {
                "FirstName": "Louis",
                "LastName": "Zhu",
                "Date": "2012-04-09T00:00:00"
            }, {
                "FirstName": "Susan",
                "LastName": "Zhu",
                "Date": "2012-03-22T00:00:00"
            }, {
                "FirstName": "Tiffany",
                "LastName": "Zhu",
                "Date": "2012-03-15T00:00:00"
            }
        ]
}
```

Proposition #13 (Medium)

Display for each employees’ first and last name, the calendar quarter, and the sales amount quota





DimEmployee

	Column Name	Data Type	Allow Nulls
🔑	EmployeeKey	int	☐
	ParentEmployeeKey	int	☑
	EmployeeNationalIDAlte...	nvarchar(15)	☑
	ParentEmployeeNational...	nvarchar(15)	☑
	SalesTerritoryKey	int	☑
	FirstName	nvarchar(50)	☐
	LastName	nvarchar(50)	☐
	MiddleName	nvarchar(50)	☑
	NameStyle	bit	☐
	Title	nvarchar(50)	☑
	HireDate	date	☑
	BirthDate	date	☑
	LoginID	nvarchar(256)	☑
	EmailAddress	nvarchar(50)	☑
	Phone	nvarchar(25)	☑
	MaritalStatus	nchar(1)	☑
	EmergencyContactName	nvarchar(50)	☑
	EmergencyContactPhone	nvarchar(25)	☑
	SalariedFlag	bit	☑
	Gender	nchar(1)	☑
	PayFrequency	tinyint	☑
	BaseRate	money	☑
	VacationHours	smallint	☑
	SickLeaveHours	smallint	☑
	CurrentFlag	bit	☐
	SalesPersonFlag	bit	☐
	DepartmentName	nvarchar(50)	☑
	StartDate	date	☑
	EndDate	date	☑
	Status	nvarchar(50)	☑
	EmployeePhoto	varbinary(MAX)	☑
			☐

FactSalesQuota

	Column Name	Data Type	Allow Nulls
🔑	SalesQuotaKey	int	☐
	EmployeeKey	int	☐
	DateKey	int	☐
	CalendarYear	smallint	☐
	CalendarQuarter	tinyint	☐
	SalesAmountQuota	money	☐
	Date	datetime	☑
			☐

Columns from Tables

Table Name	Column Name
DimEmployee	FirstName, LastName
FactsSalesQuota	CalendarQuarter, SalesAmountQuota

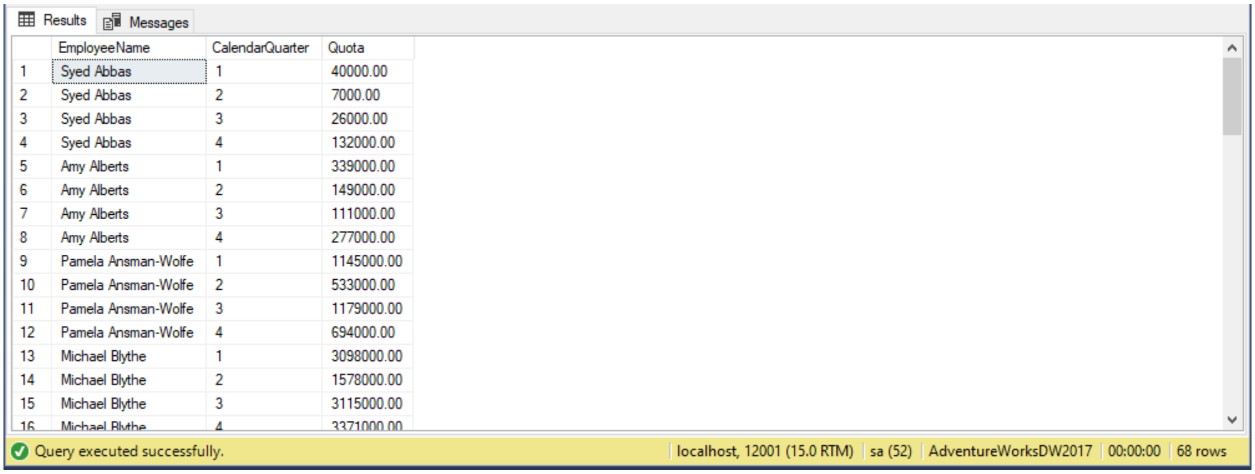
Order By

Table Name	Column Name	Sort Order
DimEmployee	Lastname	ASC

Solution Query

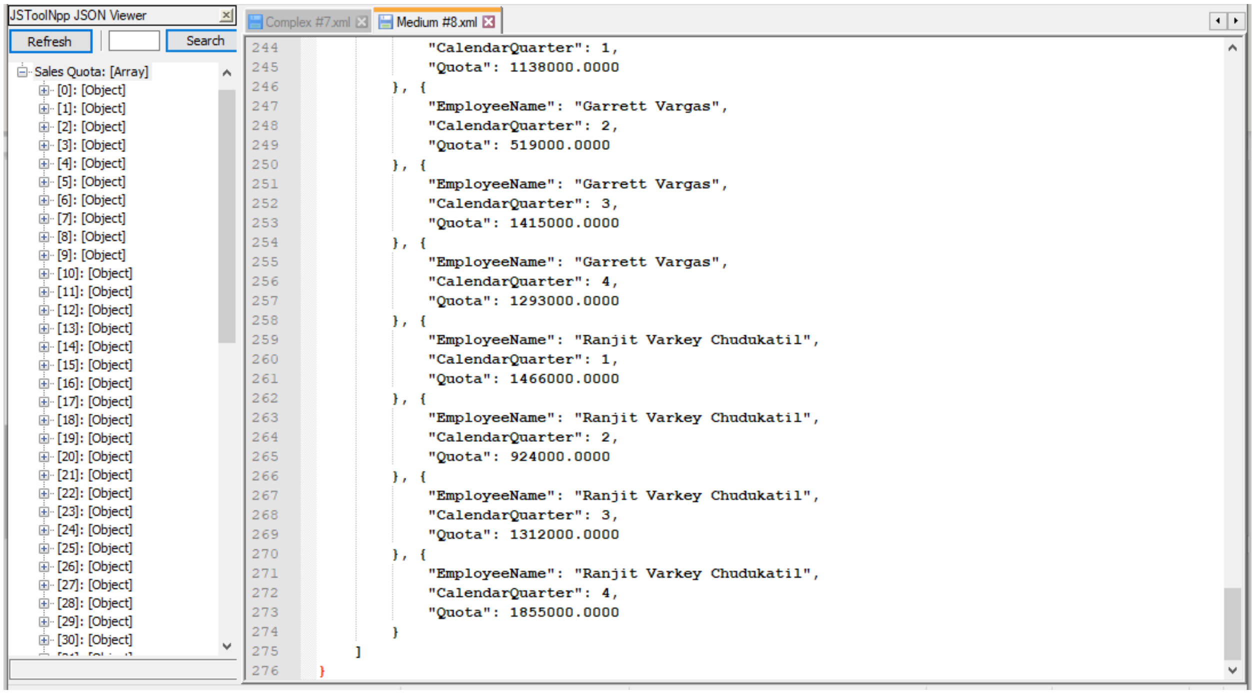
```sql
USE AdventureWorksDW2017;

SELECT CONCAT (
               DBE.FirstName
               ,' '
               ,DBE.LastName
               ) AS EmployeeName
        ,FSQ.CalendarQuarter
        ,SUM(FSQ.SalesAmountQuota) AS Quota
FROM dbo.DimEmployee AS DBE
INNER JOIN dbo.FactSalesQuota AS FSQ ON DBE.EmployeeKey = FSQ.EmployeeKey
GROUP BY DBE.LastName
        ,FSQ.CalendarQuarter
ORDER BY DBE.LastName;
```

Output



	EmployeeName	CalendarQuarter	Quota
1	Syed Abbas	1	40000.00
2	Syed Abbas	2	7000.00
3	Syed Abbas	3	26000.00
4	Syed Abbas	4	132000.00
5	Amy Alberts	1	339000.00
6	Amy Alberts	2	149000.00
7	Amy Alberts	3	111000.00
8	Amy Alberts	4	277000.00
9	Pamela Ansman-Wolfe	1	1145000.00
10	Pamela Ansman-Wolfe	2	533000.00
11	Pamela Ansman-Wolfe	3	1179000.00
12	Pamela Ansman-Wolfe	4	694000.00
13	Michael Blythe	1	3098000.00
14	Michael Blythe	2	1578000.00
15	Michael Blythe	3	3115000.00
16	Michael Blythe	4	3371000.00

Query executed successfully. | localhost, 12001 (15.0 RTM) | sa (52) | AdventureWorksDW2017 | 00:00:00 | 68 rows



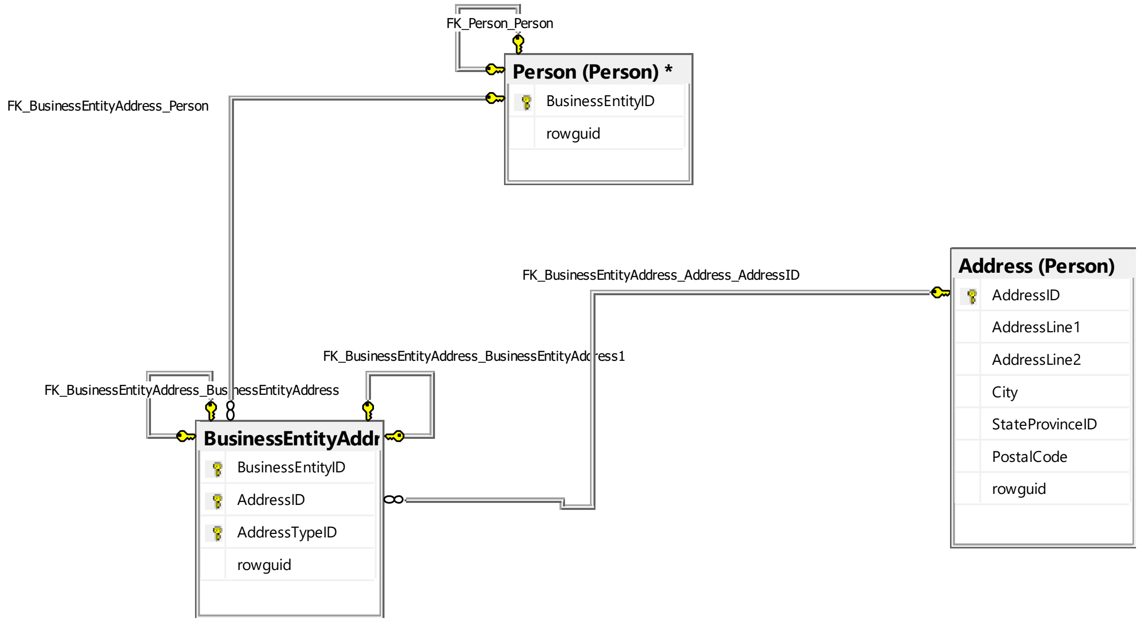
```
            "CalendarQuarter": 1,
            "Quota": 1138000.0000
        }, {
            "EmployeeName": "Garrett Vargas",
            "CalendarQuarter": 2,
            "Quota": 519000.0000
        }, {
            "EmployeeName": "Garrett Vargas",
            "CalendarQuarter": 3,
            "Quota": 1415000.0000
        }, {
            "EmployeeName": "Garrett Vargas",
            "CalendarQuarter": 4,
            "Quota": 1293000.0000
        }, {
            "EmployeeName": "Ranjit Varkey Chudukatil",
            "CalendarQuarter": 1,
            "Quota": 1466000.0000
        }, {
            "EmployeeName": "Ranjit Varkey Chudukatil",
            "CalendarQuarter": 2,
            "Quota": 924000.0000
        }, {
            "EmployeeName": "Ranjit Varkey Chudukatil",
            "CalendarQuarter": 3,
            "Quota": 1312000.0000
        }, {
            "EmployeeName": "Ranjit Varkey Chudukatil",
            "CalendarQuarter": 4,
            "Quota": 1855000.0000
        }
    ]
}
```

Function that will be used for the next 2 queries:

```
USE AdventureWorks2017;

CREATE FUNCTION fnd_name
(@BusinessEntityID int)
RETURNS varchar(15)
BEGIN
    RETURN
    (
        SELECT LastName
        FROM Person.Person
        WHERE BusinessEntityID = @BusinessEntityID
    );
END;
```

Proposition #14 (Complex)

Display for all customers whose last names come before the last name as a person with the inputted business entity ID: their first and last names, their city of origin and their business entity ID


FK_Person_Person
FK_BusinessEntityAddress_Person
FK_BusinessEntityAddress_Address_AddressID
FK_BusinessEntityAddress_BusinessEntityAddress1
FK_BusinessEntityAddress_BusinessEntityAddress

Person (Person) *

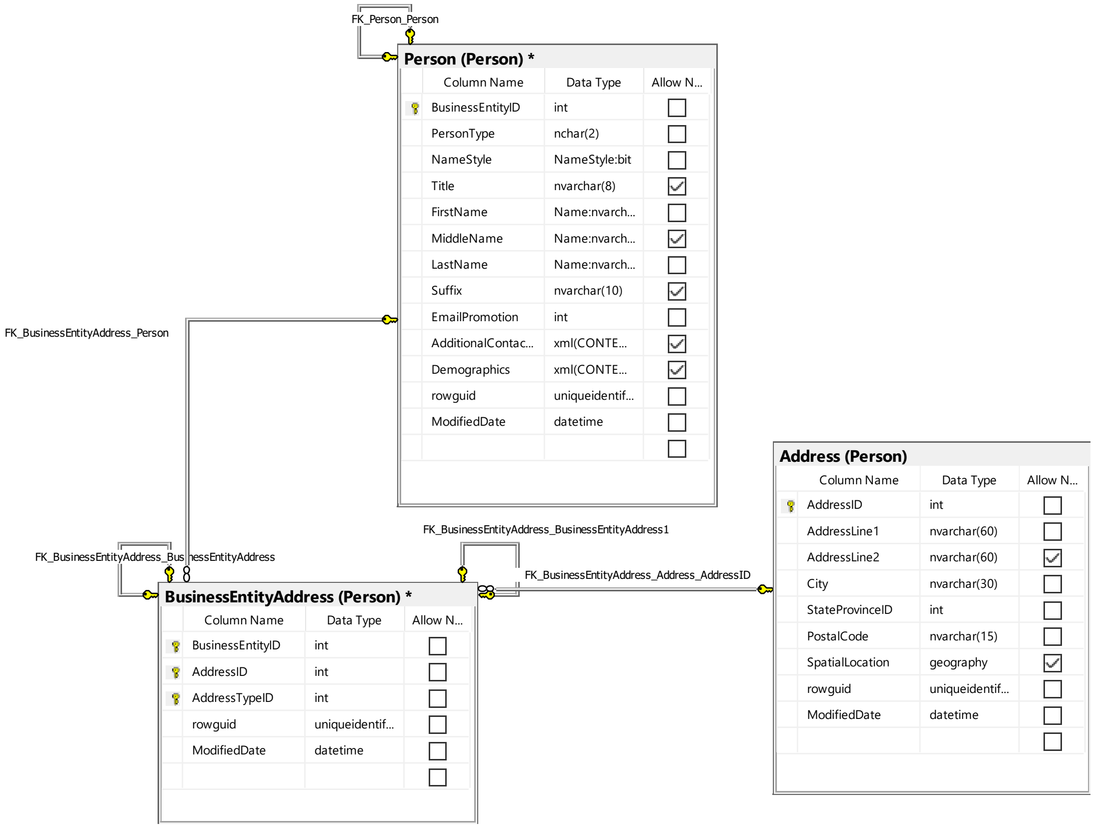
🔑	BusinessEntityID
	rowguid

Address (Person)

🔑	AddressID
	AddressLine1
	AddressLine2
	City
	StateProvinceID
	PostalCode
	rowguid

BusinessEntityAddr

🔑	BusinessEntityID
🔑	AddressID
🔑	AddressTypeID
	rowguid


FK_Person_Person
FK_BusinessEntityAddress_Person
FK_BusinessEntityAddress_BusinessEntityAddress1
FK_BusinessEntityAddress_BusinessEntityAddress
FK_BusinessEntityAddress_Address_AddressID

Person (Person) *

	Column Name	Data Type	Allow N...
🔑	BusinessEntityID	int	☐
	PersonType	nchar(2)	☐
	NameStyle	NameStyle:bit	☐
	Title	nvarchar(8)	☑
	FirstName	Name:nvarch...	☐
	MiddleName	Name:nvarch...	☑
	LastName	Name:nvarch...	☐
	Suffix	nvarchar(10)	☑
	EmailPromotion	int	☐
	AdditionalContac...	xml(CONTE...	☑
	Demographics	xml(CONTE...	☑
	rowguid	uniqueidentif...	☐
	ModifiedDate	datetime	☐
			☐

Address (Person)

	Column Name	Data Type	Allow N...
🔑	AddressID	int	☐
	AddressLine1	nvarchar(60)	☐
	AddressLine2	nvarchar(60)	☑
	City	nvarchar(30)	☐
	StateProvinceID	int	☐
	PostalCode	nvarchar(15)	☐
	SpatialLocation	geography	☑
	rowguid	uniqueidentif...	☐
	ModifiedDate	datetime	☐
			☐

BusinessEntityAddress (Person) *

	Column Name	Data Type	Allow N...
🔑	BusinessEntityID	int	☐
🔑	AddressID	int	☐
🔑	AddressTypeID	int	☐
	rowguid	uniqueidentif...	☐
	ModifiedDate	datetime	☐
			☐

Columns from Tables

Table Name	Column Name
Person	FirstName, LastName, BusinessEntityID
PersonAddress	City

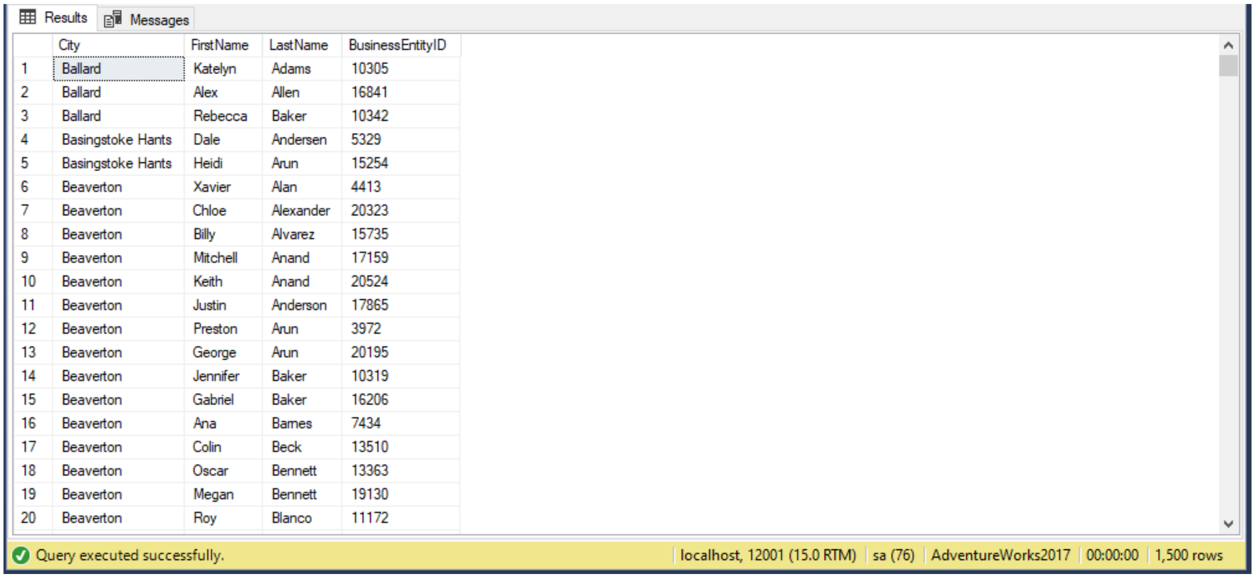
Order By

Table Name	Column Name	Sort Order
Address	City, LastName	ASC

Solution Query

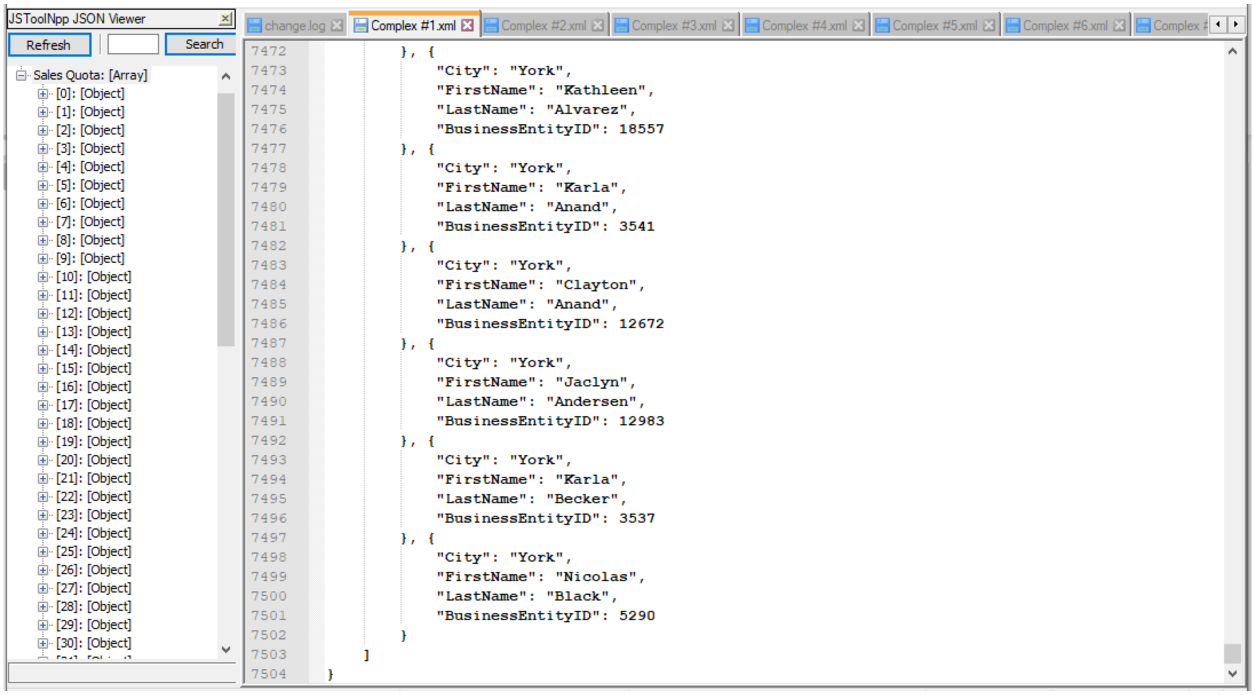
```
USE AdventureWorks2017;

SELECT PA.City
        ,PP.FirstName
        ,PP.LastName
        ,PP.BusinessEntityID
FROM Person.BusinessEntityAddress AS PBEA
INNER JOIN Person.Address AS PA ON PA.AddressID = PBEA.AddressID
INNER JOIN Person.Person AS PP ON PP.BusinessEntityID = PBEA.BusinessEntityID
WHERE PP.LastName <= dbo.fnd_name(273)
GROUP BY PA.City
        ,PP.LastName
        ,PP.FirstName
        ,PP.BusinessEntityID
ORDER BY PA.City
        ,PP.LastName;
```

Output



	City	FirstName	LastName	BusinessEntityID
1	Ballard	Katelyn	Adams	10305
2	Ballard	Alex	Allen	16841
3	Ballard	Rebecca	Baker	10342
4	Basingstoke Hants	Dale	Andersen	5329
5	Basingstoke Hants	Heidi	Arun	15254
6	Beaverton	Xavier	Alan	4413
7	Beaverton	Chloe	Alexander	20323
8	Beaverton	Billy	Alvarez	15735
9	Beaverton	Mitchell	Anand	17159
10	Beaverton	Keith	Anand	20524
11	Beaverton	Justin	Anderson	17865
12	Beaverton	Preston	Arun	3972
13	Beaverton	George	Arun	20195
14	Beaverton	Jennifer	Baker	10319
15	Beaverton	Gabriel	Baker	16206
16	Beaverton	Ana	Barnes	7434
17	Beaverton	Colin	Beck	13510
18	Beaverton	Oscar	Bennett	13363
19	Beaverton	Megan	Bennett	19130
20	Beaverton	Roy	Blanco	11172

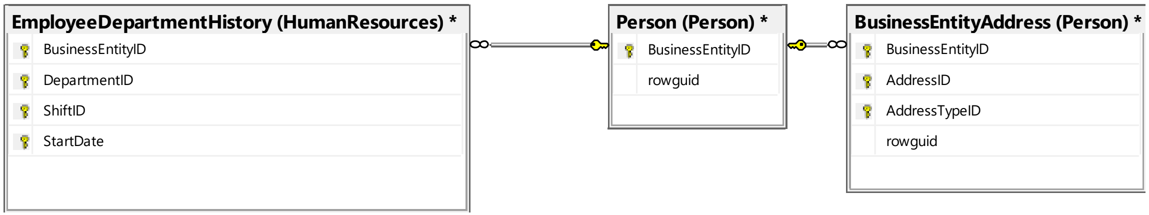
Query executed successfully. | localhost, 12001 (15.0 RTM) | sa (76) | AdventureWorks2017 | 00:00:00 | 1,500 rows



```
        }, {
            "City": "York",
            "FirstName": "Kathleen",
            "LastName": "Alvarez",
            "BusinessEntityID": 18557
        }, {
            "City": "York",
            "FirstName": "Karla",
            "LastName": "Anand",
            "BusinessEntityID": 3541
        }, {
            "City": "York",
            "FirstName": "Clayton",
            "LastName": "Anand",
            "BusinessEntityID": 12672
        }, {
            "City": "York",
            "FirstName": "Jaclyn",
            "LastName": "Andersen",
            "BusinessEntityID": 12983
        }, {
            "City": "York",
            "FirstName": "Karla",
            "LastName": "Becker",
            "BusinessEntityID": 3537
        }, {
            "City": "York",
            "FirstName": "Nicolas",
            "LastName": "Black",
            "BusinessEntityID": 5290
        }
    ]
}
```

Proposition #15 (Complex)

Display for each business entity with a last name that comes alphabetically before the last name of the person with the inputted ID: their ID, name, their address ID, and the last date said address was modified



EmployeeDepartmentHistory (HumanResources) *

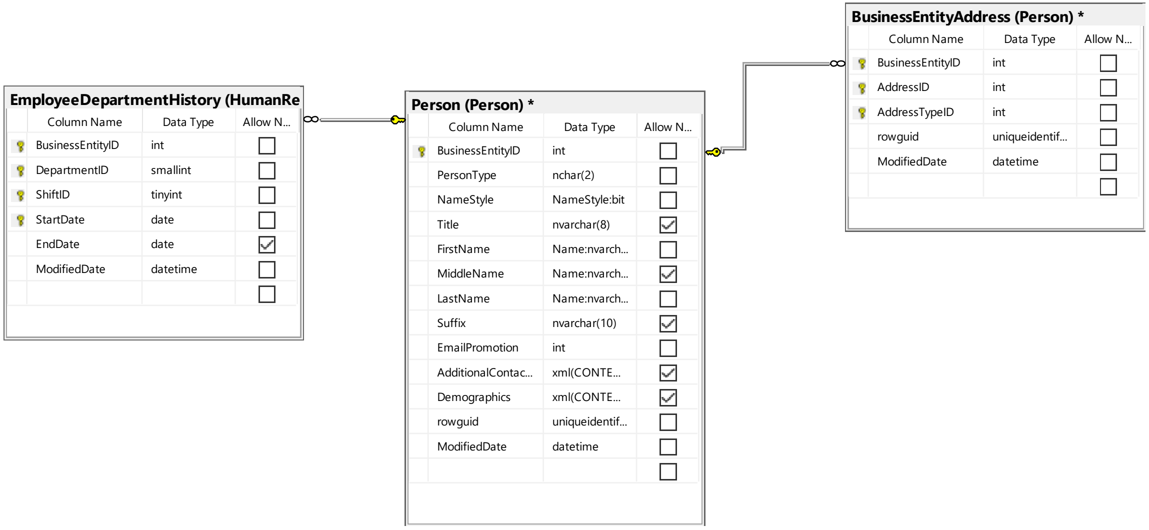
- BusinessEntityID
- DepartmentID
- ShiftID
- StartDate

Person (Person) *

- BusinessEntityID
- rowguid

BusinessEntityAddress (Person) *

- BusinessEntityID
- AddressID
- AddressTypeID
- rowguid



EmployeeDepartmentHistory (HumanRe

Column Name	Data Type	Allow N...
BusinessEntityID	int	□
DepartmentID	smallint	□
ShiftID	tinyint	□
StartDate	date	□
EndDate	date	☑
ModifiedDate	datetime	□
		□

Person (Person) *

Column Name	Data Type	Allow N...
BusinessEntityID	int	□
PersonType	nchar(2)	□
NameStyle	NameStyle:bit	□
Title	nvarchar(8)	☑
FirstName	Name:nvarch...	□
MiddleName	Name:nvarch...	☑
LastName	Name:nvarch...	□
Suffix	nvarchar(10)	☑
EmailPromotion	int	□
AdditionalContac...	xml(CONTE...	☑
Demographics	xml(CONTE...	☑
rowguid	uniqueidentif...	□
ModifiedDate	datetime	□
		□

BusinessEntityAddress (Person) *

Column Name	Data Type	Allow N...
BusinessEntityID	int	□
AddressID	int	□
AddressTypeID	int	□
rowguid	uniqueidentif...	□
ModifiedDate	datetime	□
		□

Columns from Tables

Table Name	Column Name
BusinessEntityAddress	BusinessEntityId, AddressID, ModifiedDate
Person	CONCAT(FirstName, MiddleName, LastName) AS Name

Order By

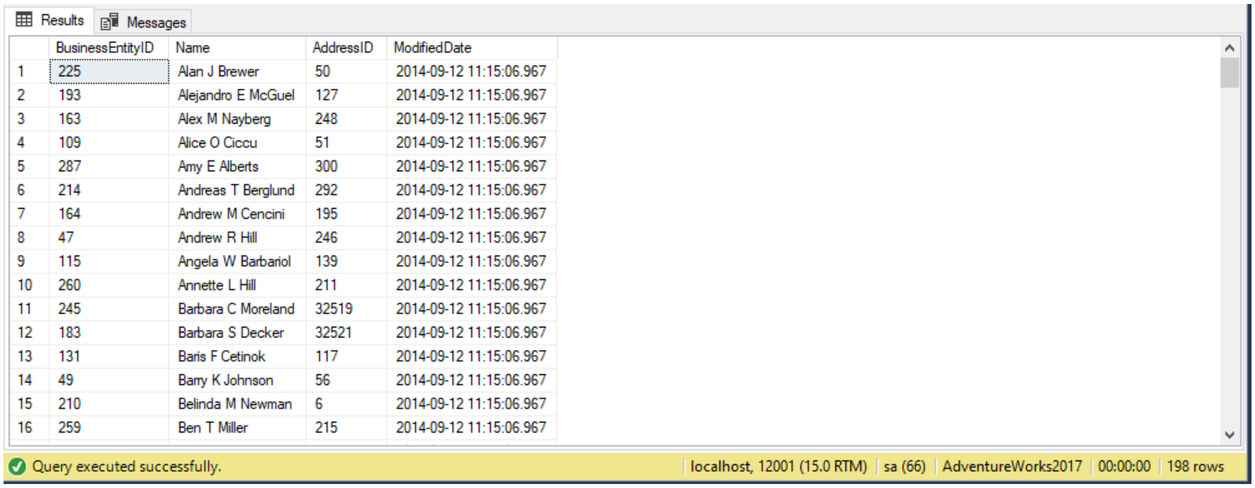
Table Name	Column Name	Sort Order
PersonAddress	Name	ASC

Solution Query

```
USE AdventureWorks2017;

SELECT PBEA.BusinessEntityID
        ,CONCAT (
                PP.FirstName
                ,' '
                ,PP.MiddleName
```

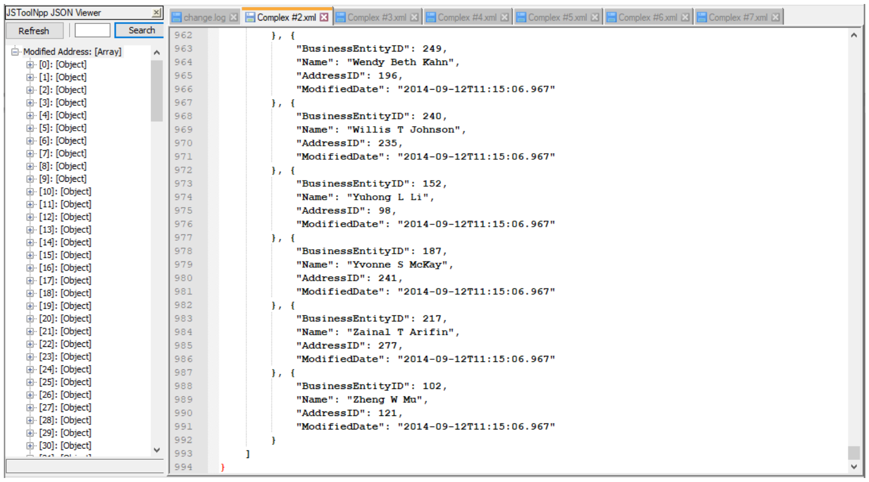
```
                        ,' '
                        ,PP.LastName
                        ) AS Name
                ,PBEA.AddressID
                ,PBEA.ModifiedDate
FROM Person.BusinessEntityAddress AS PBEA
INNER JOIN Person.Person AS PP ON PP.BusinessEntityID = PBEA.BusinessEntityID
INNER JOIN HumanResources.EmployeeDepartmentHistory AS HREDH ON
PP.BusinessEntityID = HREDH.BusinessEntityID
WHERE PP.LastName < dbo.fnd_name(11)
GROUP BY CONCAT (
                        PP.FirstName
                        ,' '
                        ,PP.MiddleName
                        ,' '
                        ,PP.LastName
                        )
                ,PBEA.AddressID
                ,PBEA.ModifiedDate
                ,PBEA.BusinessEntityID
ORDER BY [Name] ASC;
```

Output



	BusinessEntityID	Name	AddressID	ModifiedDate
1	225	Alan J Brewer	50	2014-09-12 11:15:06.967
2	193	Alejandro E McGuel	127	2014-09-12 11:15:06.967
3	163	Alex M Nayberg	248	2014-09-12 11:15:06.967
4	109	Alice O Ciccu	51	2014-09-12 11:15:06.967
5	287	Amy E Alberts	300	2014-09-12 11:15:06.967
6	214	Andreas T Berglund	292	2014-09-12 11:15:06.967
7	164	Andrew M Cencini	195	2014-09-12 11:15:06.967
8	47	Andrew R Hill	246	2014-09-12 11:15:06.967
9	115	Angela W Barbariol	139	2014-09-12 11:15:06.967
10	260	Annette L Hill	211	2014-09-12 11:15:06.967
11	245	Barbara C Moreland	32519	2014-09-12 11:15:06.967
12	183	Barbara S Decker	32521	2014-09-12 11:15:06.967
13	131	Baris F Cetinok	117	2014-09-12 11:15:06.967
14	49	Barry K Johnson	56	2014-09-12 11:15:06.967
15	210	Belinda M Newman	6	2014-09-12 11:15:06.967
16	259	Ben T Miller	215	2014-09-12 11:15:06.967

Query executed successfully. | localhost, 12001 (15.0 RTM) | sa (66) | AdventureWorks2017 | 00:00:00 | 198 rows



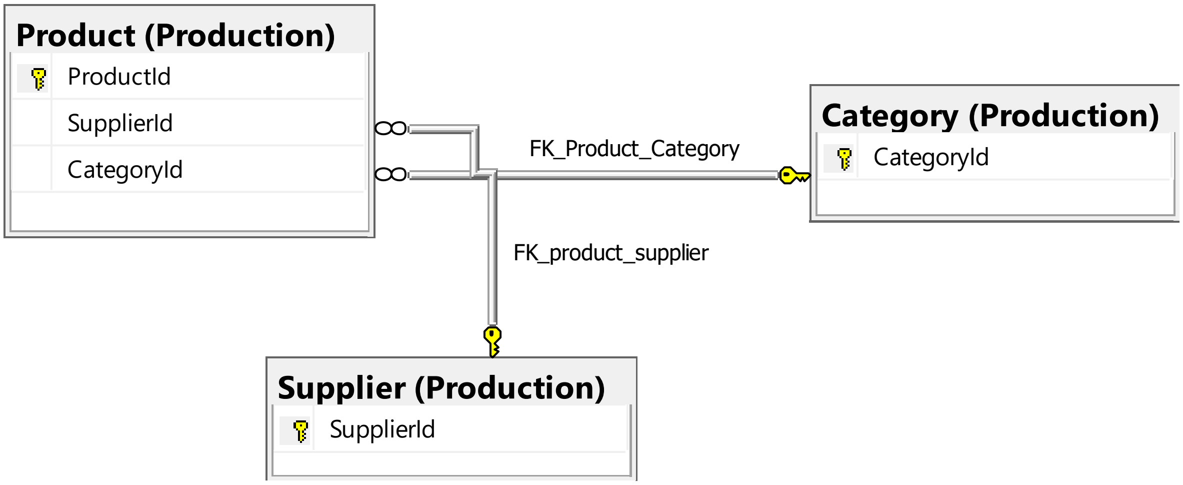
```
        }, {
            "BusinessEntityID": 249,
            "Name": "Wendy Beth Kahn",
            "AddressID": 196,
            "ModifiedDate": "2014-09-12T11:15:06.967"
        }, {
            "BusinessEntityID": 240,
            "Name": "Willis T Johnson",
            "AddressID": 235,
            "ModifiedDate": "2014-09-12T11:15:06.967"
        }, {
            "BusinessEntityID": 152,
            "Name": "Yuhong L Li",
            "AddressID": 98,
            "ModifiedDate": "2014-09-12T11:15:06.967"
        }, {
            "BusinessEntityID": 187,
            "Name": "Yvonne S McKay",
            "AddressID": 241,
            "ModifiedDate": "2014-09-12T11:15:06.967"
        }, {
            "BusinessEntityID": 217,
            "Name": "Zainal T Arifin",
            "AddressID": 277,
            "ModifiedDate": "2014-09-12T11:15:06.967"
        }, {
            "BusinessEntityID": 102,
            "Name": "Zheng W Mu",
            "AddressID": 121,
            "ModifiedDate": "2014-09-12T11:15:06.967"
        }
    ]
}
```

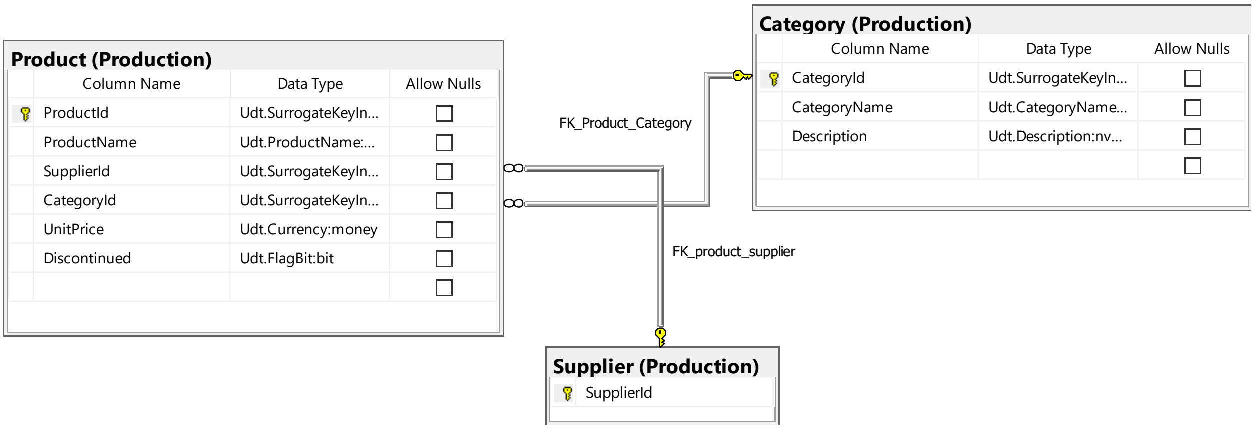
Function that will be used for the next 3 queries:

```
USE Northwinds2020TSQLV6;

CREATE FUNCTION fnd_suppliernm
(@SupplierID int)
RETURNS varchar(15)
BEGIN
        RETURN
        (
        SELECT SupplierCompanyName
        FROM Production.Supplier
        WHERE SupplierId = @SupplierID
        );
END;
```

Proposition #16 (Complex)

Display for all products that share the same supplier as the inputted ID: the product ID, name, and the ID of the category said product belongs to.




Product (Production)

Column Name	Data Type	Allow Nulls
ProductId	Udt.SurrogateKeyIn...	□
ProductName	Udt.ProductName:...	□
SupplierId	Udt.SurrogateKeyIn...	□
CategoryId	Udt.SurrogateKeyIn...	□
UnitPrice	Udt.Currency:money	□
Discontinued	Udt.FlagBit:bit	□
		□

Category (Production)

Column Name	Data Type	Allow Nulls
CategoryId	Udt.SurrogateKeyIn...	□
CategoryName	Udt.CategoryName...	□
Description	Udt.Description:nv...	□
		□

Supplier (Production)

SupplierId

Columns from Tables

Table Name	Column Name
Product	ProductId, ProductName
Category	CategoryId

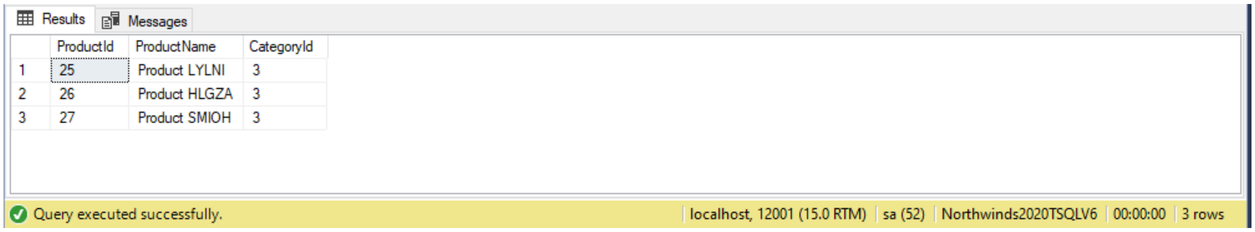
Order By

Table Name	Column Name	Sort Order
Category	CategoryID	ASC

<u>Solution Query</u>

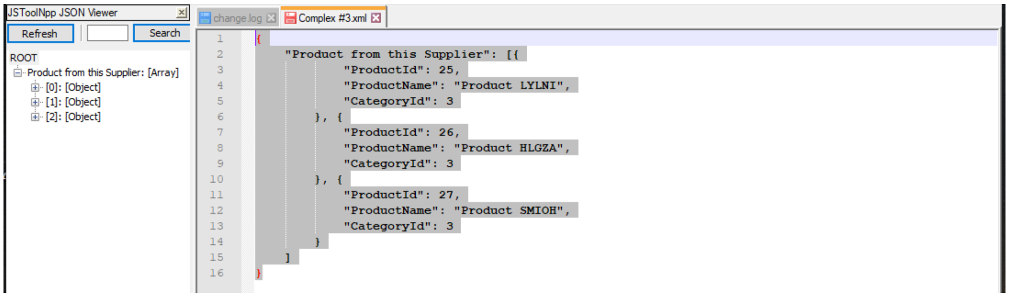
```sql
USE Northwinds2020TSQLV6;

SELECT PrPr.ProductId
       ,PrPr.ProductName
       ,PrC.CategoryId
FROM Production.Product AS PrPr
INNER JOIN Production.Category AS PrC ON PrPr.CategoryId = PrC.CategoryId
INNER JOIN Production.Supplier AS PrS ON PrS.SupplierId = PrPr.SupplierId
WHERE PrS.SupplierCompanyName = dbo.fnd_suppliernm(11)
GROUP BY PrC.CategoryId
       ,PrPr.ProductName
       ,PrPr.ProductId
ORDER BY PrC.CategoryId;
```

<u>Output</u>



	ProductId	ProductName	CategoryId
1	25	Product LYLNI	3
2	26	Product HLGZA	3
3	27	Product SMIOH	3

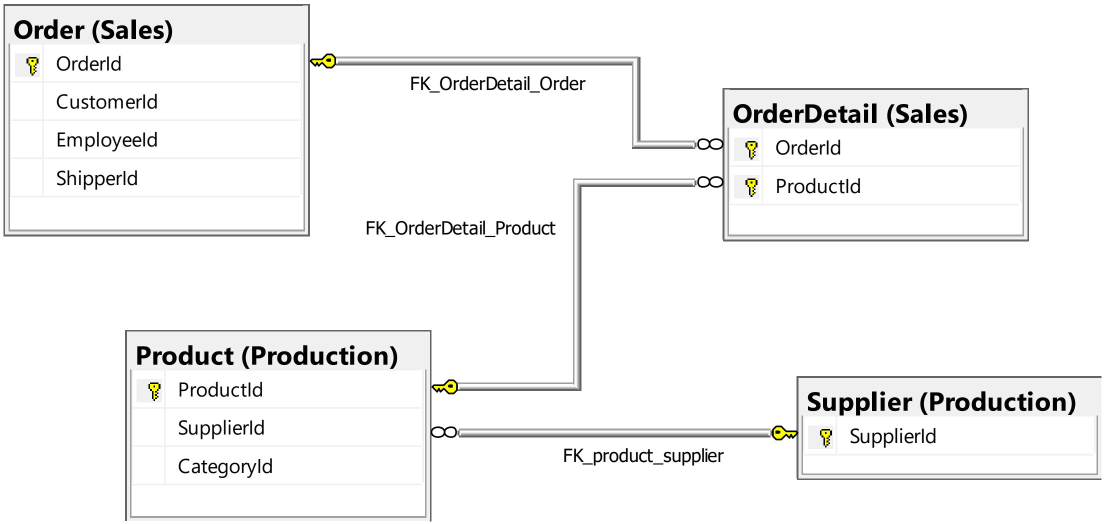
Query executed successfully. | localhost, 12001 (15.0 RTM) | sa (52) | Northwinds2020TSQLV6 | 00:00:00 | 3 rows

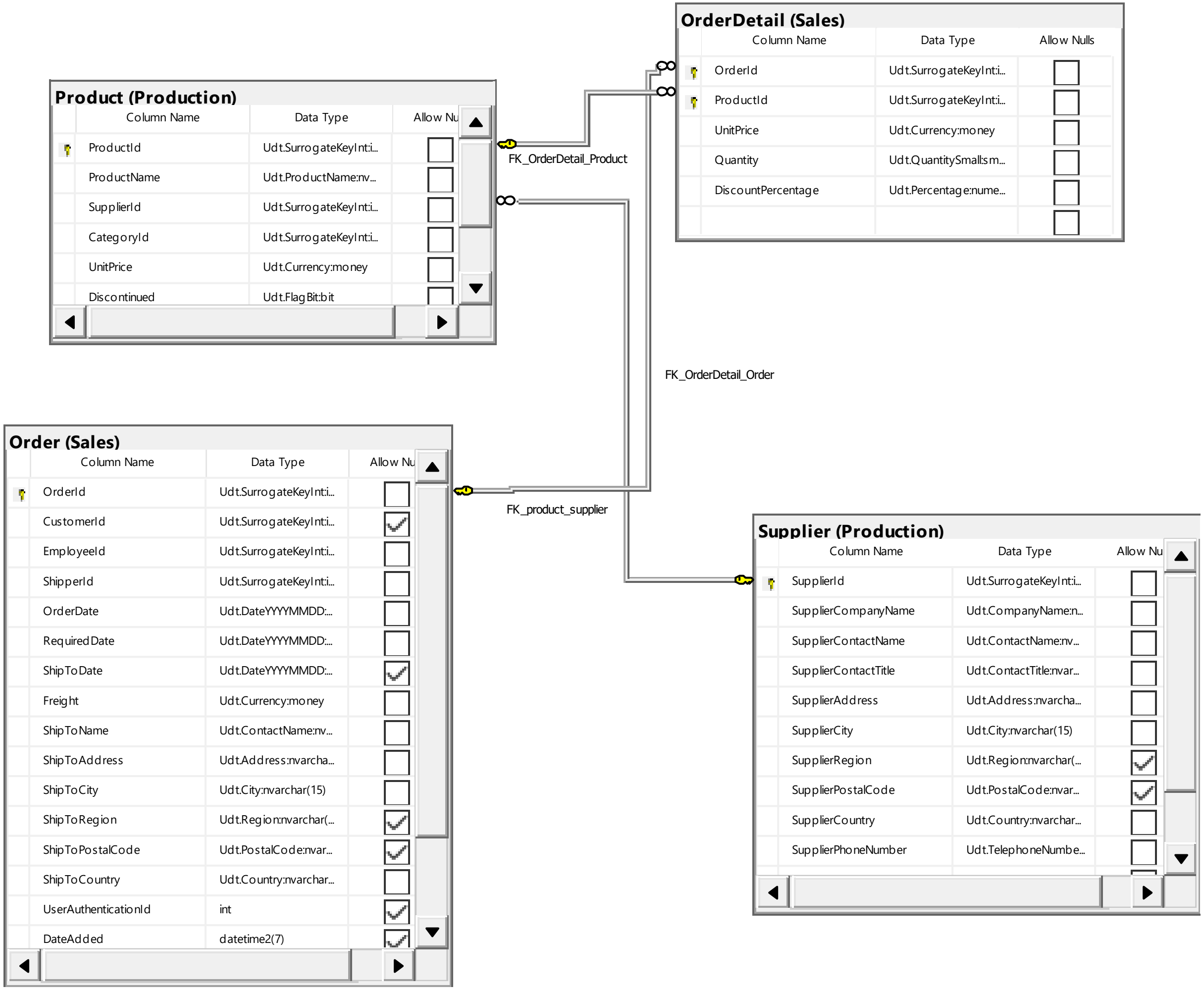


```json
{
    "Product from this Supplier": [{
            "ProductId": 25,
            "ProductName": "Product LYLNI",
            "CategoryId": 3
        }, {
            "ProductId": 26,
            "ProductName": "Product HLGZA",
            "CategoryId": 3
        }, {
            "ProductId": 27,
            "ProductName": "Product SMIOH",
            "CategoryId": 3
        }
    ]
}
```

Proposition #17 (Complex)

Display for all products that have the same supplier as the inputted ID: the total undiscounted cost of the order of their product





OrderDetail (Sales)

Column Name	Data Type	Allow Nulls
OrderId	Udt.SurrogateKeyInt:i...	□
ProductId	Udt.SurrogateKeyInt:i...	□
UnitPrice	Udt.Currency:money	□
Quantity	Udt.QuantitySmall:sm...	□
DiscountPercentage	Udt.Percentage:nume...	□
		□

Product (Production)

Column Name	Data Type	Allow Nu
ProductId	Udt.SurrogateKeyInt:i...	□
ProductName	Udt.ProductName:nv...	□
SupplierId	Udt.SurrogateKeyInt:i...	□
CategoryId	Udt.SurrogateKeyInt:i...	□
UnitPrice	Udt.Currency:money	□
Discontinued	Udt.FlagBit:bit	□

Order (Sales)

Column Name	Data Type	Allow Nu
OrderId	Udt.SurrogateKeyInt:i...	□
CustomerId	Udt.SurrogateKeyInt:i...	☑
EmployeeId	Udt.SurrogateKeyInt:i...	□
ShipperId	Udt.SurrogateKeyInt:i...	□
OrderDate	Udt.DateYYYYMMDD:...	□
RequiredDate	Udt.DateYYYYMMDD:...	□
ShipToDate	Udt.DateYYYYMMDD:...	☑
Freight	Udt.Currency:money	□
ShipToName	Udt.ContactName:nv...	□
ShipToAddress	Udt.Address:nvarcha...	□
ShipToCity	Udt.City:nvarchar(15)	□
ShipToRegion	Udt.Region:nvarchar(...	☑
ShipToPostalCode	Udt.PostalCode:nvar...	☑
ShipToCountry	Udt.Country:nvarchar...	□
UserAuthenticationId	int	☑
DateAdded	datetime2(7)	☑

Supplier (Production)

Column Name	Data Type	Allow Nu
SupplierId	Udt.SurrogateKeyInt:i...	□
SupplierCompanyName	Udt.CompanyName:n...	□
SupplierContactName	Udt.ContactName:nv...	□
SupplierContactTitle	Udt.ContactTitle:nvar...	□
SupplierAddress	Udt.Address:nvarcha...	□
SupplierCity	Udt.City:nvarchar(15)	□
SupplierRegion	Udt.Region:nvarchar(...	☑
SupplierPostalCode	Udt.PostalCode:nvar...	☑
SupplierCountry	Udt.Country:nvarchar...	□
SupplierPhoneNumber	Udt.TelephoneNumbe...	□

Columns from Tables

Table Name	Column Name
Order	OrderId,
OrderDetail	SUM(UnitPrice * Quantity) AS Total UndiscountedPrice
Product	ProductName, SupplierId
Supplier	SupplierCompanyName

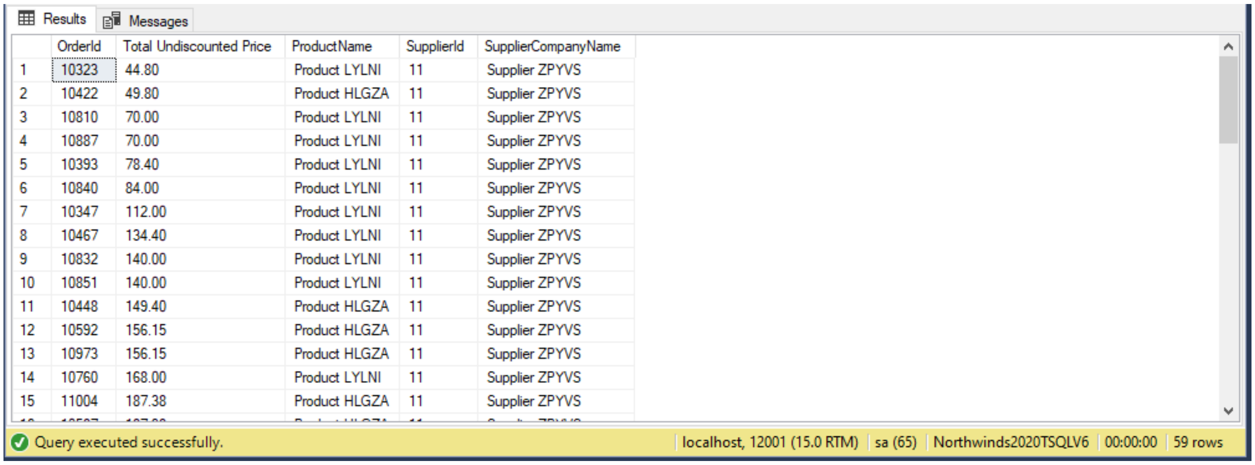
Order By

Table Name	Column Name	Sort Order
OrderDetail	TotalUndiscountedPrice	ASC

Solution Query

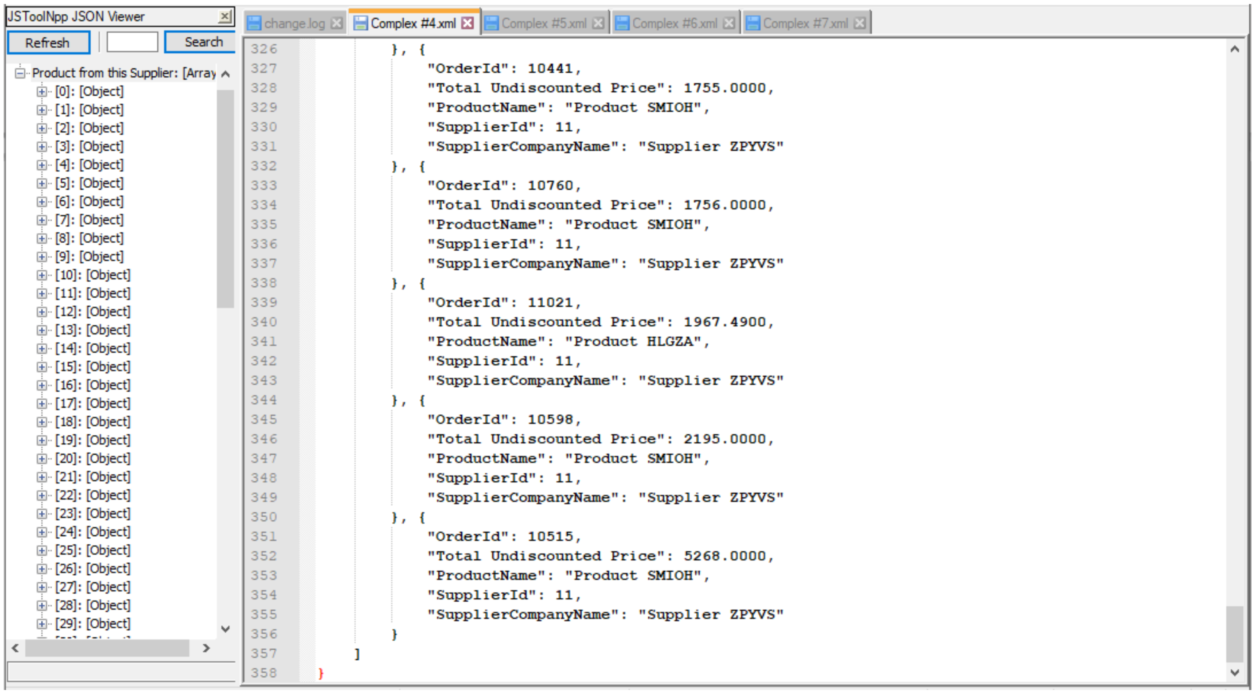
```
USE Northwinds2020TSQLV6;

SELECT SO.OrderId
        ,SUM((SOD.Quantity * SOD.UnitPrice)) AS 'Total Undiscounted Price'
        ,PrPr.ProductName
        ,PrPr.SupplierId
        ,PrS.SupplierCompanyName
FROM Sales.[Order] AS SO
INNER JOIN Sales.OrderDetail AS SOD ON SO.OrderId = SOD.OrderId
INNER JOIN Production.Product AS PrPr ON PrPr.ProductId = SOD.ProductId
INNER JOIN Production.Supplier AS PrS ON PrS.SupplierId = PrPr.SupplierId
WHERE PrS.SupplierCompanyName = dbo.fnd_suppliernm(11)
GROUP BY PrPr.SupplierId
        ,SO.OrderId
        ,PrPr.ProductName
        ,PrS.SupplierCompanyName
ORDER BY [Total Undiscounted Price];
```

Output



	OrderId	Total Undiscounted Price	ProductName	SupplierId	SupplierCompanyName
1	10323	44.80	Product LYLNI	11	Supplier ZPYVS
2	10422	49.80	Product HLGZA	11	Supplier ZPYVS
3	10810	70.00	Product LYLNI	11	Supplier ZPYVS
4	10887	70.00	Product LYLNI	11	Supplier ZPYVS
5	10393	78.40	Product LYLNI	11	Supplier ZPYVS
6	10840	84.00	Product LYLNI	11	Supplier ZPYVS
7	10347	112.00	Product LYLNI	11	Supplier ZPYVS
8	10467	134.40	Product LYLNI	11	Supplier ZPYVS
9	10832	140.00	Product LYLNI	11	Supplier ZPYVS
10	10851	140.00	Product LYLNI	11	Supplier ZPYVS
11	10448	149.40	Product HLGZA	11	Supplier ZPYVS
12	10592	156.15	Product HLGZA	11	Supplier ZPYVS
13	10973	156.15	Product HLGZA	11	Supplier ZPYVS
14	10760	168.00	Product LYLNI	11	Supplier ZPYVS
15	11004	187.38	Product HLGZA	11	Supplier ZPYVS

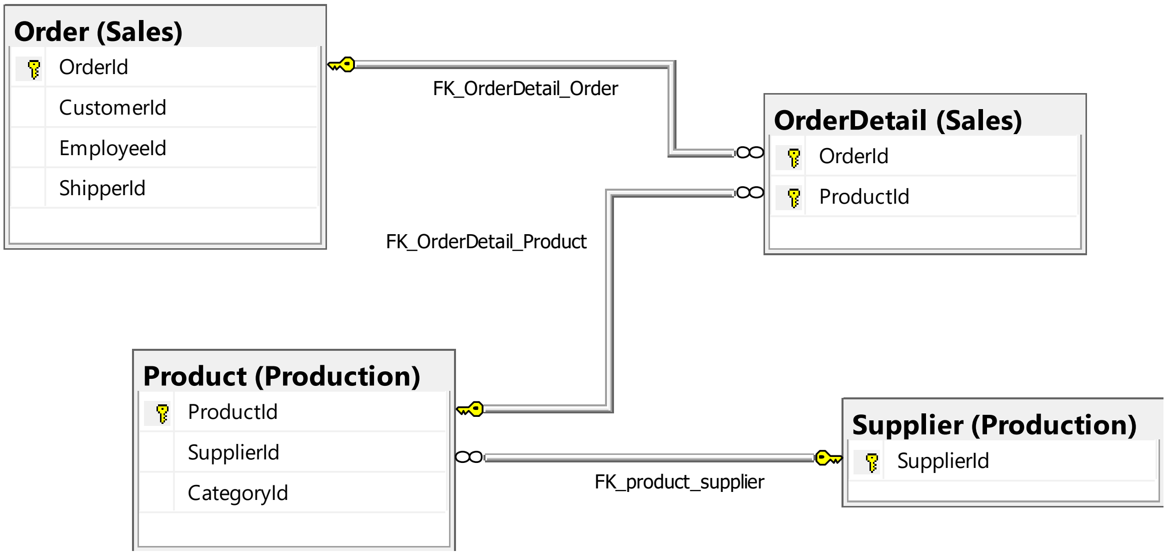
```
Query executed successfully.    localhost, 12001 (15.0 RTM) | sa (65) | Northwinds2020TSQLV6 | 00:00:00 | 59 rows
```

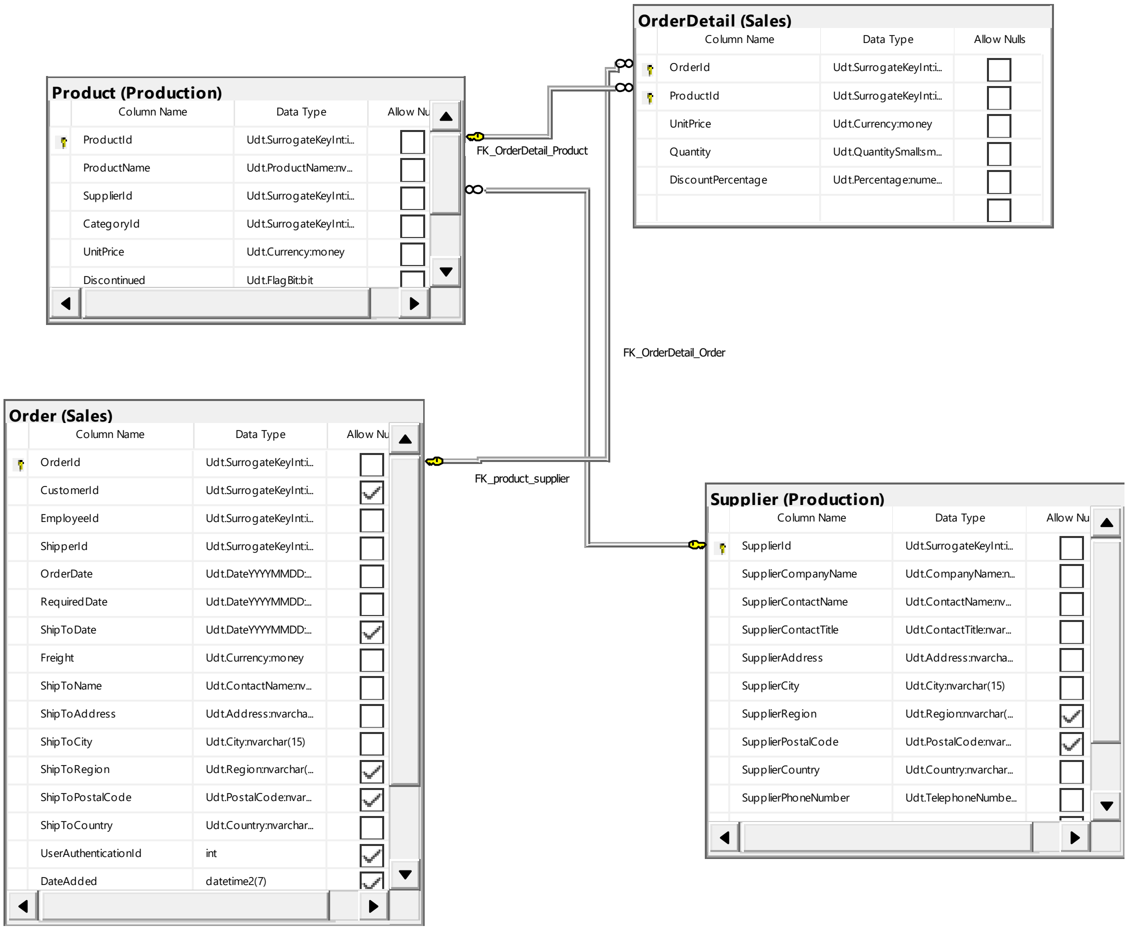


```
        }, {
            "OrderId": 10441,
            "Total Undiscounted Price": 1755.0000,
            "ProductName": "Product SMIOH",
            "SupplierId": 11,
            "SupplierCompanyName": "Supplier ZPYVS"
        }, {
            "OrderId": 10760,
            "Total Undiscounted Price": 1756.0000,
            "ProductName": "Product SMIOH",
            "SupplierId": 11,
            "SupplierCompanyName": "Supplier ZPYVS"
        }, {
            "OrderId": 11021,
            "Total Undiscounted Price": 1967.4900,
            "ProductName": "Product HLGZA",
            "SupplierId": 11,
            "SupplierCompanyName": "Supplier ZPYVS"
        }, {
            "OrderId": 10598,
            "Total Undiscounted Price": 2195.0000,
            "ProductName": "Product SMIOH",
            "SupplierId": 11,
            "SupplierCompanyName": "Supplier ZPYVS"
        }, {
            "OrderId": 10515,
            "Total Undiscounted Price": 5268.0000,
            "ProductName": "Product SMIOH",
            "SupplierId": 11,
            "SupplierCompanyName": "Supplier ZPYVS"
        }
    ]
}
```

Proposition #18 (Complex)

Display for the supplier company that has ID number 11: the order ID of orders that bought products that this company supplies, the name of the products that were bought and the amount of that product bought.





Product (Production)

Column Name	Data Type	Allow Nu
ProductId	Udt.SurrogateKeyInt:i...	□
ProductName	Udt.ProductName:nv...	□
SupplierId	Udt.SurrogateKeyInt:i...	□
CategoryId	Udt.SurrogateKeyInt:i...	□
UnitPrice	Udt.Currency:money	□
Discontinued	Udt.FlagBit:bit	□

OrderDetail (Sales)

Column Name	Data Type	Allow Nulls
OrderId	Udt.SurrogateKeyInt:i...	□
ProductId	Udt.SurrogateKeyInt:i...	□
UnitPrice	Udt.Currency:money	□
Quantity	Udt.QuantitySmall:sm...	□
DiscountPercentage	Udt.Percentage:nume...	□
		□

Order (Sales)

Column Name	Data Type	Allow Nu
OrderId	Udt.SurrogateKeyInt:i...	□
CustomerId	Udt.SurrogateKeyInt:i...	☑
EmployeeId	Udt.SurrogateKeyInt:i...	□
ShipperId	Udt.SurrogateKeyInt:i...	□
OrderDate	Udt.DateYYYYMMDD:...	□
RequiredDate	Udt.DateYYYYMMDD:...	□
ShipToDate	Udt.DateYYYYMMDD:...	☑
Freight	Udt.Currency:money	□
ShipToName	Udt.ContactName:nv...	□
ShipToAddress	Udt.Address:nvarcha...	□
ShipToCity	Udt.City:nvarchar(15)	□
ShipToRegion	Udt.Region:nvarchar(...	☑
ShipToPostalCode	Udt.PostalCode:nvar...	☑
ShipToCountry	Udt.Country:nvarchar...	□
UserAuthenticationId	int	☑
DateAdded	datetime2(7)	☑

Supplier (Production)

Column Name	Data Type	Allow Nu
SupplierId	Udt.SurrogateKeyInt:i...	□
SupplierCompanyName	Udt.CompanyName:n...	□
SupplierContactName	Udt.ContactName:nv...	□
SupplierContactTitle	Udt.ContactTitle:nvar...	□
SupplierAddress	Udt.Address:nvarcha...	□
SupplierCity	Udt.City:nvarchar(15)	□
SupplierRegion	Udt.Region:nvarchar(...	☑
SupplierPostalCode	Udt.PostalCode:nvar...	☑
SupplierCountry	Udt.Country:nvarchar...	□
SupplierPhoneNumber	Udt.TelephoneNumbe...	□

Columns from Tables

Table Name	Column Name
Order	OrderId
OrderDetail	Quantity AS Number of Items
Product	ProductName
Supplier	SupplierCompanyName

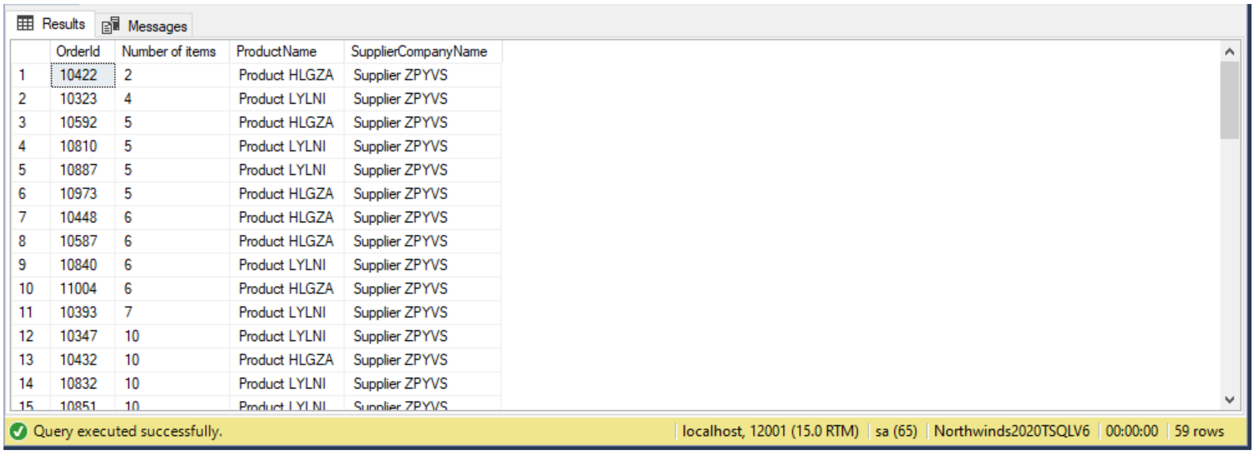
Order By

Table Name	Column Name	Sort Order
OrderDetail	Quantity	ASC
Order	OrderId	ASC
Product	ProductName	ASC

Solution Query

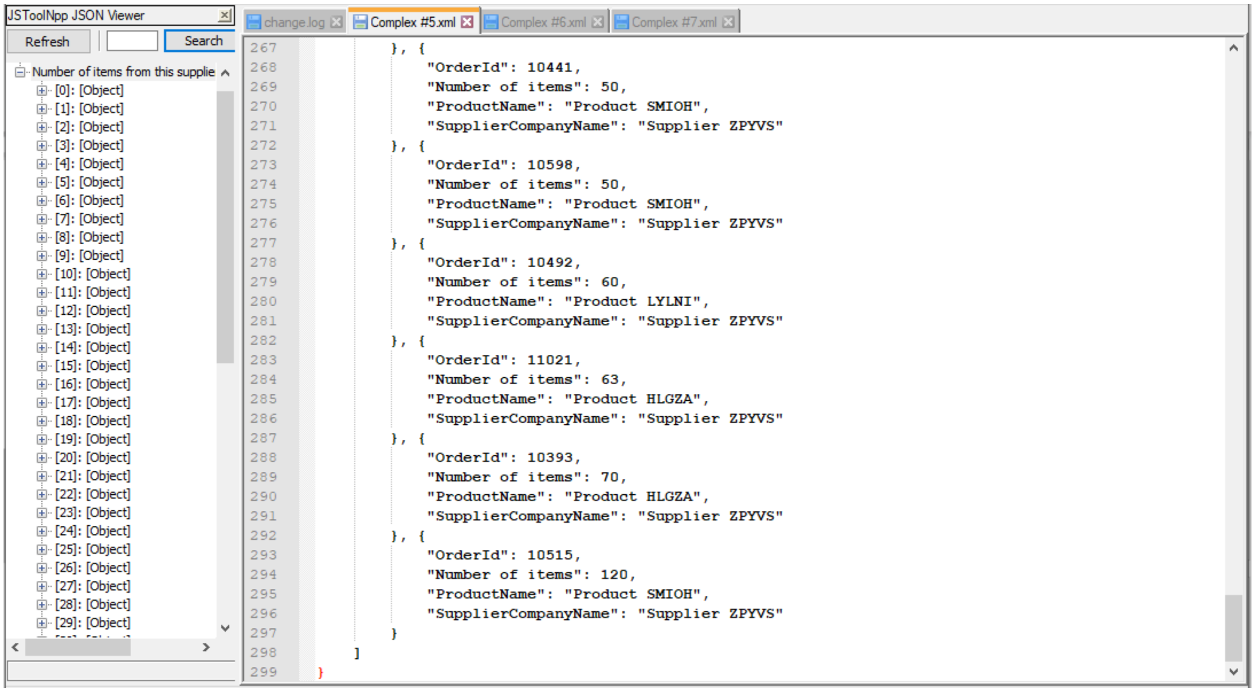
```sql
USE Northwinds2020TSQLV6;

SELECT SO.OrderId
        ,SOD.Quantity AS 'Number of items'
        ,PP.ProductName
        ,PrS.SupplierCompanyName
FROM Sales.[Order] AS SO
INNER JOIN Sales.OrderDetail AS SOD ON SO.OrderId = SOD.OrderId
INNER JOIN Production.Product AS PP ON SOD.ProductId = PP.ProductId
INNER JOIN Production.Supplier AS PrS ON PrS.SupplierId = PP.SupplierId
WHERE PrS.SupplierCompanyName = dbo.fnd_suppliernm(11)
GROUP BY PP.ProductName
        ,SO.OrderId
        ,PrS.SupplierCompanyName
        ,SOD.Quantity
ORDER BY SOD.Quantity ASC
        ,SO.OrderId
        ,PP.ProductName;
```

Output



	OrderId	Number of items	ProductName	SupplierCompanyName
1	10422	2	Product HLGZA	Supplier ZPYVS
2	10323	4	Product LYLNI	Supplier ZPYVS
3	10592	5	Product HLGZA	Supplier ZPYVS
4	10810	5	Product LYLNI	Supplier ZPYVS
5	10887	5	Product LYLNI	Supplier ZPYVS
6	10973	5	Product HLGZA	Supplier ZPYVS
7	10448	6	Product HLGZA	Supplier ZPYVS
8	10587	6	Product HLGZA	Supplier ZPYVS
9	10840	6	Product LYLNI	Supplier ZPYVS
10	11004	6	Product HLGZA	Supplier ZPYVS
11	10393	7	Product LYLNI	Supplier ZPYVS
12	10347	10	Product LYLNI	Supplier ZPYVS
13	10432	10	Product HLGZA	Supplier ZPYVS
14	10832	10	Product LYLNI	Supplier ZPYVS
15	10851	10	Product LYLNI	Supplier ZPYVS

✓ Query executed successfully. | localhost, 12001 (15.0 RTM) | sa (65) | Northwinds2020TSQLV6 | 00:00:00 | 59 rows



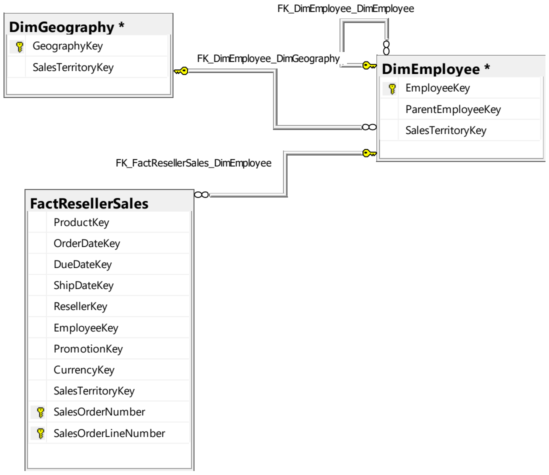
```
        }, {
            "OrderId": 10441,
            "Number of items": 50,
            "ProductName": "Product SMIOH",
            "SupplierCompanyName": "Supplier ZPYVS"
        }, {
            "OrderId": 10598,
            "Number of items": 50,
            "ProductName": "Product SMIOH",
            "SupplierCompanyName": "Supplier ZPYVS"
        }, {
            "OrderId": 10492,
            "Number of items": 60,
            "ProductName": "Product LYLNI",
            "SupplierCompanyName": "Supplier ZPYVS"
        }, {
            "OrderId": 11021,
            "Number of items": 63,
            "ProductName": "Product HLGZA",
            "SupplierCompanyName": "Supplier ZPYVS"
        }, {
            "OrderId": 10393,
            "Number of items": 70,
            "ProductName": "Product HLGZA",
            "SupplierCompanyName": "Supplier ZPYVS"
        }, {
            "OrderId": 10515,
            "Number of items": 120,
            "ProductName": "Product SMIOH",
            "SupplierCompanyName": "Supplier ZPYVS"
        }
    ]
}
```

Function that will be used for the next 2 queries:

```
USE AdventureWorksDW2017

CREATE FUNCTION fnd_city
(
    @GeoKey int
)
RETURNS varchar(15)
BEGIN
    RETURN
    (
        SELECT SalesTerritoryKey
        FROM dbo.DimGeography
        WHERE GeographyKey = @GeoKey
    );
END;
```

Proposition #19 (Complex)

Display for the sales territory that has Geography Key #155: the city, first, last, and middle name of the employee in charge of that territory, the number of orders they handled, and the order date of those orders made after the start of 2013


FK_DimEmployee_DimEmployee
FK_DimEmployee_DimGeography
FK_FactResellerSales_DimEmployee

DimGeography *

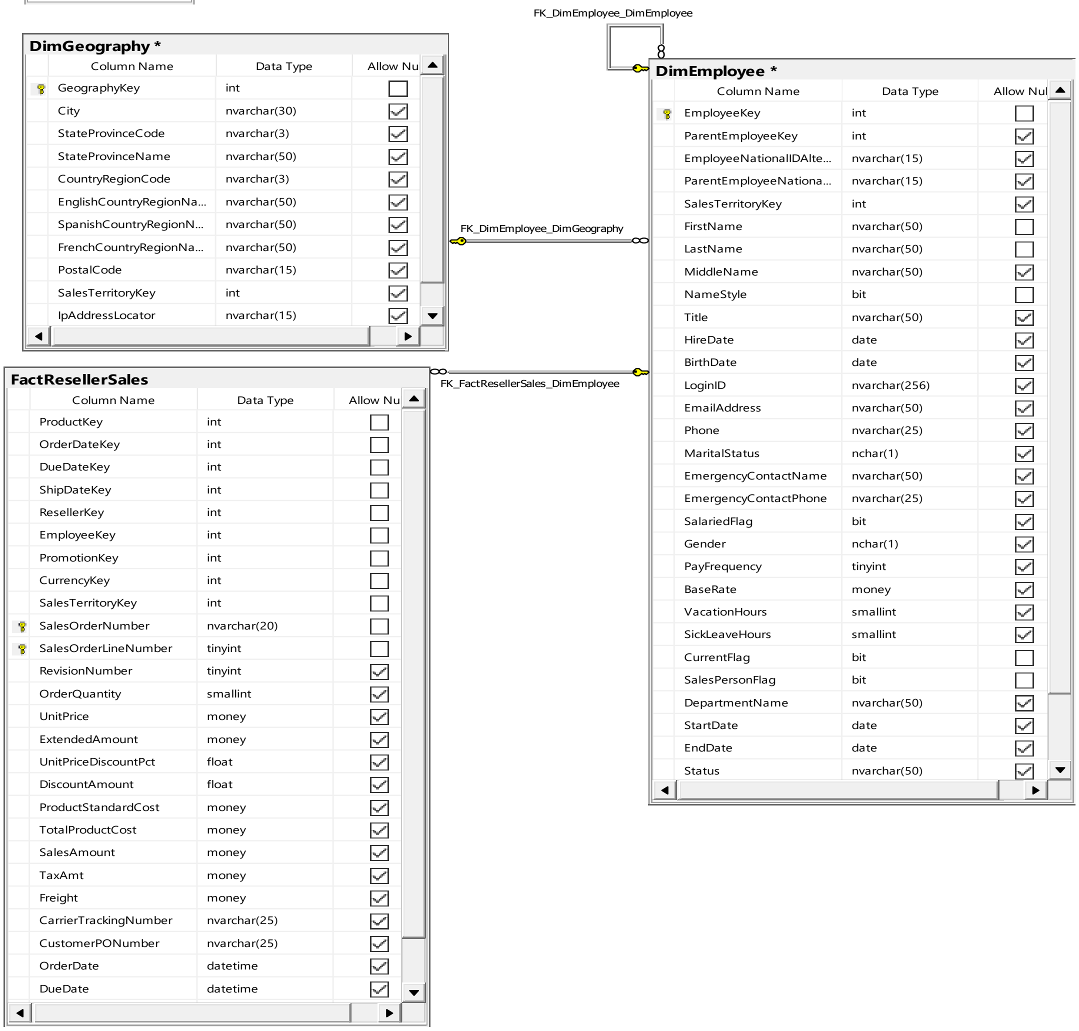
🔑	GeographyKey
	SalesTerritoryKey

DimEmployee *

🔑	EmployeeKey
	ParentEmployeeKey
	SalesTerritoryKey

FactResellerSales

	ProductKey
	OrderDateKey
	DueDateKey
	ShipDateKey
	ResellerKey
	EmployeeKey
	PromotionKey
	CurrencyKey
	SalesTerritoryKey
🔑	SalesOrderNumber
🔑	SalesOrderLineNumber


FK_DimEmployee_DimEmployee
FK_DimEmployee_DimGeography
FK_FactResellerSales_DimEmployee

DimGeography *

	Column Name	Data Type	Allow Nu
🔑	GeographyKey	int	☐
	City	nvarchar(30)	☑
	StateProvinceCode	nvarchar(3)	☑
	StateProvinceName	nvarchar(50)	☑
	CountryRegionCode	nvarchar(3)	☑
	EnglishCountryRegionNa...	nvarchar(50)	☑
	SpanishCountryRegionN...	nvarchar(50)	☑
	FrenchCountryRegionNa...	nvarchar(50)	☑
	PostalCode	nvarchar(15)	☑
	SalesTerritoryKey	int	☑
	IpAddressLocator	nvarchar(15)	☑

DimEmployee *

	Column Name	Data Type	Allow Nul
🔑	EmployeeKey	int	☐
	ParentEmployeeKey	int	☑
	EmployeeNationalIDAlte...	nvarchar(15)	☑
	ParentEmployeeNationa...	nvarchar(15)	☑
	SalesTerritoryKey	int	☑
	FirstName	nvarchar(50)	☐
	LastName	nvarchar(50)	☐
	MiddleName	nvarchar(50)	☑
	NameStyle	bit	☐
	Title	nvarchar(50)	☑
	HireDate	date	☑
	BirthDate	date	☑
	LoginID	nvarchar(256)	☑
	EmailAddress	nvarchar(50)	☑
	Phone	nvarchar(25)	☑
	MaritalStatus	nchar(1)	☑
	EmergencyContactName	nvarchar(50)	☑
	EmergencyContactPhone	nvarchar(25)	☑
	SalariedFlag	bit	☑
	Gender	nchar(1)	☑
	PayFrequency	tinyint	☑
	BaseRate	money	☑
	VacationHours	smallint	☑
	SickLeaveHours	smallint	☑
	CurrentFlag	bit	☐
	SalesPersonFlag	bit	☐
	DepartmentName	nvarchar(50)	☑
	StartDate	date	☑
	EndDate	date	☑
	Status	nvarchar(50)	☑

FactResellerSales

	Column Name	Data Type	Allow Nu
	ProductKey	int	☐
	OrderDateKey	int	☐
	DueDateKey	int	☐
	ShipDateKey	int	☐
	ResellerKey	int	☐
	EmployeeKey	int	☐
	PromotionKey	int	☐
	CurrencyKey	int	☐
	SalesTerritoryKey	int	☐
🔑	SalesOrderNumber	nvarchar(20)	☐
🔑	SalesOrderLineNumber	tinyint	☐
	RevisionNumber	tinyint	☑
	OrderQuantity	smallint	☑
	UnitPrice	money	☑
	ExtendedAmount	money	☑
	UnitPriceDiscountPct	float	☑
	DiscountAmount	float	☑
	ProductStandardCost	money	☑
	TotalProductCost	money	☑
	SalesAmount	money	☑
	TaxAmt	money	☑
	Freight	money	☑
	CarrierTrackingNumber	nvarchar(25)	☑
	CustomerPONumber	nvarchar(25)	☑
	OrderDate	datetime	☑
	DueDate	datetime	☑

Columns from Tables

Table Name	Column Name
DimGeography	City
DimEmployee	CONCAT(LastName, FirstName, MiddleName) AS Name
FactsResellerSales	COUNT(SalesOrderNumber) AS # of Orders, OrderDate

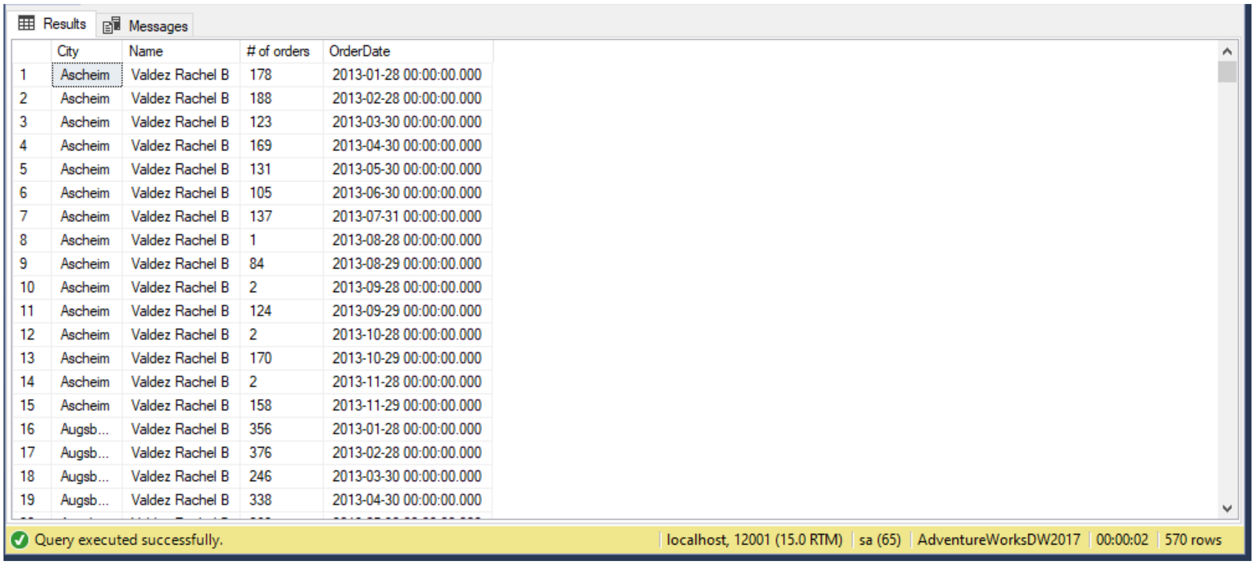
Order By

Table Name	Column Name	Sort Order
DimGeography	City	ASC

Solution Query

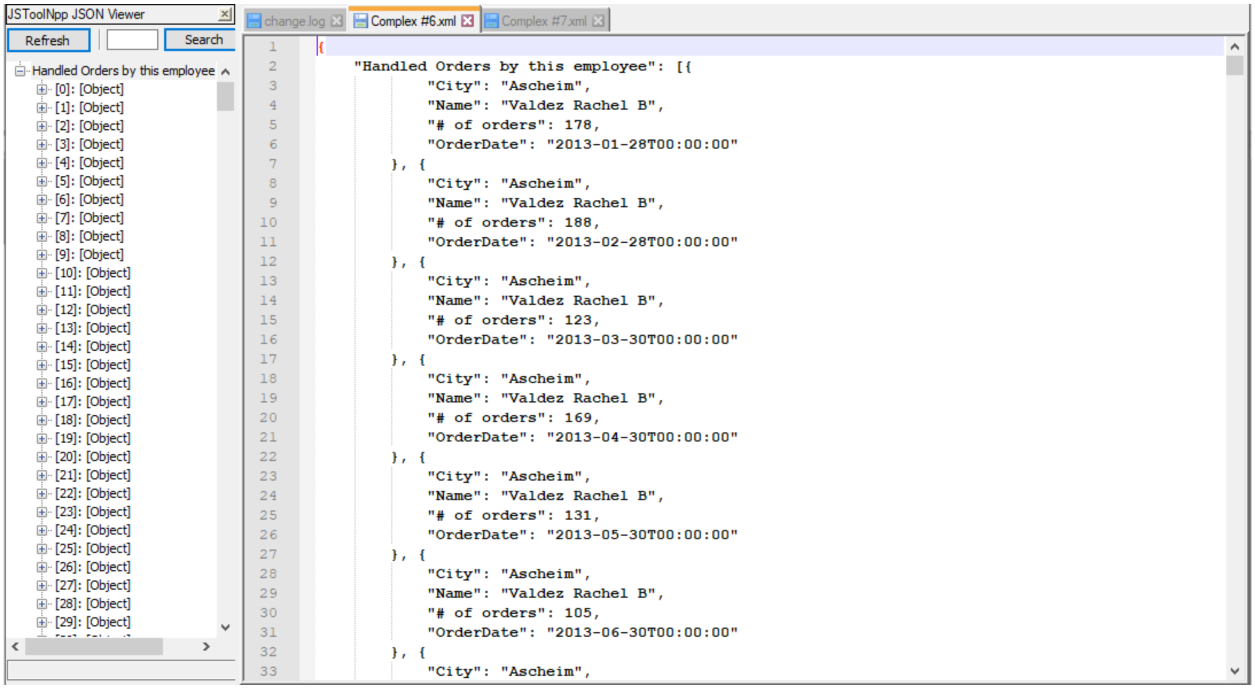
```
USE AdventureWorksDW2017;

SELECT DG.City
        ,CONCAT (
                DE.LastName
                ,' '
                ,DE.FirstName
                ,' '
                ,DE.MiddleName
                ) AS Name
        ,COUNT(FRS.SalesOrderNumber) AS '# of orders'
        ,FRS.OrderDate
FROM dbo.DimGeography AS DG
INNER JOIN dbo.DimEmployee AS DE ON DE.SalesTerritoryKey =
DG.SalesTerritoryKey
INNER JOIN dbo.FactResellerSales AS FRS ON FRS.EmployeeKey = DE.EmployeeKey
WHERE FRS.SalesTerritoryKey = dbo.fnd_city(155)
        AND FRS.OrderDate > '20130101'
GROUP BY DG.City
        ,FRS.OrderDate
        ,CONCAT (
                DE.LastName
                ,' '
                ,DE.FirstName
                ,' '
                ,DE.MiddleName
                )
ORDER BY DG.City;
```

Output



	City	Name	# of orders	OrderDate
1	Ascheim	Valdez Rachel B	178	2013-01-28 00:00:00.000
2	Ascheim	Valdez Rachel B	188	2013-02-28 00:00:00.000
3	Ascheim	Valdez Rachel B	123	2013-03-30 00:00:00.000
4	Ascheim	Valdez Rachel B	169	2013-04-30 00:00:00.000
5	Ascheim	Valdez Rachel B	131	2013-05-30 00:00:00.000
6	Ascheim	Valdez Rachel B	105	2013-06-30 00:00:00.000
7	Ascheim	Valdez Rachel B	137	2013-07-31 00:00:00.000
8	Ascheim	Valdez Rachel B	1	2013-08-28 00:00:00.000
9	Ascheim	Valdez Rachel B	84	2013-08-29 00:00:00.000
10	Ascheim	Valdez Rachel B	2	2013-09-28 00:00:00.000
11	Ascheim	Valdez Rachel B	124	2013-09-29 00:00:00.000
12	Ascheim	Valdez Rachel B	2	2013-10-28 00:00:00.000
13	Ascheim	Valdez Rachel B	170	2013-10-29 00:00:00.000
14	Ascheim	Valdez Rachel B	2	2013-11-28 00:00:00.000
15	Ascheim	Valdez Rachel B	158	2013-11-29 00:00:00.000
16	Augsb...	Valdez Rachel B	356	2013-01-28 00:00:00.000
17	Augsb...	Valdez Rachel B	376	2013-02-28 00:00:00.000
18	Augsb...	Valdez Rachel B	246	2013-03-30 00:00:00.000
19	Augsb...	Valdez Rachel B	338	2013-04-30 00:00:00.000

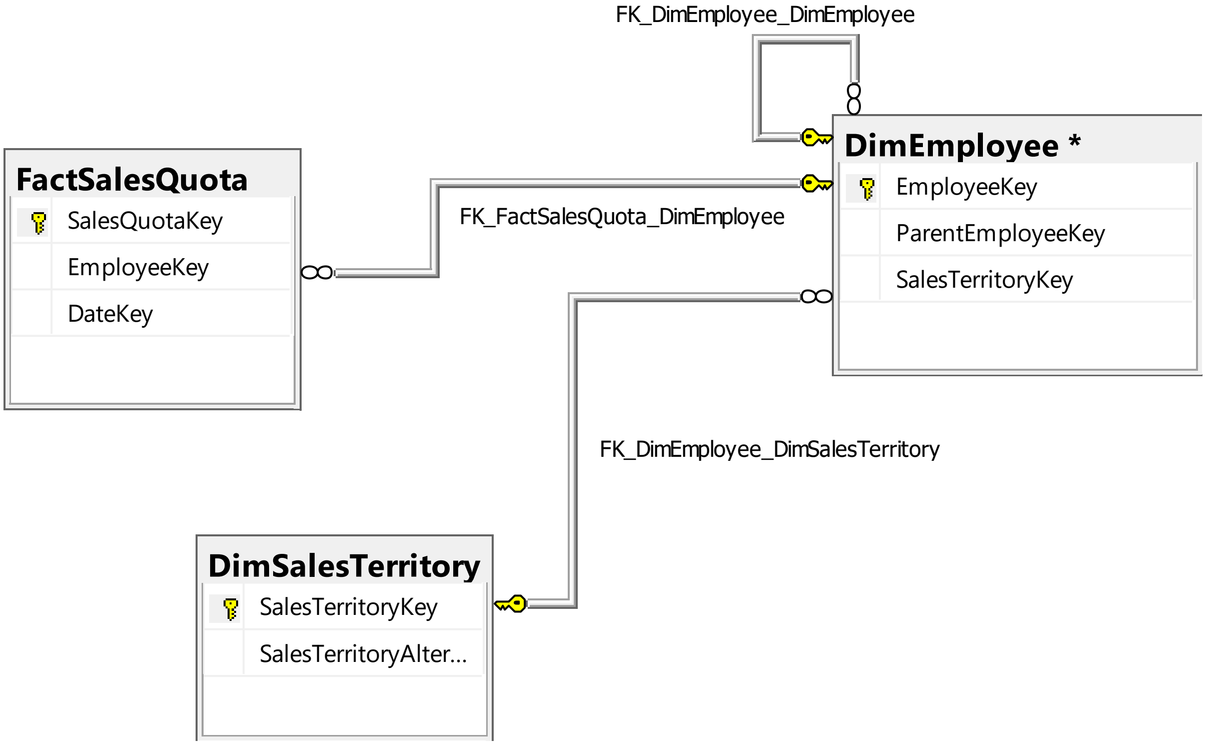
Query executed successfully. | localhost, 12001 (15.0 RTM) | sa (65) | AdventureWorksDW2017 | 00:00:02 | 570 rows

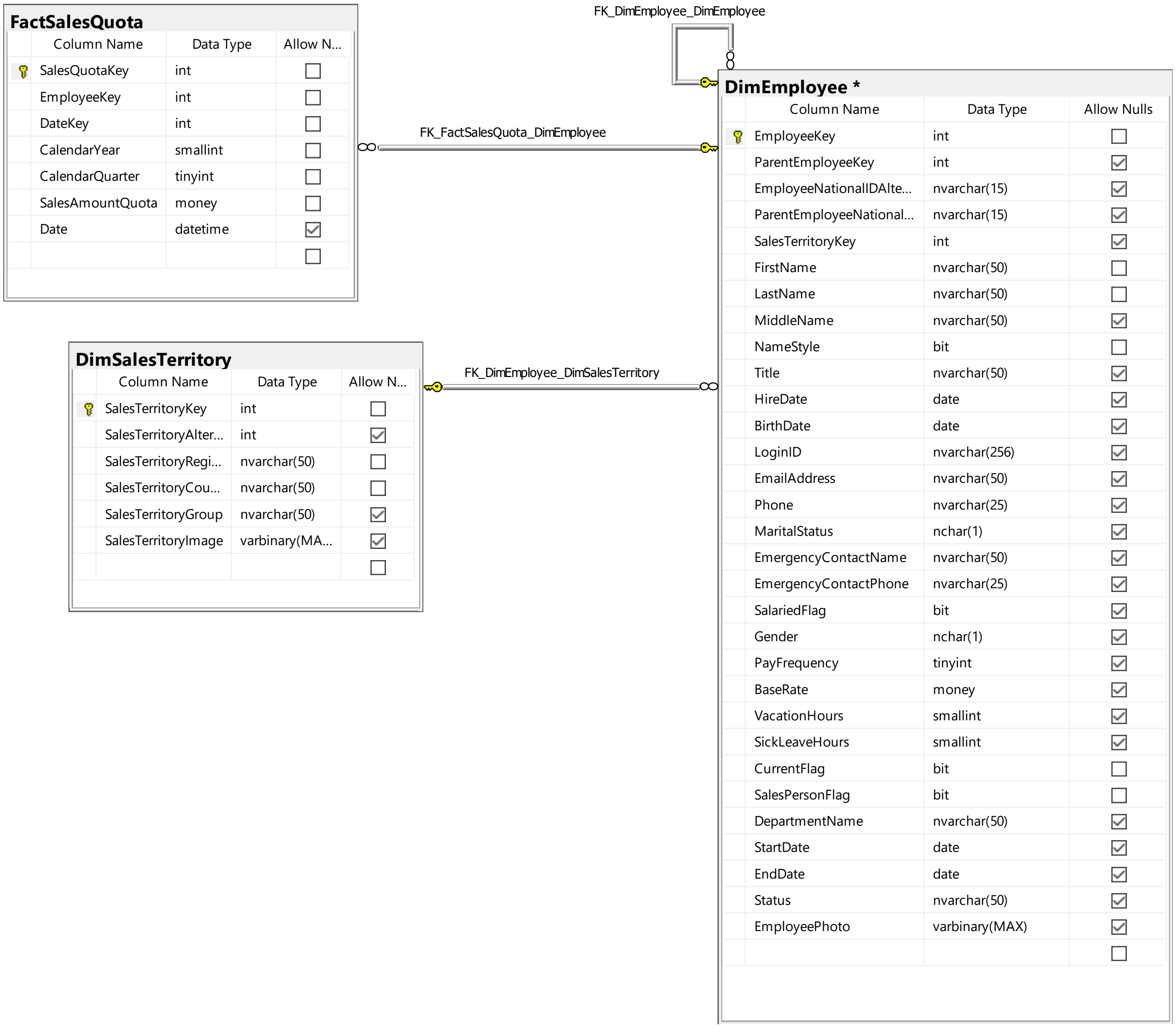


```
{
    "Handled Orders by this employee": [{
            "City": "Ascheim",
            "Name": "Valdez Rachel B",
            "# of orders": 178,
            "OrderDate": "2013-01-28T00:00:00"
        }, {
            "City": "Ascheim",
            "Name": "Valdez Rachel B",
            "# of orders": 188,
            "OrderDate": "2013-02-28T00:00:00"
        }, {
            "City": "Ascheim",
            "Name": "Valdez Rachel B",
            "# of orders": 123,
            "OrderDate": "2013-03-30T00:00:00"
        }, {
            "City": "Ascheim",
            "Name": "Valdez Rachel B",
            "# of orders": 169,
            "OrderDate": "2013-04-30T00:00:00"
        }, {
            "City": "Ascheim",
            "Name": "Valdez Rachel B",
            "# of orders": 131,
            "OrderDate": "2013-05-30T00:00:00"
        }, {
            "City": "Ascheim",
            "Name": "Valdez Rachel B",
            "# of orders": 105,
            "OrderDate": "2013-06-30T00:00:00"
        }, {
            "City": "Ascheim",
```

Proposition #20 (Complex)

Display for each employee: their full name, their total sales quota, and the name of their sales territory country




FK_DimEmployee_DimEmployee
FK_FactSalesQuota_DimEmployee
FK_DimEmployee_DimSalesTerritory

FactSalesQuota

	Column Name	Data Type	Allow N...
🔑	SalesQuotaKey	int	□
	EmployeeKey	int	□
	DateKey	int	□
	CalendarYear	smallint	□
	CalendarQuarter	tinyint	□
	SalesAmountQuota	money	□
	Date	datetime	☑
			□

DimSalesTerritory

	Column Name	Data Type	Allow N...
🔑	SalesTerritoryKey	int	□
	SalesTerritoryAlter...	int	☑
	SalesTerritoryRegi...	nvarchar(50)	□
	SalesTerritoryCou...	nvarchar(50)	□
	SalesTerritoryGroup	nvarchar(50)	☑
	SalesTerritoryImage	varbinary(MA...	☑
			□

DimEmployee *

	Column Name	Data Type	Allow Nulls
🔑	EmployeeKey	int	□
	ParentEmployeeKey	int	☑
	EmployeeNationalIDAlte...	nvarchar(15)	☑
	ParentEmployeeNational...	nvarchar(15)	☑
	SalesTerritoryKey	int	☑
	FirstName	nvarchar(50)	□
	LastName	nvarchar(50)	□
	MiddleName	nvarchar(50)	☑
	NameStyle	bit	□
	Title	nvarchar(50)	☑
	HireDate	date	☑
	BirthDate	date	☑
	LoginID	nvarchar(256)	☑
	EmailAddress	nvarchar(50)	☑
	Phone	nvarchar(25)	☑
	MaritalStatus	nchar(1)	☑
	EmergencyContactName	nvarchar(50)	☑
	EmergencyContactPhone	nvarchar(25)	☑
	SalariedFlag	bit	☑
	Gender	nchar(1)	☑
	PayFrequency	tinyint	☑
	BaseRate	money	☑
	VacationHours	smallint	☑
	SickLeaveHours	smallint	☑
	CurrentFlag	bit	□
	SalesPersonFlag	bit	□
	DepartmentName	nvarchar(50)	☑
	StartDate	date	☑
	EndDate	date	☑
	Status	nvarchar(50)	☑
	EmployeePhoto	varbinary(MAX)	☑
			□

Columns from Tables

Table Name	Column Name
DimEmployee	CONCAT(LastName, FirstName, MiddleName) AS Name
FactsSalesQuota	Sum(SalesAmountQuota) AS Total Sales Quota
DimSalesTerritory	SalesTerritoryCountry

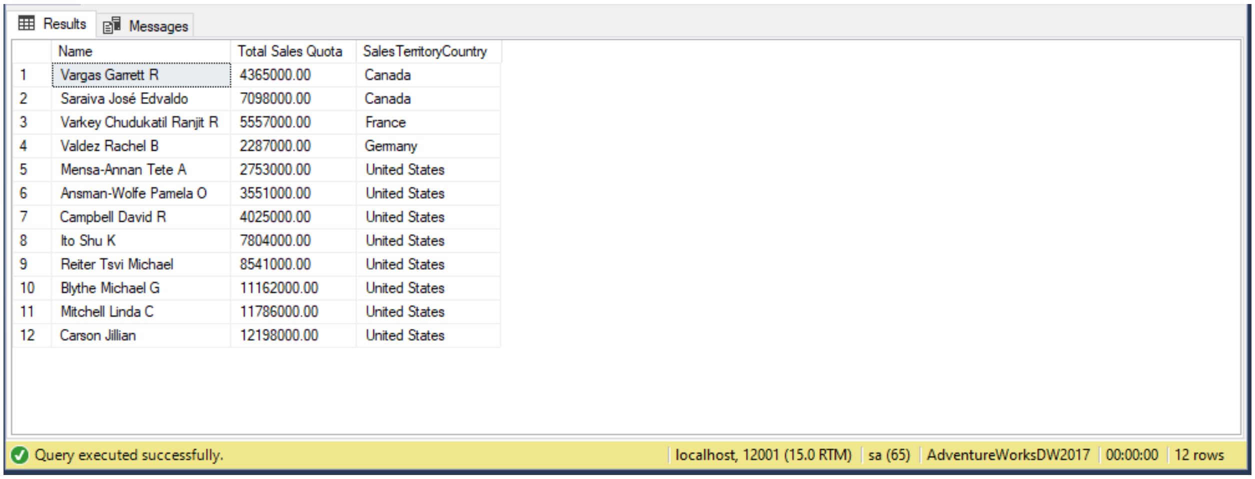
Order By

Table Name	Column Name	Sort Order
DimSalesTerritory	SalesTerritoryCountry	ASC
FactsSalesQuota	Total Sales Quota	ASC

Solution Query

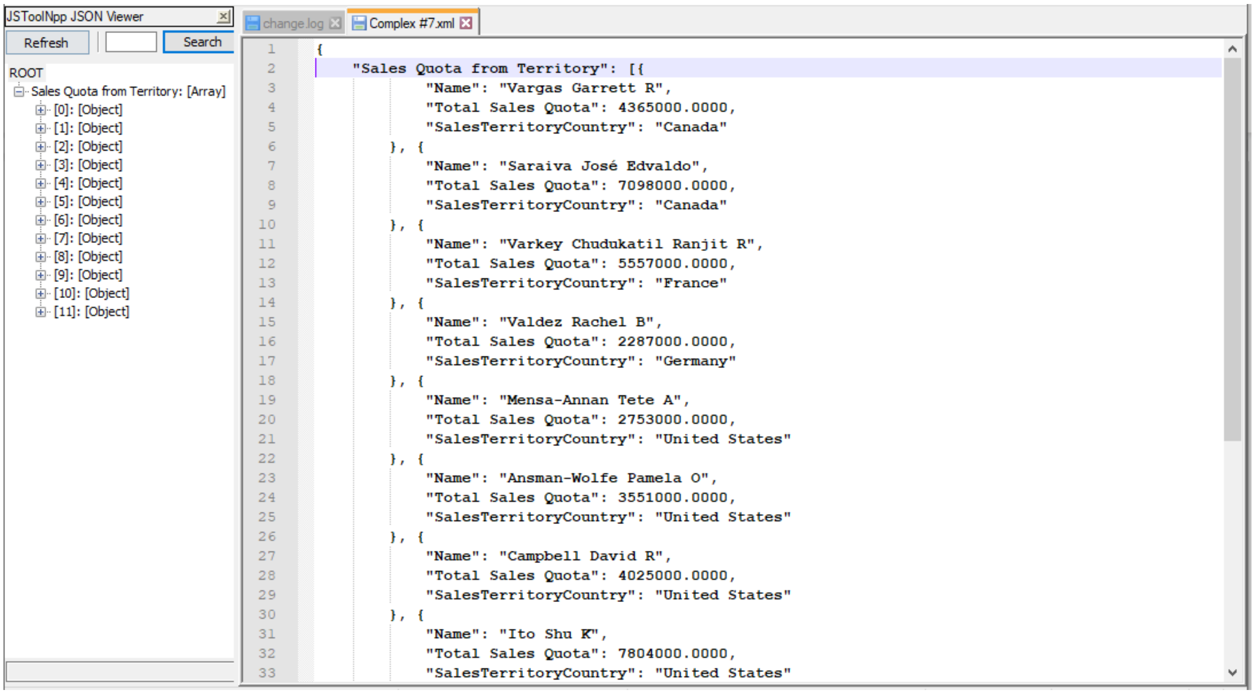
```sql
USE AdventureWorksDW2017;

SELECT CONCAT (
                DE.LastName
                ,' '
                ,DE.FirstName
                ,' '
                ,DE.MiddleName
                ) AS Name
        ,SUM(FSQ.SalesAmountQuota) AS 'Total Sales Quota'
        ,DST.SalesTerritoryCountry
FROM dbo.DimEmployee AS DE
INNER JOIN dbo.FactSalesQuota AS FSQ ON FSQ.EmployeeKey = DE.EmployeeKey
INNER JOIN dbo.DimSalesTerritory AS DST ON DST.SalesTerritoryKey =
DE.SalesTerritoryKey
WHERE DE.SalesTerritoryKey <= dbo.fnd_city(155)
GROUP BY DST.SalesTerritoryCountry
        ,CONCAT (
                DE.LastName
                ,' '
                ,DE.FirstName
                ,' '
                ,DE.MiddleName
                )
ORDER BY DST.SalesTerritoryCountry
        ,[Total Sales Quota];
```

Output



	Name	Total Sales Quota	SalesTerritoryCountry
1	Vargas Garrett R	4365000.00	Canada
2	Saraiva José Edvaldo	7098000.00	Canada
3	Varkey Chudukatil Ranjit R	5557000.00	France
4	Valdez Rachel B	2287000.00	Germany
5	Mensa-Annan Tete A	2753000.00	United States
6	Ansman-Wolfe Pamela O	3551000.00	United States
7	Campbell David R	4025000.00	United States
8	Ito Shu K	7804000.00	United States
9	Reiter Tsvi Michael	8541000.00	United States
10	Blythe Michael G	11162000.00	United States
11	Mitchell Linda C	11786000.00	United States
12	Carson Jillian	12198000.00	United States

Query executed successfully. | localhost, 12001 (15.0 RTM) | sa (65) | AdventureWorksDW2017 | 00:00:00 | 12 rows



```
{
    "Sales Quota from Territory": [{
            "Name": "Vargas Garrett R",
            "Total Sales Quota": 4365000.0000,
            "SalesTerritoryCountry": "Canada"
        }, {
            "Name": "Saraiva José Edvaldo",
            "Total Sales Quota": 7098000.0000,
            "SalesTerritoryCountry": "Canada"
        }, {
            "Name": "Varkey Chudukatil Ranjit R",
            "Total Sales Quota": 5557000.0000,
            "SalesTerritoryCountry": "France"
        }, {
            "Name": "Valdez Rachel B",
            "Total Sales Quota": 2287000.0000,
            "SalesTerritoryCountry": "Germany"
        }, {
            "Name": "Mensa-Annan Tete A",
            "Total Sales Quota": 2753000.0000,
            "SalesTerritoryCountry": "United States"
        }, {
            "Name": "Ansman-Wolfe Pamela O",
            "Total Sales Quota": 3551000.0000,
            "SalesTerritoryCountry": "United States"
        }, {
            "Name": "Campbell David R",
            "Total Sales Quota": 4025000.0000,
            "SalesTerritoryCountry": "United States"
        }, {
            "Name": "Ito Shu K",
            "Total Sales Quota": 7804000.0000,
            "SalesTerritoryCountry": "United States"
```