

Fall
2020

CSCI 331

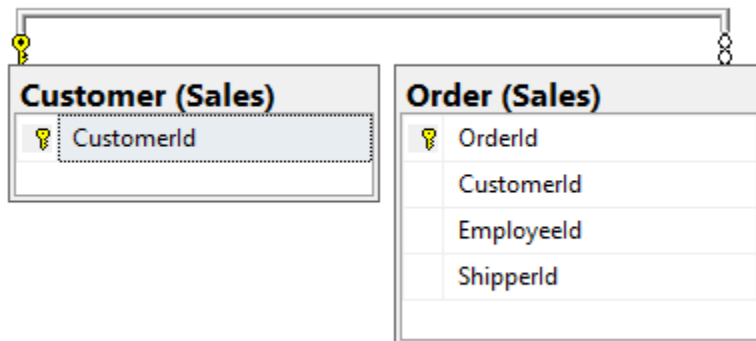
PROJECT 1

Jonathan Eng

DATABASES - PROFESSOR HELLER - 10:45-12:00 TUES/THURS

Proposition #1 (Simple)

Show the Orders that were made in 2016 but have no ship date



Customer (Sales)			
	Column Name	Data Type	Allow Nulls
?	CustomerId	Udt.SurrogateKeyIn...	<input type="checkbox"/>
	CustomerCompanyName	Udt.CompanyNam...	<input type="checkbox"/>
	CustomerContactName	Udt.ContactName:...	<input type="checkbox"/>
	CustomerContactTitle	Udt.Title:nvarchar(3...	<input type="checkbox"/>
	CustomerAddress	Udt.Address:nvarch...	<input type="checkbox"/>
	CustomerCity	Udt.City:nvarchar(15)	<input type="checkbox"/>
	CustomerRegion	Udt.Region:nvarch...	<input checked="" type="checkbox"/>
	CustomerPostalCode	Udt.PostalCode:nv...	<input checked="" type="checkbox"/>
	CustomerCountry	Udt.Country:nvarc...	<input type="checkbox"/>
	CustomerPhoneNumber	Udt.TelephoneNum...	<input type="checkbox"/>
	CustomerFaxNumber	Udt.TelephoneNum...	<input checked="" type="checkbox"/>
			<input type="checkbox"/>

Order (Sales)			
	Column Name	Data Type	Allow Nulls
?	OrderId	Udt.SurrogateKeyIn...	<input type="checkbox"/>
	CustomerId	Udt.SurrogateKeyIn...	<input checked="" type="checkbox"/>
	EmployeeId	Udt.SurrogateKeyIn...	<input type="checkbox"/>
	ShipperId	Udt.SurrogateKeyIn...	<input type="checkbox"/>
	OrderDate	Udt.DateYYYYMM...	<input type="checkbox"/>
	RequiredDate	Udt.DateYYYYMM...	<input type="checkbox"/>
	ShipToDate	Udt.DateYYYYMM...	<input checked="" type="checkbox"/>
	Freight	Udt.Currency:money	<input type="checkbox"/>
	ShipToName	Udt.ContactName:...	<input type="checkbox"/>
	ShipToAddress	Udt.Address:nvarch...	<input type="checkbox"/>
	ShipToCity	Udt.City:nvarchar(15)	<input type="checkbox"/>
	ShipToRegion	Udt.Region:nvarch...	<input checked="" type="checkbox"/>
	ShipToPostalCode	Udt.PostalCode:nv...	<input checked="" type="checkbox"/>
	ShipToCountry	Udt.Country:nvarc...	<input type="checkbox"/>
	UserAuthenticationId	int	<input checked="" type="checkbox"/>
	DateAdded	datetime2(7)	<input checked="" type="checkbox"/>
	DateOfLastUpdate	datetime2(7)	<input checked="" type="checkbox"/>
			<input type="checkbox"/>

Columns from Tables

Table Name	Column Name
Customer	CustomerId
Order	OrderId; Orderdate; ShipToDate

Order By

Table Name	Column Name	Sort Order
Order	OrderDate, CustomerId	ASC, ASC

Solution Query

```
USE Northwinds2020TSQLV6;
```

```
SELECT C.CustomerId, O.orderid, O.orderdate, O.ShipToDate
FROM Sales.Customer AS C
      INNER JOIN Sales.[Order] AS O
            ON O.CustomerId = C.CustomerId
WHERE O.ShipToDate is NULL AND YEAR(O.OrderDate) = '2016'
ORDER BY O.OrderDate, O.CustomerId
```

```
--Uncomment Below to get JSON output
```

```
--FOR JSON PATH, ROOT ('Orders From 2016 Without Ship Dates'), INCLUDE_NULL_VALUES;
```

Output

```
USE Northwinds2020TSQLV6;

SELECT C.CustomerId, O.orderid, O.orderdate, O.ShipToDate
FROM Sales.Customer AS C
    INNER JOIN Sales.[Order] AS O
        ON O.CustomerId = C.CustomerId
WHERE O.ShipToDate is NULL AND YEAR(O.OrderDate) = '2016'
ORDER BY O.OrderDate, O.CustomerId

--FOR JSON PATH, ROOT ('Orders From 2016 Without Ship Dates'), INCLUDE_NULL_VALUES;
```

154 %

Results Messages

	CustomerId	orderid	orderdate	ShipToDate
1	20	11008	2016-04-08	NULL
2	64	11019	2016-04-13	NULL
3	47	11039	2016-04-21	NULL
4	32	11040	2016-04-22	NULL
5	10	11045	2016-04-23	NULL
6	41	11051	2016-04-27	NULL
7	12	11054	2016-04-28	NULL
8	6	11058	2016-04-29	NULL
9	67	11059	2016-04-29	NULL
10	32	11061	2016-04-30	NULL
11	66	11062	2016-04-30	NULL
12	46	11065	2016-05-01	NULL
13	62	11068	2016-05-04	NULL
14	20	11072	2016-05-05	NULL
15	44	11070	2016-05-05	NULL
16	46	11071	2016-05-05	NULL
17	58	11073	2016-05-05	NULL
18	9	11076	2016-05-06	NULL
19	65	11077	2016-05-06	NULL

Query executed successfully. | localhost,12001 (15.0 RTM) | sa (60) | Northwinds2020TSQLV6 | 00:00:00 | 21 rows

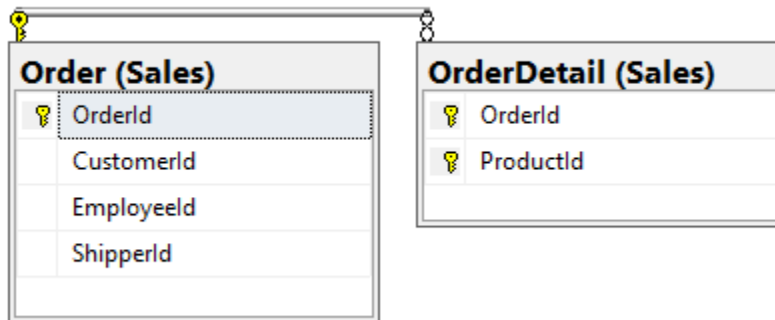
ROOT:
Orders From 2016 Without Ship Dates: [Array]
[0]: [Object]
- CustomerId: 20
- orderid: 11008
- orderdate: "2016-04-08"
- ShipToDate: null
[1]: [Object]
[2]: [Object]
[3]: [Object]
[4]: [Object]
[5]: [Object]
[6]: [Object]
[7]: [Object]
[8]: [Object]
[9]: [Object]
[10]: [Object]
[11]: [Object]
[12]: [Object]
[13]: [Object]
[14]: [Object]
[15]: [Object]
[16]: [Object]
[17]: [Object]
[18]: [Object]
[19]: [Object]
[20]: [Object]

```
1 {  
2   "Orders From 2016 Without Ship Dates": [  
3     {  
4       "CustomerId": 20,  
5       "orderid": 11008,  
6       "orderdate": "2016-04-08",  
7       "ShipToDate": null  
8     }, {  
9       "CustomerId": 64,  
10      "orderid": 11019,  
11      "orderdate": "2016-04-13",  
12      "ShipToDate": null  
13     }, {  
14       "CustomerId": 47,  
15       "orderid": 11039,  
16       "orderdate": "2016-04-21",  
17       "ShipToDate": null  
18     }, {  
19       "CustomerId": 32,  
20       "orderid": 11040,  
21       "orderdate": "2016-04-22",  
22       "ShipToDate": null  
23     }, {  
24       "CustomerId": 10,  
25       "orderid": 11045,  
26       "orderdate": "2016-04-23",  
27       "ShipToDate": null  
28     }, {  
29       "CustomerId": 41,  
30       "orderid": 11051,  
31       "orderdate": "2016-04-27",  
32       "ShipToDate": null  
33     }, {  
34       "CustomerId": 12,  
35       "orderid": 11054,  
36       "orderdate": "2016-04-28",  
37       "ShipToDate": null  
38     }, {  
39       "CustomerId": 6,  
40       "orderid": 11058,  
41       "orderdate": "2016-04-29",  
42       "ShipToDate": null  
43     }, {  
44       "CustomerId": 67,  
45       "orderid": 11059,  
46       "orderdate": "2016-04-29",  
47       "ShipToDate": null  
48     }, {  
49       "CustomerId": 32,  
50       "orderid": 11061,  
51       "orderdate": "2016-04-30",  
52       "ShipToDate": null  
53     }, {  
54       "CustomerId": 66,  
55       "orderid": 11062,  
56       "orderdate": "2016-04-30",  
57       "ShipToDate": null  
58     }, {  
59       "CustomerId": 46,  
60       "orderid": 11065,  
61       "orderdate": "2016-05-01",  
62       "ShipToDate": null  
63     }, {  
64       "CustomerId": 62,  
65       "orderid": 11068,  
66       "orderdate": "2016-05-04",  
67       "ShipToDate": null  
68     }, {  
69       "CustomerId": 20,  
70       "orderid": 11072,  
71       "orderdate": "2016-05-05",  
72       "ShipToDate": null  
73     }, {  
74       "CustomerId": 44,  
75       "orderid": 11070,  
76       "orderdate": "2016-05-05",  
77       "ShipToDate": null  
78     }, {  
79       "CustomerId": 46,  
80       "orderid": 11071,  
81       "orderdate": "2016-05-05",  
82       "ShipToDate": null  
83     }, {  
84       "CustomerId": 58,  
85       "orderid": 11073,  
86       "orderdate": "2016-05-05",  
87       "ShipToDate": null  
88     }, {  
89       "CustomerId": 9,  
90       "orderid": 11076,  
91       "orderdate": "2016-05-06",  
92       "ShipToDate": null  
93     }, {  
94       "CustomerId": 65,  
95       "orderid": 11077,  
96       "orderdate": "2016-05-06",  
97       "ShipToDate": null  
98     }  
99   ]  
100 }
```

JSON file | length: 3,163 | lines: 110 | Ln: 1 | Col: 2 | Sel: 0 | 0 | Windows (CR LF) | UTF-8 | INS

Proposition #2 (Simple)

Show Customer's Orders along with the Discount given if it has one



Order (Sales)			
	Column Name	Data Type	Allow Nulls
🔑	OrderId	Udt.SurrogateKeyIn...	<input type="checkbox"/>
	CustomerId	Udt.SurrogateKeyIn...	<input checked="" type="checkbox"/>
	EmployeeId	Udt.SurrogateKeyIn...	<input type="checkbox"/>
	ShipperId	Udt.SurrogateKeyIn...	<input type="checkbox"/>
	OrderDate	Udt.DateYYYYMM...	<input type="checkbox"/>
	RequiredDate	Udt.DateYYYYMM...	<input type="checkbox"/>
	ShipToDate	Udt.DateYYYYMM...	<input checked="" type="checkbox"/>
	Freight	Udt.Currency:money	<input type="checkbox"/>
	ShipToName	Udt.ContactName:...	<input type="checkbox"/>
	ShipToAddress	Udt.Address:nvarch...	<input type="checkbox"/>
	ShipToCity	Udt.City:nvarchar(15)	<input type="checkbox"/>
	ShipToRegion	Udt.Region:nvarch...	<input checked="" type="checkbox"/>
	ShipToPostalCode	Udt.PostalCode:nv...	<input checked="" type="checkbox"/>
	ShipToCountry	Udt.Country:nvarc...	<input type="checkbox"/>
	UserAuthenticationId	int	<input checked="" type="checkbox"/>
	DateAdded	datetime2(7)	<input checked="" type="checkbox"/>
	DateOfLastUpdate	datetime2(7)	<input checked="" type="checkbox"/>
			<input type="checkbox"/>

OrderDetail (Sales)			
	Column Name	Data Type	Allow Nulls
🔑	OrderId	Udt.SurrogateKeyIn...	<input type="checkbox"/>
🔑	ProductId	Udt.SurrogateKeyIn...	<input type="checkbox"/>
	UnitPrice	Udt.Currency:money	<input type="checkbox"/>
	Quantity	Udt.QuantitySmall:...	<input type="checkbox"/>
	DiscountPercentage	Udt.Percentage:nu...	<input type="checkbox"/>
			<input type="checkbox"/>

Columns from Tables

Table Name	Column Name
Order	CustomerId
OrderDetail	OrderId, DiscountPercentage

Order By

Table Name	Column Name	Sort Order
OrderDetail	DiscountPercentage	DESC

```
USE Northwinds2020TSQLV6;
```

```
SELECT OD.OrderId, O.CustomerId, OD.DiscountPercentage
FROM Sales.[Order] AS O
     LEFT OUTER JOIN Sales.[OrderDetail] AS OD
       ON OD.OrderId = O.OrderId
WHERE OD.DiscountPercentage > 0
GROUP BY OD.DiscountPercentage, O.CustomerId, OD.OrderId
ORDER BY OD.DiscountPercentage DESC
```

```
--Uncomment Below to get JSON output
--FOR JSON PATH, ROOT ('Customer Orders and Discount'), INCLUDE_NULL_VALUES;
```

```

USE Northwinds2020TSQLV6;

SELECT OD.OrderId, O.CustomerId, OD.DiscountPercentage
FROM Sales.[Order] AS O
LEFT OUTER JOIN Sales.[OrderDetail] AS OD
    ON OD.OrderId = O.OrderId
WHERE OD.DiscountPercentage > 0
GROUP BY OD.DiscountPercentage, O.CustomerId, OD.OrderId
ORDER BY OD.DiscountPercentage DESC;

--FOR JSON PATH, ROOT ('Customer Orders and Discount'), INCLUDE_NULL_VALUES;

```

154 %

Results Messages

	OrderId	CustomerId	DiscountPercentage
1	10260	56	0.250
2	10263	20	0.250
3	10279	44	0.250
4	10284	44	0.250
5	10298	37	0.250
6	10344	89	0.250
7	10369	75	0.250
8	10372	62	0.250
9	10393	71	0.250
10	10417	73	0.250
11	10425	41	0.250
12	10429	37	0.250
13	10431	10	0.250
14	10460	24	0.250
15	10461	46	0.250

Query executed successfully.

localhost,12001 (15.0 RTM) sa (60) Northwinds2020TSQLV6 00:00:00 387 rows

Refresh Search

Customer Orders and Discount: [Array]

- [0]: [Object]
 - OrderId: 10260
 - CustomerId: 56
 - DiscountPercentage: 0.250
- [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]
- [31]: [Object]
- [32]: [Object]
- [33]: [Object]
- [34]: [Object]
- [35]: [Object]
- [36]: [Object]
- [37]: [Object]
- [38]: [Object]
- [39]: [Object]
- [40]: [Object]

```

1 [{"Customer Orders and Discount": [{
2   {
3     "OrderId": 10260,
4     "CustomerId": 56,
5     "DiscountPercentage": 0.250
6   }, {
7     "OrderId": 10263,
8     "CustomerId": 20,
9     "DiscountPercentage": 0.250
10  }, {
11    "OrderId": 10279,
12    "CustomerId": 44,
13    "DiscountPercentage": 0.250
14  }, {
15    "OrderId": 10284,
16    "CustomerId": 44,
17    "DiscountPercentage": 0.250
18  }, {
19    "OrderId": 10298,
20    "CustomerId": 37,

```

JSON file

length: 90,583 lines: 3,103

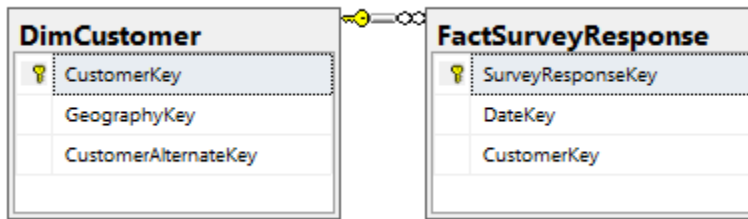
Ln: 1 Col: 2 Sel: 0 | 0

Windows (CR LF) UTF-8

INS

Proposition #3 (Simple)

Show the Customers who left reviews and their Yearly Income



DimCustomer				FactSurveyResponse			
	Column Name	Data Type	Allow Nulls		Column Name	Data Type	Allow Nulls
🔑	CustomerKey	int	<input type="checkbox"/>	🔑	SurveyResponseKey	int	<input type="checkbox"/>
	GeographyKey	int	<input checked="" type="checkbox"/>		DateKey	int	<input type="checkbox"/>
	CustomerAlternateKey	nvarchar(15)	<input type="checkbox"/>		CustomerKey	int	<input type="checkbox"/>
	Title	nvarchar(8)	<input checked="" type="checkbox"/>		ProductCategoryKey	int	<input type="checkbox"/>
	FirstName	nvarchar(50)	<input checked="" type="checkbox"/>		EnglishProductCategoryNa...	nvarchar(50)	<input type="checkbox"/>
	MiddleName	nvarchar(50)	<input checked="" type="checkbox"/>		ProductSubcategoryKey	int	<input type="checkbox"/>
	LastName	nvarchar(50)	<input checked="" type="checkbox"/>		EnglishProductSubcategory...	nvarchar(50)	<input type="checkbox"/>
	NameStyle	bit	<input checked="" type="checkbox"/>		Date	datetime	<input checked="" type="checkbox"/>
	BirthDate	date	<input checked="" type="checkbox"/>				<input type="checkbox"/>
	MaritalStatus	nchar(1)	<input checked="" type="checkbox"/>				
	Suffix	nvarchar(10)	<input checked="" type="checkbox"/>				
	Gender	nvarchar(1)	<input checked="" type="checkbox"/>				
	EmailAddress	nvarchar(50)	<input checked="" type="checkbox"/>				
	YearlyIncome	money	<input checked="" type="checkbox"/>				
	TotalChildren	tinyint	<input checked="" type="checkbox"/>				
	NumberChildrenAtHome	tinyint	<input checked="" type="checkbox"/>				
	EnglishEducation	nvarchar(40)	<input checked="" type="checkbox"/>				
	SpanishEducation	nvarchar(40)	<input checked="" type="checkbox"/>				
	FrenchEducation	nvarchar(40)	<input checked="" type="checkbox"/>				
	EnglishOccupation	nvarchar(100)	<input checked="" type="checkbox"/>				
	SpanishOccupation	nvarchar(100)	<input checked="" type="checkbox"/>				
	FrenchOccupation	nvarchar(100)	<input checked="" type="checkbox"/>				
	HouseOwnerFlag	nchar(1)	<input checked="" type="checkbox"/>				
	NumberCarsOwned	tinyint	<input checked="" type="checkbox"/>				
	AddressLine1	nvarchar(120)	<input checked="" type="checkbox"/>				
	AddressLine2	nvarchar(120)	<input checked="" type="checkbox"/>				
	Phone	nvarchar(20)	<input checked="" type="checkbox"/>				
	DateFirstPurchase	date	<input checked="" type="checkbox"/>				
	CommuteDistance	nvarchar(15)	<input checked="" type="checkbox"/>				
			<input type="checkbox"/>				

Columns from Tables

Table Name	Column Name
FactSurveyResponse	CustomerKey
DimCustomer	YearlyIncome

Order By

Table Name	Column Name	Sort Order
Order	CustomerKey	ASC

USE AdventureWorksDW2017;

```
SELECT FSR.CustomerKey,  
       DC.YearlyIncome  
FROM   dbo.FactSurveyResponse AS FSR  
       LEFT OUTER JOIN dbo.DimCustomer AS DC  
         ON FSR.CustomerKey = DC.CustomerKey  
GROUP BY FSR.CustomerKey,  
         DC.YearlyIncome
```

--Uncomment Below to get JSON output

--FOR JSON PATH, ROOT ('Income of Customers Who Left Reviews'), INCLUDE_NULL_VALUES;

USE AdventureWorksDW2017;

```
SELECT FSR.CustomerKey,
       DC.YearlyIncome
FROM dbo.FactSurveyResponse AS FSR
LEFT OUTER JOIN dbo.DimCustomer AS DC
ON FSR.CustomerKey = DC.CustomerKey
GROUP BY FSR.CustomerKey,
         DC.YearlyIncome
--FOR JSON PATH, ROOT ('Income of Customers Who Left Reviews'), INCLUDE_NULL_VALUES;
```

	CustomerKey	YearlyIncome
1	11001	60000.00
2	11017	20000.00
3	11019	40000.00
4	11026	30000.00
5	11033	20000.00
6	11037	40000.00
7	11047	30000.00
8	11048	30000.00
9	11054	40000.00
10	11057	70000.00
11	11070	80000.00
12	11078	40000.00
13	11079	160000.00
14	11081	120000.00
15	11109	70000.00
16	11110	60000.00
17	11111	60000.00
18	11123	70000.00
19	11125	70000.00

Query executed successfully. | localhost:12001 (15.0 RTM) | sa (60) | AdventureWorksDW2017 | 00:00:00 | 1,656 rows

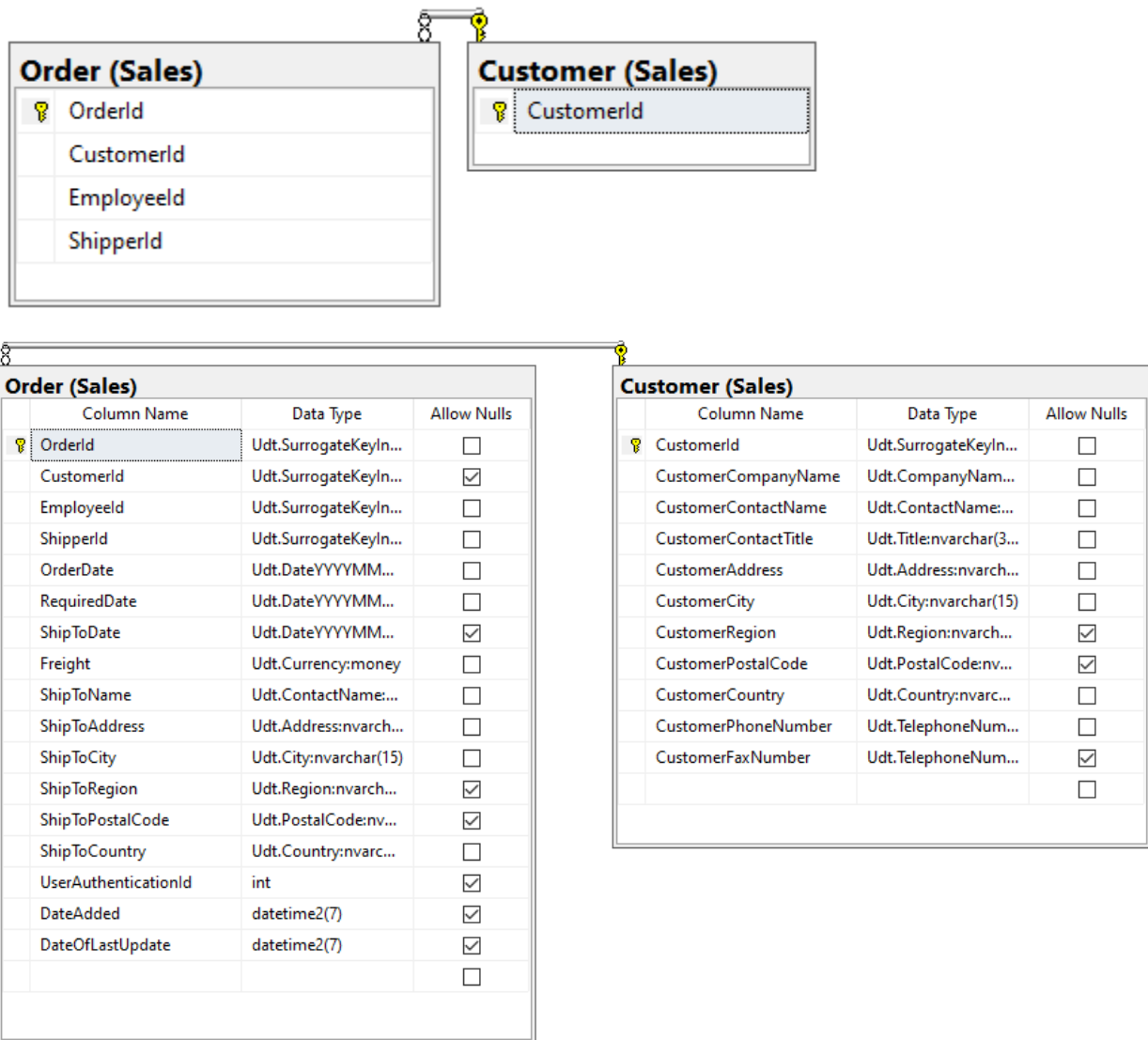
Income of Customers Who Left Reviews: [Array]

```
{
  "Income of Customers Who Left Reviews": [
    {
      "CustomerKey": 11001,
      "YearlyIncome": 60000.0000
    },
    {
      "CustomerKey": 11017,
      "YearlyIncome": 20000.0000
    },
    {
      "CustomerKey": 11019,
      "YearlyIncome": 40000.0000
    },
    {
      "CustomerKey": 11026,
      "YearlyIncome": 30000.0000
    },
    {
      "CustomerKey": 11033,
      "YearlyIncome": 20000.0000
    },
    {
      "CustomerKey": 11037,
      "YearlyIncome": 40000.0000
    },
    {
      "CustomerKey": 11047,
      "YearlyIncome": 30000.0000
    },
    {
      "CustomerKey": 11048,
      "YearlyIncome": 30000.0000
    },
    {
      "CustomerKey": 11054,
      "YearlyIncome": 40000.0000
    },
    {
      "CustomerKey": 11057,
      "YearlyIncome": 70000.0000
    },
    {
      "CustomerKey": 11070,
      "YearlyIncome": 80000.0000
    },
    {
      "CustomerKey": 11078,
      "YearlyIncome": 40000.0000
    },
    {
      "CustomerKey": 11079,
      "YearlyIncome": 160000.0000
    },
    {
      "CustomerKey": 11081,
      "YearlyIncome": 120000.0000
    },
    {
      "CustomerKey": 11109,
      "YearlyIncome": 70000.0000
    },
    {
      "CustomerKey": 11110,
      "YearlyIncome": 60000.0000
    },
    {
      "CustomerKey": 11111,
      "YearlyIncome": 60000.0000
    },
    {
      "CustomerKey": 11123,
      "YearlyIncome": 70000.0000
    },
    {
      "CustomerKey": 11125,
      "YearlyIncome": 70000.0000
    }
  ]
}
```

JSON file | length: 147,621 | lines: 4,973 | Ln: 1 | Col: 2 | Sel: 0 | 0 | Windows (CR LF) | UTF-8 | INS

Proposition #4 (Simple)

Show the OrderDates for each order from all Companies



Columns from Tables

Table Name	Column Name
Customer	CustomerCompanyName
Order	OrderId, OrderDate

Order By

Table Name	Column Name	Sort Order
Customer, Order	CustomerCompanyName, OrderDate	ASC, ASC

```
USE Northwinds2020TSQLV6;
SELECT SC.CustomerCompanyName, DS.OrderId, DS.OrderDate
FROM Sales.[Customer] AS SC
      LEFT OUTER JOIN Sales.[Order] AS DS
      ON DS.CustomerID = SC.CustomerID
ORDER BY SC.CustomerCompanyName, DS.OrderDate
```

```
--Uncomment Below to get JSON output
--FOR JSON PATH, ROOT ('OrderDate for Company Orders'), INCLUDE_NULL_VALUES;
```

```
USE Northwinds2020TSQLV6;
SELECT SC.CustomerCompanyName, DS.OrderId, DS.OrderDate
FROM Sales.[Customer] AS SC
LEFT OUTER JOIN Sales.[Order] AS DS
ON DS.CustomerID = SC.CustomerID
ORDER BY SC.CustomerCompanyName, DS.OrderDate

--FOR JSON PATH, ROOT ('OrderDate for Company Orders'), INCLUDE_NULL_VALUES;
```

	CustomerCompanyName	OrderId	OrderDate
1	Customer AHPOP	10359	2014-11-21
2	Customer AHPOP	10377	2014-12-09
3	Customer AHPOP	10388	2014-12-19
4	Customer AHPOP	10472	2015-03-12
5	Customer AHPOP	10523	2015-05-01
6	Customer AHPOP	10547	2015-05-23
7	Customer AHPOP	10800	2015-12-26
8	Customer AHPOP	10804	2015-12-30
9	Customer AHPOP	10869	2016-02-04
10	Customer AHXHT	10322	2014-10-04
11	Customer AHXHT	10354	2014-11-14
12	Customer AHXHT	10474	2015-03-13
13	Customer AHXHT	10502	2015-04-10
14	Customer AHXHT	10995	2016-04-02
15	Customer AHXHT	11073	2016-05-05
16	Customer AZJED	10267	2014-07-29
17	Customer AZJED	10337	2014-10-24
18	Customer AZJED	10342	2014-10-30
19	Customer AZJED	10396	2014-12-27

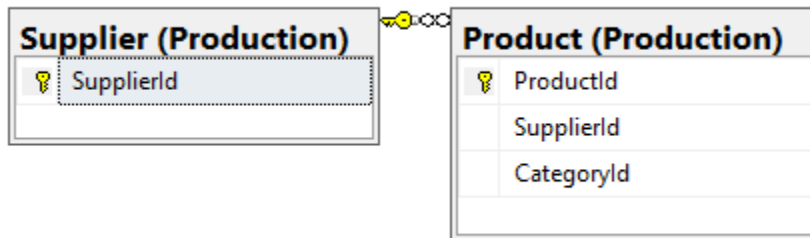
Query executed successfully. | localhost:12001 (15.0 RTM) | sa (60) | Northwinds2020TSQLV6 | 00:00:00 | 832 rows

```
1  "OrderDate for Company Orders": [{
2    {
3      "CustomerCompanyName": "Customer AHPOP",
4      "OrderId": 10359,
5      "OrderDate": "2014-11-21"
6    }, {
7      "CustomerCompanyName": "Customer AHPOP",
8      "OrderId": 10377,
9      "OrderDate": "2014-12-09"
10   }, {
11     "CustomerCompanyName": "Customer AHPOP",
12     "OrderId": 10388,
13     "OrderDate": "2014-12-19"
14   }, {
15     "CustomerCompanyName": "Customer AHPOP",
16     "OrderId": 10472,
17     "OrderDate": "2015-03-12"
18   }, {
19     "CustomerCompanyName": "Customer AHPOP",
20     "OrderId": 10523,
```

JSON file | length: 114,846 | lines: 3,332 | Ln: 1 | Col: 2 | Sel: 0 | 0 | Windows (CRLF) | UTF-8 | INS

Proposition #5 (Simple)

Show the Supplier for each Product



Supplier (Production)			
	Column Name	Data Type	Allow Nulls
🔑	SupplierId	Udt.SurrogateKeyIn...	<input type="checkbox"/>
	SupplierCompanyName	Udt.CompanyNam...	<input type="checkbox"/>
	SupplierContactName	Udt.ContactName:...	<input type="checkbox"/>
	SupplierContactTitle	Udt.ContactTitle:nv...	<input type="checkbox"/>
	SupplierAddress	Udt.Address:nvarch...	<input type="checkbox"/>
	SupplierCity	Udt.City:nvarchar(15)	<input type="checkbox"/>
	SupplierRegion	Udt.Region:nvarch...	<input checked="" type="checkbox"/>
	SupplierPostalCode	Udt.PostalCode:nv...	<input checked="" type="checkbox"/>
	SupplierCountry	Udt.Country:nvarc...	<input type="checkbox"/>
	SupplierPhoneNumber	Udt.TelephoneNum...	<input type="checkbox"/>
	SupplierFaxNumber	Udt.TelephoneNum...	<input checked="" type="checkbox"/>
			<input type="checkbox"/>

Product (Production)			
	Column Name	Data Type	Allow Nulls
🔑	ProductId	Udt.SurrogateKeyIn...	<input type="checkbox"/>
	ProductName	Udt.ProductName:...	<input type="checkbox"/>
	SupplierId	Udt.SurrogateKeyIn...	<input type="checkbox"/>
	CategoryId	Udt.SurrogateKeyIn...	<input type="checkbox"/>
	UnitPrice	Udt.Currency:money	<input type="checkbox"/>
	Discontinued	Udt.FlagBit:bit	<input type="checkbox"/>
			<input type="checkbox"/>

Table Name	Column Name
Product	ProductId
Supplier	SupplierCompanyName

Order By

Table Name	Column Name	Sort Order
Product, Supplier	ProductId, SupplierCompanyName	ASC, ASC

```

USE Northwinds2020TSQLV6;
SELECT PP.ProductId, PS.SupplierCompanyName
FROM Production.[Product] AS PP
      LEFT OUTER JOIN Production.[Supplier] AS PS
            ON PS.SupplierId = PP.SupplierId
ORDER BY PP.ProductId, PS.SupplierCompanyName

--Uncomment Below to get JSON output
--FOR JSON PATH, ROOT ('Supplier for Each Product'), INCLUDE_NULL_VALUES;

```

USE Northwinds2020TSQLV6;

```
SELECT PP.ProductId, PS.SupplierCompanyName
FROM Production.[Product] AS PP
LEFT OUTER JOIN Production.[Supplier] AS PS
ON PS.SupplierId = PP.SupplierId
ORDER BY PP.ProductId, PS.SupplierCompanyName

--FOR JSON PATH, ROOT ('Supplier for Each Product'), INCLUDE_NULL_VALUES;
```

ProductId	SupplierCompanyName
1	Supplier SWRXU
2	Supplier SWRXU
3	Supplier SWRXU
4	Supplier VHQZD
5	Supplier VHQZD
6	Supplier STUAZ
7	Supplier STUAZ
8	Supplier STUAZ
9	Supplier QOVFD
10	Supplier QOVFD
11	Supplier EQPNC
12	Supplier EQPNC
13	Supplier QWUSF
14	Supplier QWUSF
15	Supplier QWUSF
16	Supplier GQRCV
17	Supplier GQRCV
18	Supplier GQRCV
19	Supplier BWGYE

Query executed successfully. | localhost,12001 (15.0 RTM) | sa (60) | Northwinds2020TSQLV6 | 00:00:00 | 77 rows

Supplier for Each Product: [Array]

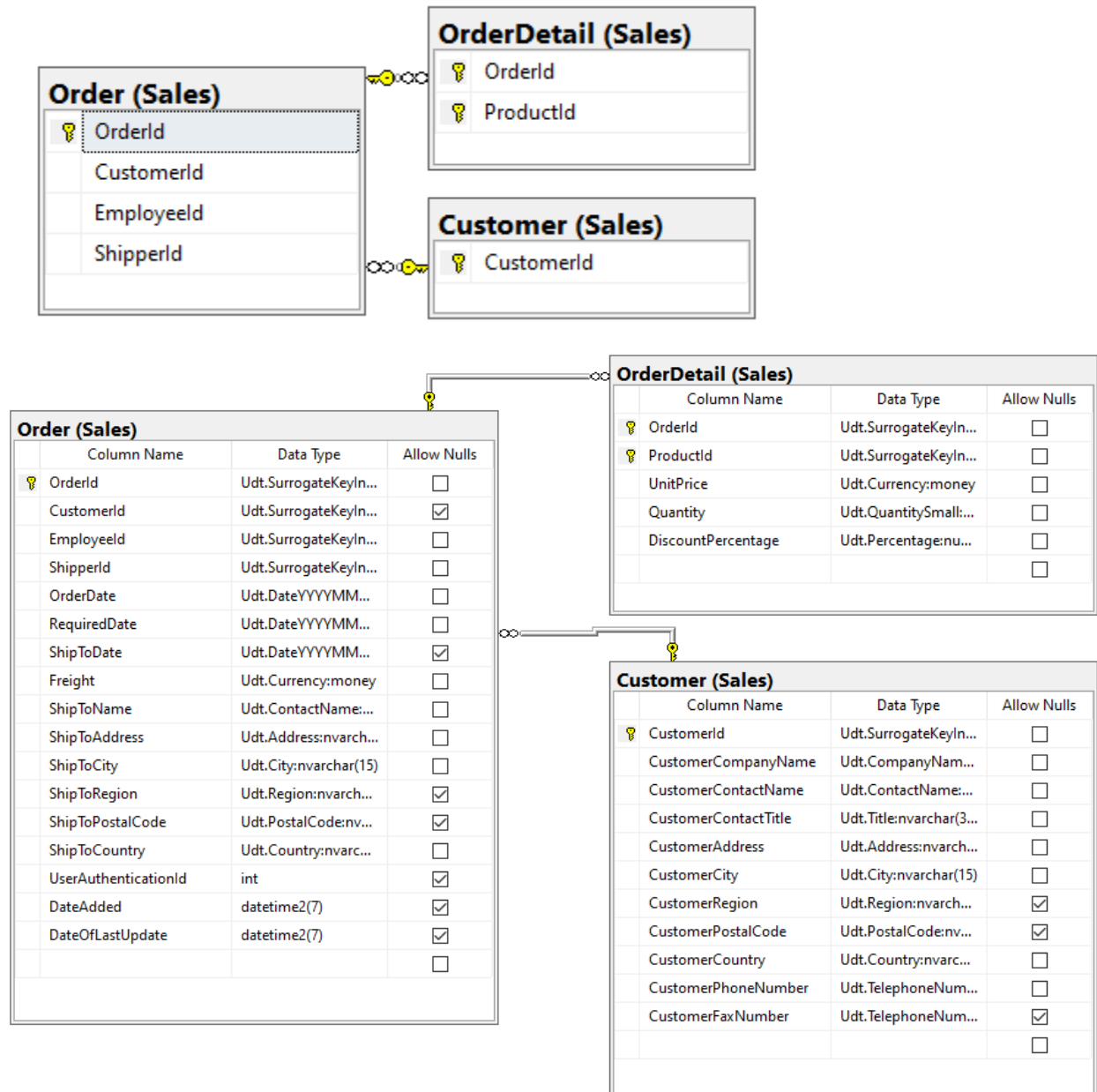
- [0]: [Object]
- ProductId: 1
- SupplierCompanyName: "Supplier SWRXU"
- [1]: [Object]
- [2]: [Object]
- [3]: [Object]
- [4]: [Object]
- [5]: [Object]
- [6]: [Object]
- [7]: [Object]
- [8]: [Object]
- [9]: [Object]
- [10]: [Object]
- [11]: [Object]
- [12]: [Object]
- [13]: [Object]
- [14]: [Object]
- [15]: [Object]
- [16]: [Object]
- [17]: [Object]
- [18]: [Object]
- [19]: [Object]
- [20]: [Object]
- [21]: [Object]
- [22]: [Object]
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- [27]: [Object]
- [28]: [Object]
- [29]: [Object]
- [30]: [Object]
- [31]: [Object]
- [32]: [Object]
- [33]: [Object]
- [34]: [Object]
- [35]: [Object]
- [36]: [Object]
- [37]: [Object]
- [38]: [Object]
- [39]: [Object]
- [40]: [Object]

```
"Supplier for Each Product": [{
  "ProductId": 1,
  "SupplierCompanyName": "Supplier SWRXU"
}, {
  "ProductId": 2,
  "SupplierCompanyName": "Supplier SWRXU"
}, {
  "ProductId": 3,
  "SupplierCompanyName": "Supplier SWRXU"
}, {
  "ProductId": 4,
  "SupplierCompanyName": "Supplier VHQZD"
}, {
  "ProductId": 5,
  "SupplierCompanyName": "Supplier VHQZD"
}, {
  "ProductId": 6,
  "SupplierCompanyName": "Supplier STUAZ"
}, {
  "ProductId": 7,
  "SupplierCompanyName": "Supplier STUAZ"
}, {
  "ProductId": 8,
  "SupplierCompanyName": "Supplier STUAZ"
}, {
  "ProductId": 9,
  "SupplierCompanyName": "Supplier QOVFD"
}, {
  "ProductId": 10,
  "SupplierCompanyName": "Supplier QOVFD"
}, {
  "ProductId": 11,
  "SupplierCompanyName": "Supplier EQPNC"
}, {
  "ProductId": 12,
  "SupplierCompanyName": "Supplier EQPNC"
}, {
  "ProductId": 13,
  "SupplierCompanyName": "Supplier QWUSF"
}, {
  "ProductId": 14,
  "SupplierCompanyName": "Supplier QWUSF"
}, {
  "ProductId": 15,
  "SupplierCompanyName": "Supplier QWUSF"
}, {
  "ProductId": 16,
  "SupplierCompanyName": "Supplier GQRCV"
}, {
  "ProductId": 17,
  "SupplierCompanyName": "Supplier GQRCV"
}, {
  "ProductId": 18,
  "SupplierCompanyName": "Supplier GQRCV"
}, {
  "ProductId": 19,
  "SupplierCompanyName": "Supplier BWGYE"
}
]
```

length: 7,505 lines: 235 Ln: 218 Col: 11 Sel: 0 | 0 Windows (CR LF) UTF-8 INS

Proposition #6 (Medium)

Shows the Total Units each Employee has sold to Each Customer



Columns from Tables

Table Name	Column Name
Customer	CustomerId
Order	OrderId, EmployeeId
OrderDetail	Quantity

Order By

Table Name	Column Name	Sort Order
Order	EmployeeId	ASC

```
USE Northwinds2020TSQLV6;
SELECT O.EmployeeId,
       C.CustomerId,
       SUM(OD.Quantity) AS TotalUnitsSold
FROM Sales.Customer AS C
     INNER JOIN Sales.[Order] AS O
       ON O.CustomerId = C.CustomerId
     INNER JOIN Sales.OrderDetail AS OD
       ON OD.OrderId = O.OrderId
GROUP BY O.EmployeeId,
         C.CustomerId
ORDER BY O.EmployeeId

--Uncomment Below to get JSON output
--FOR JSON PATH, ROOT ('Employee Units Sold to Each Customer'), INCLUDE_NULL_VALUES;
```

```
USE Northwinds2020TSQLV6;
SELECT O.EmployeeId,
       C.CustomerId,
       SUM(OD.Quantity) AS TotalUnitsSold
FROM Sales.Customer AS C
     INNER JOIN Sales.[Order] AS O
       ON O.CustomerId = C.CustomerId
     INNER JOIN Sales.OrderDetail AS OD
       ON OD.OrderId = O.OrderId
GROUP BY O.EmployeeId,
         C.CustomerId
ORDER BY O.EmployeeId;

--FOR JSON PATH, ROOT ('Employee Units Sold to Each Customer'), INCLUDE_NULL_VALUES;
```

116 %

	EmployeeId	CustomerId	TotalUnitsSold
1	1	1	35
2	1	3	38
3	1	4	164
4	1	5	235
5	1	9	153
6	1	10	77
7	1	11	34
8	1	14	83
9	1	15	9
10	1	17	41
11	1	18	13
12	1	19	121
13	1	20	590
14	1	23	93
15	1	24	36
16	1	25	494
17	1	26	32
18	1	27	10
19	1	28	67

Query executed successfully. localhost,12001 (15.0 RTM) sa (60) Northwinds2020TSQLV6 00:00:00 464 rows

ROOT

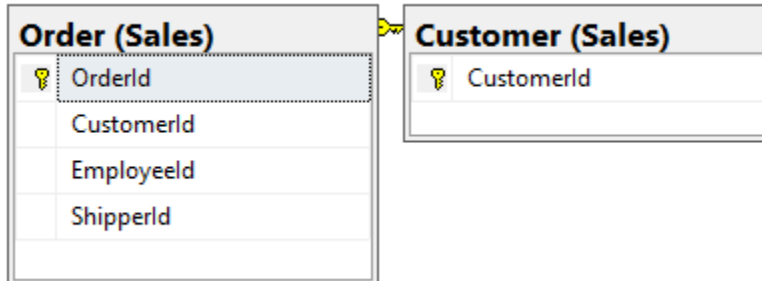
- Employee Units Sold to Each Customer: [Array]
 - [0]: [Object]
 - EmployeeId: 1
 - CustomerId: 1
 - TotalUnitsSold: 35
 - [1]: [Object]
 - [2]: [Object]
 - [3]: [Object]
 - [4]: [Object]
 - [5]: [Object]
 - [6]: [Object]
 - [7]: [Object]
 - [8]: [Object]
 - [9]: [Object]
 - [10]: [Object]
 - [11]: [Object]
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 - [29]: [Object]
 - [30]: [Object]
 - [31]: [Object]
 - [32]: [Object]
 - [33]: [Object]
 - [34]: [Object]
 - [35]: [Object]
 - [36]: [Object]
 - [37]: [Object]
 - [38]: [Object]
 - [39]: [Object]

```
{
  "Employee Units Sold to Each Customer": [
    {
      "EmployeeId": 1,
      "CustomerId": 1,
      "TotalUnitsSold": 35
    },
    {
      "EmployeeId": 1,
      "CustomerId": 3,
      "TotalUnitsSold": 38
    },
    {
      "EmployeeId": 1,
      "CustomerId": 4,
      "TotalUnitsSold": 164
    },
    {
      "EmployeeId": 1,
      "CustomerId": 5,
      "TotalUnitsSold": 235
    },
    {
      "EmployeeId": 1,
      "CustomerId": 9,
      "TotalUnitsSold": 153
    },
    {
      "EmployeeId": 1,
      "CustomerId": 10,
      "TotalUnitsSold": 77
    },
    {
      "EmployeeId": 1,
      "CustomerId": 11,
      "TotalUnitsSold": 34
    },
    {
      "EmployeeId": 1,
      "CustomerId": 14,
      "TotalUnitsSold": 83
    },
    {
      "EmployeeId": 1,
      "CustomerId": 15,
      "TotalUnitsSold": 9
    },
    {
      "EmployeeId": 1,
      "CustomerId": 17,
      "TotalUnitsSold": 41
    },
    {
      "EmployeeId": 1,
      "CustomerId": 18,
      "TotalUnitsSold": 13
    },
    {
      "EmployeeId": 1,
      "CustomerId": 19,
      "TotalUnitsSold": 121
    },
    {
      "EmployeeId": 1,
      "CustomerId": 20,
      "TotalUnitsSold": 590
    },
    {
      "EmployeeId": 1,
      "CustomerId": 23,
      "TotalUnitsSold": 93
    },
    {
      "EmployeeId": 1,
      "CustomerId": 24,
      "TotalUnitsSold": 36
    },
    {
      "EmployeeId": 1,
      "CustomerId": 25,
      "TotalUnitsSold": 494
    },
    {
      "EmployeeId": 1,
      "CustomerId": 26,
      "TotalUnitsSold": 32
    },
    {
      "EmployeeId": 1,
      "CustomerId": 27,
      "TotalUnitsSold": 10
    },
    {
      "EmployeeId": 1,
      "CustomerId": 28,
      "TotalUnitsSold": 67
    }
  ]
}
```

JSON file length: 50,715 lines: 1,861 Ln: 1 Col: 1 Sel: 0 | 0 Windows (CR LF) UTF-8 INS

Proposition #7 (Medium)

Show the OrderDate and ShipToDate and Find the amount of days it will take until arrival



Order (Sales)				Customer (Sales)			
	Column Name	Data Type	Allow Nulls		Column Name	Data Type	Allow Nulls
🔑	OrderId	Udt.SurrogateKeyIn...	<input type="checkbox"/>	🔑	CustomerId	Udt.SurrogateKeyIn...	<input type="checkbox"/>
	CustomerId	Udt.SurrogateKeyIn...	<input checked="" type="checkbox"/>		CustomerCompanyName	Udt.CompanyNam...	<input type="checkbox"/>
	EmployeeId	Udt.SurrogateKeyIn...	<input type="checkbox"/>		CustomerContactName	Udt.ContactName:...	<input type="checkbox"/>
	ShipperId	Udt.SurrogateKeyIn...	<input type="checkbox"/>		CustomerContactTitle	Udt.Title:nvarchar(3...	<input type="checkbox"/>
	OrderDate	Udt.DateYYYYMM...	<input type="checkbox"/>		CustomerAddress	Udt.Address:nvarch...	<input type="checkbox"/>
	RequiredDate	Udt.DateYYYYMM...	<input type="checkbox"/>		CustomerCity	Udt.City:nvarchar(15)	<input type="checkbox"/>
	ShipToDate	Udt.DateYYYYMM...	<input checked="" type="checkbox"/>		CustomerRegion	Udt.Region:nvarch...	<input checked="" type="checkbox"/>
	Freight	Udt.Currency:money	<input type="checkbox"/>		CustomerPostalCode	Udt.PostalCode:nv...	<input checked="" type="checkbox"/>
	ShipToName	Udt.ContactName:...	<input type="checkbox"/>		CustomerCountry	Udt.Country:nvarc...	<input type="checkbox"/>
	ShipToAddress	Udt.Address:nvarch...	<input type="checkbox"/>		CustomerPhoneNumber	Udt.TelephoneNum...	<input type="checkbox"/>
	ShipToCity	Udt.City:nvarchar(15)	<input type="checkbox"/>		CustomerFaxNumber	Udt.TelephoneNum...	<input checked="" type="checkbox"/>
	ShipToRegion	Udt.Region:nvarch...	<input checked="" type="checkbox"/>				<input type="checkbox"/>
	ShipToPostalCode	Udt.PostalCode:nv...	<input checked="" type="checkbox"/>				
	ShipToCountry	Udt.Country:nvarc...	<input type="checkbox"/>				
	UserAuthenticationId	int	<input checked="" type="checkbox"/>				
	DateAdded	datetime2(7)	<input checked="" type="checkbox"/>				
	DateOfLastUpdate	datetime2(7)	<input checked="" type="checkbox"/>				
			<input type="checkbox"/>				

Columns from Tables

Table Name	Column Name
Customer	CustomerId
Order	OrderId, OrderDate, ShipToDate

Order By

Table Name	Column Name	Sort Order
Customer	CustomerId	ASC

```
USE Northwinds2020TSQLV6;
SELECT C.CustomerId,
       O.OrderId,
       O.OrderDate,
       O.ShipToDate,
       DATEDIFF(DAY, O.OrderDate, O.ShipToDate) AS DaysFromOrderToShip
FROM Sales.Customer AS C
     INNER JOIN Sales.[Order] AS O
       ON O.CustomerId = C.CustomerId
WHERE ShipToDate IS NOT NULL
GROUP BY DATEDIFF(DAY, O.OrderDate, O.ShipToDate),
         C.CustomerId,
         O.OrderId,
         O.OrderDate,
         O.ShipToDate
ORDER BY DaysFromOrderToShip

--Uncomment Below to get JSON output
--FOR JSON PATH, ROOT ('Days Until Arrival'), INCLUDE_NULL_VALUES;
```

USE Northwinds2020TSQLV6;
SELECT C.CustomerId,
O.OrderId,
O.OrderDate,
O.ShipToDate,
DATEDIFF(DAY, O.OrderDate, O.ShipToDate) AS DaysFromOrderToShip
FROM Sales.Customer AS C
INNER JOIN Sales.[Order] AS O
ON O.CustomerId = C.CustomerId
WHERE ShipToDate IS NOT NULL
GROUP BY DATEDIFF(DAY, O.OrderDate, O.ShipToDate),
C.CustomerId,
O.OrderId,
O.OrderDate,
O.ShipToDate
ORDER BY DaysFromOrderToShip

	CustomerId	OrderId	OrderDate	ShipToDate	DaysFromOrderToShip
1	87	10270	2014-08-01	2014-08-02	1
2	46	10381	2014-12-12	2014-12-13	1
3	72	10388	2014-12-19	2014-12-20	1
4	84	10459	2015-02-27	2015-02-28	1
5	11	10538	2015-05-15	2015-05-16	1
6	3	10573	2015-06-19	2015-06-20	1
7	41	10631	2015-08-14	2015-08-15	1
8	50	10649	2015-08-28	2015-08-29	1
9	90	10673	2015-09-18	2015-09-19	1
10	34	10690	2015-10-02	2015-10-03	1
11	9	10732	2015-11-06	2015-11-07	1
12	24	10774	2015-12-11	2015-12-12	1
13	34	10783	2015-12-18	2015-12-19	1
14	76	10846	2016-01-22	2016-01-23	1
15	45	10884	2016-02-12	2016-02-13	1
16	10	10944	2016-03-12	2016-03-13	1
17	69	11013	2016-04-09	2016-04-10	1
18	86	11046	2016-04-23	2016-04-24	1
19	17	11036	2016-04-20	2016-04-22	2

Query executed successfully. | localhost,12001 (15.0 RTM) | sa (60) | Northwinds2020TSQLV6 | 00:00:00 | 809 rows

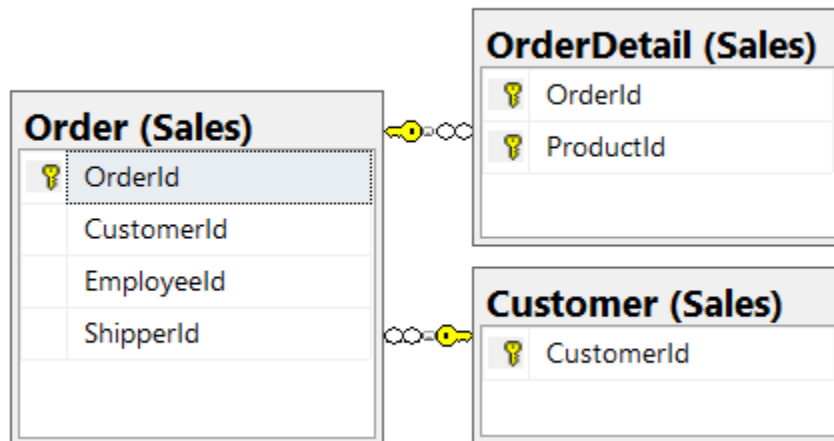
Days Until Arrival: [Array]
[0]: [Object]
- CustomerId: 87
- OrderId: 10270
- OrderDate: "2014-08-01"
- ShipToDate: "2014-08-02"
- DaysFromOrderToShip: 1
[1]: [Object]
[2]: [Object]
[3]: [Object]
[4]: [Object]
[5]: [Object]
[6]: [Object]
[7]: [Object]
[8]: [Object]
[9]: [Object]
[10]: [Object]
[11]: [Object]
[12]: [Object]
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[31]: [Object]
[32]: [Object]
[33]: [Object]
[34]: [Object]
[35]: [Object]
[36]: [Object]
[37]: [Object]
[38]: [Object]

```
"Days Until Arrival": [{  
  "CustomerId": 87,  
  "OrderId": 10270,  
  "OrderDate": "2014-08-01",  
  "ShipToDate": "2014-08-02",  
  "DaysFromOrderToShip": 1  
}, {  
  "CustomerId": 46,  
  "OrderId": 10381,  
  "OrderDate": "2014-12-12",  
  "ShipToDate": "2014-12-13",  
  "DaysFromOrderToShip": 1  
}, {  
  "CustomerId": 72,  
  "OrderId": 10388,  
  "OrderDate": "2014-12-19",  
  "ShipToDate": "2014-12-20",  
  "DaysFromOrderToShip": 1  
}, {  
  "CustomerId": 84,  
  "OrderId": 10459,  
  "OrderDate": "2015-02-27",  
  "ShipToDate": "2015-02-28",  
  "DaysFromOrderToShip": 1  
}, {  
  "CustomerId": 11,  
  "OrderId": 10538,  
  "OrderDate": "2015-05-15",  
  "ShipToDate": "2015-05-16",  
  "DaysFromOrderToShip": 1  
}, {  
  "CustomerId": 3,  
  "OrderId": 10573,  
  "OrderDate": "2015-06-19",  
  "ShipToDate": "2015-06-20",  
  "DaysFromOrderToShip": 1  
}, {  
  "CustomerId": 41,  
  "OrderId": 10631,  
  "OrderDate": "2015-08-14",  
  "ShipToDate": "2015-08-15",  
  "DaysFromOrderToShip": 1  
}, {  
  "CustomerId": 50,  
  "OrderId": 10649,  
  "OrderDate": "2015-08-28",  
  "ShipToDate": "2015-08-29",  
  "DaysFromOrderToShip": 1  
}, {  
  "CustomerId": 90,  
  "OrderId": 10673,  
  "OrderDate": "2015-09-18",  
  "ShipToDate": "2015-09-19",  
  "DaysFromOrderToShip": 1  
}, {  
  "CustomerId": 34,  
  "OrderId": 10690,  
  "OrderDate": "2015-10-02",  
  "ShipToDate": "2015-10-03",  
  "DaysFromOrderToShip": 1  
}, {  
  "CustomerId": 9,  
  "OrderId": 10732,  
  "OrderDate": "2015-11-06",  
  "ShipToDate": "2015-11-07",  
  "DaysFromOrderToShip": 1  
}, {  
  "CustomerId": 24,  
  "OrderId": 10774,  
  "OrderDate": "2015-12-11",  
  "ShipToDate": "2015-12-12",  
  "DaysFromOrderToShip": 1  
}, {  
  "CustomerId": 34,  
  "OrderId": 10783,  
  "OrderDate": "2015-12-18",  
  "ShipToDate": "2015-12-19",  
  "DaysFromOrderToShip": 1  
}, {  
  "CustomerId": 76,  
  "OrderId": 10846,  
  "OrderDate": "2016-01-22",  
  "ShipToDate": "2016-01-23",  
  "DaysFromOrderToShip": 1  
}, {  
  "CustomerId": 45,  
  "OrderId": 10884,  
  "OrderDate": "2016-02-12",  
  "ShipToDate": "2016-02-13",  
  "DaysFromOrderToShip": 1  
}, {  
  "CustomerId": 10,  
  "OrderId": 10944,  
  "OrderDate": "2016-03-12",  
  "ShipToDate": "2016-03-13",  
  "DaysFromOrderToShip": 1  
}, {  
  "CustomerId": 69,  
  "OrderId": 11013,  
  "OrderDate": "2016-04-09",  
  "ShipToDate": "2016-04-10",  
  "DaysFromOrderToShip": 1  
}, {  
  "CustomerId": 86,  
  "OrderId": 11046,  
  "OrderDate": "2016-04-23",  
  "ShipToDate": "2016-04-24",  
  "DaysFromOrderToShip": 1  
}, {  
  "CustomerId": 17,  
  "OrderId": 11036,  
  "OrderDate": "2016-04-20",  
  "ShipToDate": "2016-04-22",  
  "DaysFromOrderToShip": 2  
}]
```

JSON file | length: 157,904 | lines: 4,858 | Ln: 1 | Col: 2 | Sel: 0 | 0 | Windows (CR LF) | UTF-8 | INS

Proposition #8 (Medium)

Shows all Orders going to USA, along with the City and Quantity



Order (Sales)			
Column Name	Data Type	Allow Nulls	
OrderId	Udt.SurrogateK...	<input type="checkbox"/>	
CustomerId	Udt.SurrogateK...	<input checked="" type="checkbox"/>	
EmployeeId	Udt.SurrogateK...	<input type="checkbox"/>	
ShipperId	Udt.SurrogateK...	<input type="checkbox"/>	
OrderDate	Udt.DateYYYY...	<input type="checkbox"/>	
RequiredDate	Udt.DateYYYY...	<input type="checkbox"/>	
ShipToDate	Udt.DateYYYY...	<input checked="" type="checkbox"/>	
Freight	Udt.Currency:m...	<input type="checkbox"/>	
ShipToName	Udt.ContactNa...	<input type="checkbox"/>	
ShipToAddress	Udt.Address:nv...	<input type="checkbox"/>	
ShipToCity	Udt.City:nvarch...	<input type="checkbox"/>	
ShipToRegion	Udt.Region:nvar...	<input checked="" type="checkbox"/>	
ShipToPostalCode	Udt.PostalCode...	<input checked="" type="checkbox"/>	
ShipToCountry	Udt.Country:nv...	<input type="checkbox"/>	
UserAuthenticationId	int	<input checked="" type="checkbox"/>	
DateAdded	datetime2(7)	<input checked="" type="checkbox"/>	
DateOfLastUpdate	datetime2(7)	<input checked="" type="checkbox"/>	
		<input type="checkbox"/>	

OrderDetail (Sales)			
Column Name	Data Type	Allow Nulls	
OrderId	Udt.SurrogateK...	<input type="checkbox"/>	
ProductId	Udt.SurrogateK...	<input type="checkbox"/>	
UnitPrice	Udt.Currency:m...	<input type="checkbox"/>	
Quantity	Udt.QuantityS...	<input type="checkbox"/>	
DiscountPercentage	Udt.Percentage...	<input type="checkbox"/>	
		<input type="checkbox"/>	

Customer (Sales)			
Column Name	Data Type	Allow Nulls	
CustomerId	Udt.SurrogateK...	<input type="checkbox"/>	
CustomerCompany...	Udt.CompanyN...	<input type="checkbox"/>	
CustomerContactN...	Udt.ContactNa...	<input type="checkbox"/>	
CustomerContactTitle	Udt.Title:nvarch...	<input type="checkbox"/>	
CustomerAddress	Udt.Address:nv...	<input type="checkbox"/>	
CustomerCity	Udt.City:nvarch...	<input type="checkbox"/>	
CustomerRegion	Udt.Region:nvar...	<input checked="" type="checkbox"/>	
CustomerPostalCode	Udt.PostalCode...	<input checked="" type="checkbox"/>	
CustomerCountry	Udt.Country:nv...	<input type="checkbox"/>	
CustomerPhoneNu...	Udt.Telephone...	<input type="checkbox"/>	
CustomerFaxNumber	Udt.Telephone...	<input checked="" type="checkbox"/>	
		<input type="checkbox"/>	

Columns from Tables

Table Name	Column Name
Customer	CustomerId
Order	OrderId, OrderDate, ShipToDate

Order By

Table Name	Column Name	Sort Order
Order	OrderId	ASC

```
USE Northwinds2020TSQLV6;
SELECT C.CustomerId,
       O.OrderId,
       O.ShipToCity,
       SUM(OD.Quantity) AS totalqty
FROM Sales.Customer AS C
     INNER JOIN Sales.[Order] AS O
       ON O.CustomerId = C.CustomerId
     INNER JOIN Sales.OrderDetail AS OD
       ON OD.OrderId = O.OrderId
WHERE C.CustomerCountry = N'SPAIN'
GROUP BY C.CustomerId,
         O.OrderId,
         O.ShipToCity

--Uncomment Below to get JSON output
--FOR JSON PATH, ROOT ('USA City Orders and Quantity'), INCLUDE_NULL_VALUES;
```



```
USE Northwinds2020TSQLV6;
SELECT C.CustomerId,
       O.OrderId,
       O.ShipToCity,
       SUM(OD.Quantity) AS totalQty
FROM Sales.Customer AS C
     INNER JOIN Sales.[Order] AS O
         ON O.CustomerId = C.CustomerId
     INNER JOIN Sales.OrderDetail AS OD
         ON OD.OrderId = O.OrderId
WHERE C.CustomerCountry = N'SPAIN'
GROUP BY C.CustomerId,
         O.OrderId,
         O.ShipToCity;

--FOR JSON PATH, ROOT ('USA City Orders and Quantity'), INCLUDE_NULL_VALUES;
```

96 %

	CustomerId	OrderId	ShipToCity	totalQty
1	69	10281	Madrid	11
2	69	10282	Madrid	8
3	30	10303	Sevilla	85
4	69	10306	Madrid	25
5	8	10326	Madrid	90
6	29	10366	Barcelona	10
7	29	10426	Barcelona	12
8	30	10550	Sevilla	34
9	29	10568	Barcelona	5
10	30	10629	Sevilla	29
11	8	10801	Madrid	60
12	30	10872	Sevilla	66
13	30	10874	Sevilla	10
14	29	10887	Barcelona	5
15	30	10888	Sevilla	38
16	30	10911	Sevilla	37
17	69	10917	Madrid	11
18	29	10928	Barcelona	10
19	30	10948	Sevilla	53

Query executed successfully. localhost,12001 (15.0 RTM) sa (60) Northwinds2020TSQLV6 00:00:00 23 rows

ROOT: USA City Orders and Quantity: [Array]

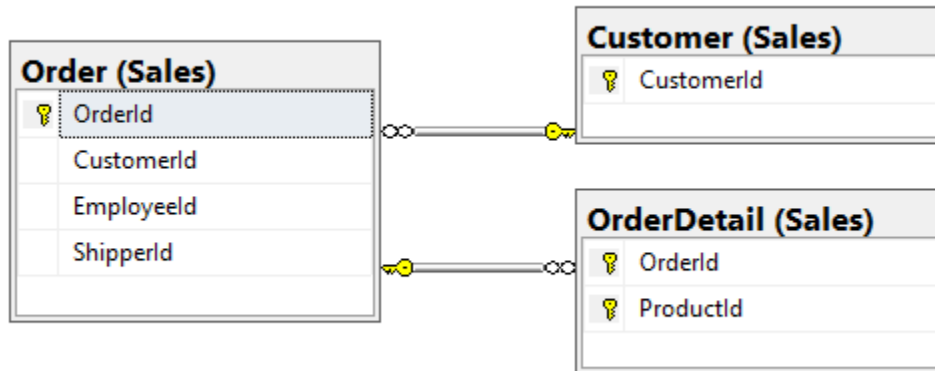
- [0]: [Object]
 - CustomerId: 69
 - OrderId: 10281
 - ShipToCity: "Madrid"
 - totalQty: 11
- [1]: [Object]
- [2]: [Object]
- [3]: [Object]
- [4]: [Object]
- [5]: [Object]
- [6]: [Object]
- [7]: [Object]
- [8]: [Object]
- [9]: [Object]
- [10]: [Object]
- [11]: [Object]
- [12]: [Object]
- [13]: [Object]
- [14]: [Object]
- [15]: [Object]
- [16]: [Object]
- [17]: [Object]
- [18]: [Object]
- [19]: [Object]
- [20]: [Object]
- [21]: [Object]
- [22]: [Object]

```
"USA City Orders and Quantity": [{
  "CustomerId": 69,
  "OrderId": 10281,
  "ShipToCity": "Madrid",
  "totalQty": 11
}, {
  "CustomerId": 69,
  "OrderId": 10282,
  "ShipToCity": "Madrid",
  "totalQty": 8
}, {
  "CustomerId": 30,
  "OrderId": 10303,
  "ShipToCity": "Sevilla",
  "totalQty": 85
}, {
  "CustomerId": 69,
  "OrderId": 10306,
  "ShipToCity": "Madrid",
  "totalQty": 25
}, {
  "CustomerId": 8,
  "OrderId": 10326,
  "ShipToCity": "Madrid",
  "totalQty": 90
}, {
  "CustomerId": 29,
  "OrderId": 10366,
  "ShipToCity": "Barcelona",
  "totalQty": 10
}, {
  "CustomerId": 29,
  "OrderId": 10426,
  "ShipToCity": "Barcelona",
  "totalQty": 12
}, {
  "CustomerId": 30,
  "OrderId": 10550,
  "ShipToCity": "Sevilla",
  "totalQty": 34
}, {
  "CustomerId": 29,
  "OrderId": 10568,
  "ShipToCity": "Barcelona",
  "totalQty": 5
}, {
  "CustomerId": 30,
  "OrderId": 10629,
  "ShipToCity": "Sevilla",
  "totalQty": 29
}, {
  "CustomerId": 8,
  "OrderId": 10801,
  "ShipToCity": "Madrid",
  "totalQty": 60
}, {
  "CustomerId": 30,
  "OrderId": 10872,
  "ShipToCity": "Sevilla",
  "totalQty": 66
}, {
  "CustomerId": 30,
  "OrderId": 10874,
  "ShipToCity": "Sevilla",
  "totalQty": 10
}, {
  "CustomerId": 29,
  "OrderId": 10887,
  "ShipToCity": "Barcelona",
  "totalQty": 5
}, {
  "CustomerId": 30,
  "OrderId": 10888,
  "ShipToCity": "Sevilla",
  "totalQty": 38
}, {
  "CustomerId": 30,
  "OrderId": 10911,
  "ShipToCity": "Sevilla",
  "totalQty": 37
}, {
  "CustomerId": 69,
  "OrderId": 10917,
  "ShipToCity": "Madrid",
  "totalQty": 11
}, {
  "CustomerId": 29,
  "OrderId": 10928,
  "ShipToCity": "Barcelona",
  "totalQty": 10
}, {
  "CustomerId": 30,
  "OrderId": 10948,
  "ShipToCity": "Sevilla",
  "totalQty": 53
}
]
```

length: 3,309 lines: 119 Ln: 1 Col: 2 Sel: 0|0 Windows (CR LF) UTF-8 INS

Proposition #9 (Medium)

Shows the total quantity of units going to each country



Order (Sales)			
	Column Name	Data Type	Allow Nulls
🔑	OrderId	Udt.SurrogateKeyIn...	<input type="checkbox"/>
	CustomerId	Udt.SurrogateKeyIn...	<input checked="" type="checkbox"/>
	EmployeeId	Udt.SurrogateKeyIn...	<input type="checkbox"/>
	ShipperId	Udt.SurrogateKeyIn...	<input type="checkbox"/>
	OrderDate	Udt.DateYYYYMM...	<input type="checkbox"/>
	RequiredDate	Udt.DateYYYYMM...	<input type="checkbox"/>
	ShipToDate	Udt.DateYYYYMM...	<input checked="" type="checkbox"/>
	Freight	Udt.Currency:money	<input type="checkbox"/>
	ShipToName	Udt.ContactName:...	<input type="checkbox"/>
	ShipToAddress	Udt.Address:nvarch...	<input type="checkbox"/>
	ShipToCity	Udt.City:nvarchar(15)	<input type="checkbox"/>
	ShipToRegion	Udt.Region:nvarch...	<input checked="" type="checkbox"/>
	ShipToPostalCode	Udt.PostalCode:env...	<input checked="" type="checkbox"/>
	ShipToCountry	Udt.Country:nvarc...	<input type="checkbox"/>
	UserAuthenticationId	int	<input checked="" type="checkbox"/>
	DateAdded	datetime2(7)	<input checked="" type="checkbox"/>
	DateOfLastUpdate	datetime2(7)	<input checked="" type="checkbox"/>
			<input type="checkbox"/>

Customer (Sales)			
	Column Name	Data Type	Allow Nulls
🔑	CustomerId	Udt.SurrogateKeyIn...	<input type="checkbox"/>
	CustomerCompanyName	Udt.CompanyNam...	<input type="checkbox"/>
	CustomerContactName	Udt.ContactName:...	<input type="checkbox"/>
	CustomerContactTitle	Udt.Title:nvarchar(3...	<input type="checkbox"/>
	CustomerAddress	Udt.Address:nvarch...	<input type="checkbox"/>
	CustomerCity	Udt.City:nvarchar(15)	<input type="checkbox"/>
	CustomerRegion	Udt.Region:nvarch...	<input checked="" type="checkbox"/>
	CustomerPostalCode	Udt.PostalCode:env...	<input checked="" type="checkbox"/>
	CustomerCountry	Udt.Country:nvarc...	<input type="checkbox"/>
	CustomerPhoneNumber	Udt.TelephoneNum...	<input type="checkbox"/>
	CustomerFaxNumber	Udt.TelephoneNum...	<input checked="" type="checkbox"/>
			<input type="checkbox"/>

OrderDetail (Sales)			
	Column Name	Data Type	Allow Nulls
🔑	OrderId	Udt.SurrogateKeyIn...	<input type="checkbox"/>
🔑	ProductId	Udt.SurrogateKeyIn...	<input type="checkbox"/>
	UnitPrice	Udt.Currency:money	<input type="checkbox"/>
	Quantity	Udt.QuantitySmall:...	<input type="checkbox"/>
	DiscountPercentage	Udt.Percentage:nu...	<input type="checkbox"/>
			<input type="checkbox"/>

Columns from Tables

Table Name	Column Name
Customer	CustomerId
Order	OrderId
OrderDetail	Quantity

Order By

Table Name	Column Name	Sort Order
Order	OrderId	ASC

```
USE Northwinds2020TSQLV6;
SELECT C.CustomerCountry,
       O.OrderId,
       SUM(OD.Quantity) AS TotalUnitsSold
FROM Sales.Customer AS C
     INNER JOIN Sales.[Order] AS O
       ON O.CustomerId = C.CustomerId
     INNER JOIN Sales.OrderDetail AS OD
       ON OD.OrderId = O.OrderId
GROUP BY C.CustomerCountry,
         O.OrderId

--Uncomment Below to get JSON output
--FOR JSON PATH, ROOT ('Amount of Orders in Each Country'), INCLUDE_NULL_VALUES;
```

USE Northwinds2020TSQLV6;

```
SELECT C.CustomerCountry,
       O.OrderId,
       SUM(OD.Quantity) AS TotalUnitsSold
FROM Sales.Customer AS C
     INNER JOIN Sales.[Order] AS O
       ON O.CustomerId = C.CustomerId
     INNER JOIN Sales.OrderDetail AS OD
       ON OD.OrderId = O.OrderId
GROUP BY C.CustomerCountry,
         O.OrderId

--FOR JSON PATH, ROOT ('Shows the Amount of Orders in Each Country'), INCLUDE_NULL_VALUES;
```

127 %

Results Messages

	CustomerCountry	OrderId	TotalUnitsSold
1	France	10248	27
2	Germany	10249	49
3	Brazil	10250	60
4	France	10251	41
5	Belgium	10252	105
6	Brazil	10253	102
7	Switzerland	10254	57
8	Switzerland	10255	110
9	Brazil	10256	27
10	Venezuela	10257	46
11	Austria	10258	121
12	Mexico	10259	11
13	Germany	10260	102
14	Brazil	10261	40
15	USA	10262	29
16	Austria	10263	184
17	Sweden	10264	60
18	France	10265	50
19	Finland	10266	12

Query executed successfully.

localhost:12001 (15.0 RTM) | sa (60) | Northwinds2020TSQLV6 | 00:00:00 | 830 rows

JSON file

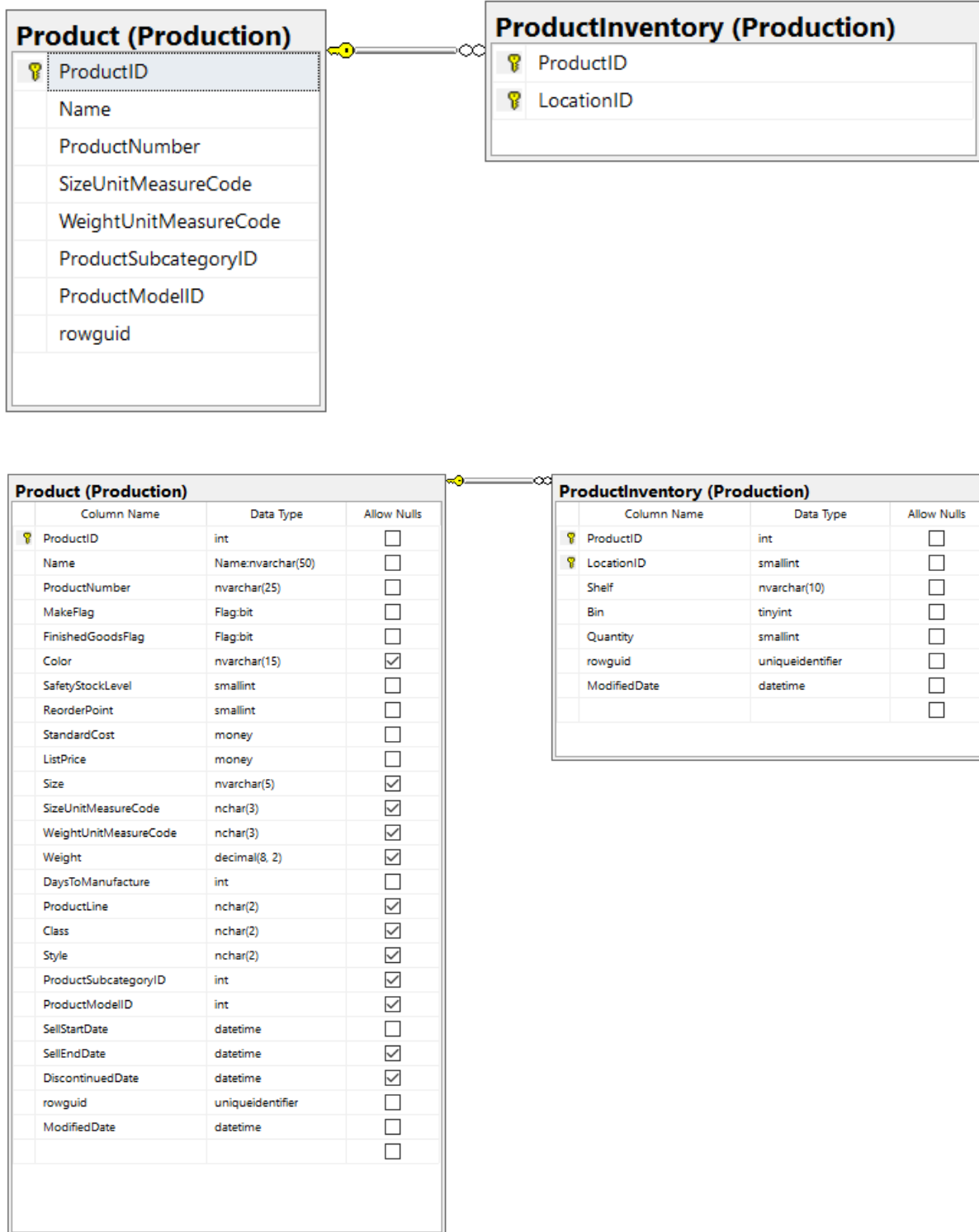
length: 100,488 | lines: 3,325 | Ln: 1 | Col: 2 | Sel: 0 | 0 | Windows (CRLF) | UTF-8 | INS

Amount of Orders in Each Country: [Array]

```
{
  "Amount of Orders in Each Country": [
    {
      "CustomerCountry": "France",
      "OrderId": 10248,
      "TotalUnitsSold": 27
    },
    {
      "CustomerCountry": "Germany",
      "OrderId": 10249,
      "TotalUnitsSold": 49
    },
    {
      "CustomerCountry": "Brazil",
      "OrderId": 10250,
      "TotalUnitsSold": 60
    },
    {
      "CustomerCountry": "France",
      "OrderId": 10251,
      "TotalUnitsSold": 41
    },
    {
      "CustomerCountry": "Belgium",
      "OrderId": 10252,
      "TotalUnitsSold": 105
    },
    {
      "CustomerCountry": "Brazil",
      "OrderId": 10253,
      "TotalUnitsSold": 102
    },
    {
      "CustomerCountry": "Switzerland",
      "OrderId": 10254,
      "TotalUnitsSold": 57
    },
    {
      "CustomerCountry": "Switzerland",
      "OrderId": 10255,
      "TotalUnitsSold": 110
    },
    {
      "CustomerCountry": "Brazil",
      "OrderId": 10256,
      "TotalUnitsSold": 27
    },
    {
      "CustomerCountry": "Venezuela",
      "OrderId": 10257,
      "TotalUnitsSold": 46
    },
    {
      "CustomerCountry": "Austria",
      "OrderId": 10258,
      "TotalUnitsSold": 121
    },
    {
      "CustomerCountry": "Mexico",
      "OrderId": 10259,
      "TotalUnitsSold": 11
    },
    {
      "CustomerCountry": "Germany",
      "OrderId": 10260,
      "TotalUnitsSold": 102
    },
    {
      "CustomerCountry": "Brazil",
      "OrderId": 10261,
      "TotalUnitsSold": 40
    },
    {
      "CustomerCountry": "USA",
      "OrderId": 10262,
      "TotalUnitsSold": 29
    },
    {
      "CustomerCountry": "Austria",
      "OrderId": 10263,
      "TotalUnitsSold": 184
    },
    {
      "CustomerCountry": "Sweden",
      "OrderId": 10264,
      "TotalUnitsSold": 60
    },
    {
      "CustomerCountry": "France",
      "OrderId": 10265,
      "TotalUnitsSold": 50
    },
    {
      "CustomerCountry": "Finland",
      "OrderId": 10266,
      "TotalUnitsSold": 12
    }
  ]
}
```

Proposition #10 (Medium)

Show Products that are no longer in stock (Quantity Zero)



Columns from Tables

Table Name	Column Name
Product	ProductID, Name
ProductInventory	Quantity

Order By

Table Name	Column Name	Sort Order
Product	ProductID	ASC

```
USE AdventureWorks2017;
SELECT PP.ProductID,
       PP.Name,
       PINV.Quantity
FROM Production.[Product] AS PP
     LEFT OUTER JOIN Production.[ProductInventory] AS PINV
       ON PP.ProductID = PINV.ProductID
GROUP BY PP.ProductID,
         PP.Name,
         PINV.Quantity
HAVING SUM(PINV.Quantity) = 0

--Uncomment Below to get JSON output
--FOR JSON PATH, ROOT ('Out of Stock Items'), INCLUDE_NULL_VALUES;
```

```
USE AdventureWorks2017;
SELECT PP.ProductID,
       PP.Name,
       PINV.Quantity
FROM Production.[Product] AS PP
LEFT OUTER JOIN Production.[ProductInventory] AS PINV
ON PP.ProductID = PINV.ProductID
GROUP BY PP.ProductID,
         PP.Name,
         PINV.Quantity
HAVING SUM(PINV.Quantity) = 0;

--FOR JSON PATH, ROOT ('Out of Stock Items'), INCLUDE_NULL_VALUES;
```

ProductID	Name	Quantity
853	Women's Tights, M	0
859	Half-Finger Gloves, M	0
876	Hitch Rack - 4-Bike	0
882	Short-Sleeve Classic Jersey, M	0

Query executed successfully. | localhost, 12001 (15.0 RTM) | sa (60) | AdventureWorks2017 | 00:00:00 | 4 rows

ROOT

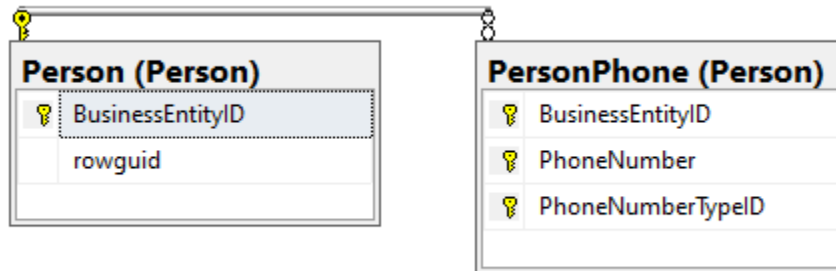
- Out of Stock Items: [Array]
 - [0]: [Object]
 - ProductID: 853
 - Name: "Women's Tights, M"
 - Quantity: 0
 - [1]: [Object]
 - [2]: [Object]
 - [3]: [Object]

```
1 {
2   "Out of Stock Items": [{
3     "ProductID": 853,
4     "Name": "Women's Tights, M",
5     "Quantity": 0
6   }, {
7     "ProductID": 859,
8     "Name": "Half-Finger Gloves, M",
9     "Quantity": 0
10  }, {
11    "ProductID": 876,
12    "Name": "Hitch Rack - 4-Bike",
13    "Quantity": 0
14  }, {
15    "ProductID": 882,
16    "Name": "Short-Sleeve Classic Jersey, M",
17    "Quantity": 0
18  }
19 ]
20 }
```

JSON file | length: 515 | lines: 21 | Ln: 1 | Col: 2 | Sel: 0 | 0 | Windows (CR LF) | UTF-8 | INS

Proposition #11 (Medium)

Show the FullName of each person and their PhoneNumber



Person (Person)			
	Column Name	Data Type	Allow Nulls
🔑	BusinessEntityID	int	<input type="checkbox"/>
	PersonType	nchar(2)	<input type="checkbox"/>
	NameStyle	NameStyle:bit	<input type="checkbox"/>
	Title	nvarchar(8)	<input checked="" type="checkbox"/>
	FirstName	Name:nvarchar(50)	<input type="checkbox"/>
	MiddleName	Name:nvarchar(50)	<input checked="" type="checkbox"/>
	LastName	Name:nvarchar(50)	<input type="checkbox"/>
	Suffix	nvarchar(10)	<input checked="" type="checkbox"/>
	EmailPromotion	int	<input type="checkbox"/>
	AdditionalContactInfo	xml(CONTENT Pers...	<input checked="" type="checkbox"/>
	Demographics	xml(CONTENT Pers...	<input checked="" type="checkbox"/>
	rowguid	uniqueidentifier	<input type="checkbox"/>
	ModifiedDate	datetime	<input type="checkbox"/>

PersonPhone (Person)			
	Column Name	Data Type	Allow Nulls
🔑	BusinessEntityID	int	<input type="checkbox"/>
🔑	PhoneNumber	Phone:nvarchar(25)	<input type="checkbox"/>
🔑	PhoneNumberTypeID	int	<input type="checkbox"/>
	ModifiedDate	datetime	<input type="checkbox"/>

Columns from Tables

Table Name	Column Name
PersonPhone	FirstName, LastName
Person	PhoneNumber

Order By

Table Name	Column Name	Sort Order
Person	FullName	ASC

```
USE AdventureWorks2017;
SELECT CONCAT (P.FirstName, ' ', P.LastName) as FullName, PP.PhoneNumber
FROM Person.[Person] AS P
      LEFT OUTER JOIN Person.[PersonPhone] AS PP
      ON P.BusinessEntityID= PP.BusinessEntityID
GROUP BY CONCAT(P.FirstName, ' ', P.LastName),
      PP.PhoneNumber

--Uncomment Below to get JSON output
--FOR JSON PATH, ROOT ('Person Full Names and Phone Numbers'), INCLUDE_NULL_VALUES;
```

```

USE AdventureWorks2017;
SELECT CONCAT (P.FirstName, ' ', P.LastName) as FullName, PP.PhoneNumber
FROM Person.[Person] AS P
LEFT OUTER JOIN Person.[PersonPhone] AS PP
ON P.BusinessEntityID= PP.BusinessEntityID
GROUP BY CONCAT(P.FirstName, ' ', P.LastName),
PP.PhoneNumber

--FOR JSON PATH, ROOT ('Person Full Names and Phone Numbers'), INCLUDE_NULL_VALUES;

```

	FullName	PhoneNumber
1	A. Leonetti	645-555-0193
2	A. Scott Wright	992-555-0194
3	A. Wright	675-555-0100
4	Aaron Adams	417-555-0154
5	Aaron Alexander	548-555-0129
6	Aaron Allen	648-555-0141
7	Aaron Baker	488-555-0125
8	Aaron Bryant	754-555-0137
9	Aaron Butler	466-555-0180
10	Aaron Campbell	187-555-0177
11	Aaron Carter	180-555-0167
12	Aaron Chen	969-555-0160
13	Aaron Coleman	914-555-0128
14	Aaron Collins	170-555-0177
15	Aaron Con	652-555-0115
16	Aaron Con	908-555-0100
17	Aaron Diaz	1 (11) 500 555-0130
18	Aaron Edwards	355-555-0115
19	Aaron Evans	150-555-0128

Query executed successfully. | localhost,12001 (15.0 RTM) | sa (60) | AdventureWorks2017 | 00:00:00 | 19,972 rows

```

1 {
2   "Person Full Names and Phone Numbers": [{
3     "FullName": "A. Leonetti",
4     "PhoneNumber": "645-555-0193"
5   }, {
6     "FullName": "A. Scott Wright",
7     "PhoneNumber": "992-555-0194"
8   }, {
9     "FullName": "A. Wright",
10    "PhoneNumber": "675-555-0100"
11  }, {
12    "FullName": "Aaron Adams",
13    "PhoneNumber": "417-555-0154"
14  }, {
15    "FullName": "Aaron Alexander",
16    "PhoneNumber": "548-555-0129"
17  }, {
18    "FullName": "Aaron Allen",
19    "PhoneNumber": "648-555-0141"
20  }, {

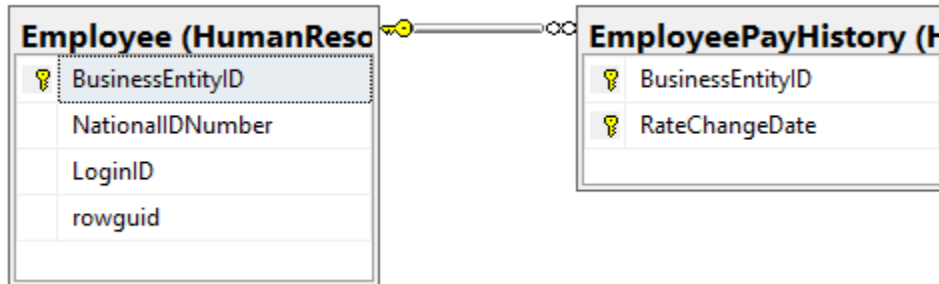
```

ROOT: Person Full Names and Phone Numbers

JSON file | length: 2,031,911 | lines: 59,921 | Ln: 1 | Col: 2 | Sel: 0 | 0 | Windows (CR LF) | UTF-8 | INS

Proposition #12 (Medium)

Show the Average Pay Rate of the different Job Titles



Employee (HumanResources)			
	Column Name	Data Type	Allow Nulls
PK	BusinessEntityID	int	<input type="checkbox"/>
	NationalIDNumber	nvarchar(15)	<input type="checkbox"/>
	LoginID	nvarchar(256)	<input type="checkbox"/>
	OrganizationNode	hierarchyid	<input checked="" type="checkbox"/>
	OrganizationLevel		<input checked="" type="checkbox"/>
	JobTitle	nvarchar(50)	<input type="checkbox"/>
	BirthDate	date	<input type="checkbox"/>
	MaritalStatus	nchar(1)	<input type="checkbox"/>
	Gender	nchar(1)	<input type="checkbox"/>
	HireDate	date	<input type="checkbox"/>
	SalariedFlag	Flag:bit	<input type="checkbox"/>
	VacationHours	smallint	<input type="checkbox"/>
	SickLeaveHours	smallint	<input type="checkbox"/>
	CurrentFlag	Flag:bit	<input type="checkbox"/>
	rowguid	uniqueidentifier	<input type="checkbox"/>
	ModifiedDate	datetime	<input type="checkbox"/>

EmployeePayHistory (HumanResources)			
	Column Name	Data Type	Allow Nulls
FK	BusinessEntityID	int	<input type="checkbox"/>
PK	RateChangeDate	datetime	<input type="checkbox"/>
	Rate	money	<input type="checkbox"/>
	PayFrequency	tinyint	<input type="checkbox"/>
	ModifiedDate	datetime	<input type="checkbox"/>

Columns from Tables

Table Name	Column Name
Employee	JobTitle
EmployeePayHistory	Rate

Order By

Table Name	Column Name	Sort Order
EmployeePayHistory	AverageRate	ASC

```
USE AdventureWorks2017;
SELECT DISTINCT
    HE.JobTitle,
    AVG(HP.Rate) AS AverageRate
FROM HumanResources.[Employee] AS HE
    LEFT OUTER JOIN HumanResources.EmployeePayHistory AS HP
        ON HE.BusinessEntityID = HP.BusinessEntityID
GROUP BY HE.JobTitle
ORDER BY AverageRate DESC

--Uncomment Below to get JSON output
--FOR JSON PATH, ROOT ('Average Salary Per Position'), INCLUDE_NULL_VALUES;
```

```
USE AdventureWorks2017;
SELECT DISTINCT
    HE.JobTitle,
    AVG(HP.Rate) AS AverageRate
FROM HumanResources.[Employee] AS HE
LEFT OUTER JOIN HumanResources.EmployeePayHistory AS HP
    ON HE.BusinessEntityID = HP.BusinessEntityID
GROUP BY HE.JobTitle
ORDER BY AverageRate DESC;

--FOR JSON PATH, ROOT ('Average Salary Per Position'), INCLUDE_NULL_VALUES;
```

JobTitle	AverageRate
Chief Executive Officer	125.50
Vice President of Production	84.1346
Vice President of Sales	72.1154
Vice President of Engineering	63.4615
Information Services Manager	50.4808
Chief Financial Officer	49.2379
European Sales Manager	48.101
North American Sales Manager	48.101
Pacific Sales Manager	48.101
Research and Development Manager	46.4808
Engineering Manager	43.2692
Finance Manager	43.2692
Research and Development Engineer	40.8654
Network Manager	39.6635
Database Administrator	38.4615
Senior Design Engineer	36.0577
Accounts Manager	34.7356
Design Engineer	32.6923
Network Administrator	32.4519

Query executed successfully. | localhost,12001 (15.0 RTM) | sa (60) | AdventureWorks2017 | 00:00:00 | 67 rows

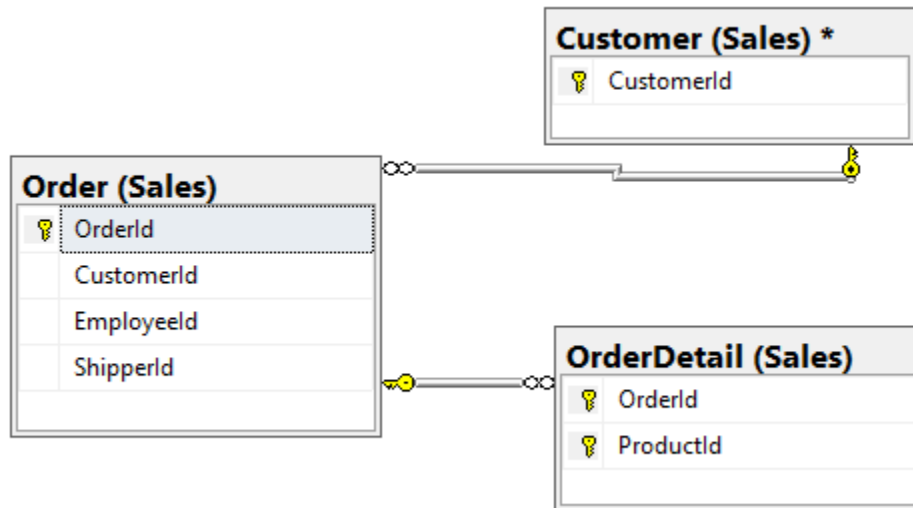
ROOT
Average Salary Per Position: [Array]
[0]: [Object]
JobTitle: "Chief Executive Officer"
AverageRate: 125.5000
[1]: [Object]
[2]: [Object]
[3]: [Object]
[4]: [Object]
[5]: [Object]
[6]: [Object]
[7]: [Object]
[8]: [Object]
[9]: [Object]
[10]: [Object]
[11]: [Object]
[12]: [Object]
[13]: [Object]
[14]: [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]
[31]: [Object]
[32]: [Object]
[33]: [Object]
[34]: [Object]
[35]: [Object]
[36]: [Object]
[37]: [Object]
[38]: [Object]
[39]: [Object]
[40]: [Object]

```
{
  "Average Salary Per Position": [{
    "JobTitle": "Chief Executive Officer",
    "AverageRate": 125.5000
  }, {
    "JobTitle": "Vice President of Production",
    "AverageRate": 84.1346
  }, {
    "JobTitle": "Vice President of Sales",
    "AverageRate": 72.1154
  }, {
    "JobTitle": "Vice President of Engineering",
    "AverageRate": 63.4615
  }, {
    "JobTitle": "Information Services Manager",
    "AverageRate": 50.4808
  }, {
    "JobTitle": "Chief Financial Officer",
    "AverageRate": 49.2379
  }, {
    "JobTitle": "European Sales Manager",
    "AverageRate": 48.101
  }, {
    "JobTitle": "North American Sales Manager",
    "AverageRate": 48.101
  }, {
    "JobTitle": "Pacific Sales Manager",
    "AverageRate": 48.101
  }, {
    "JobTitle": "Research and Development Manager",
    "AverageRate": 46.4808
  }, {
    "JobTitle": "Engineering Manager",
    "AverageRate": 43.2692
  }, {
    "JobTitle": "Finance Manager",
    "AverageRate": 43.2692
  }, {
    "JobTitle": "Research and Development Engineer",
    "AverageRate": 40.8654
  }, {
    "JobTitle": "Network Manager",
    "AverageRate": 39.6635
  }, {
    "JobTitle": "Database Administrator",
    "AverageRate": 38.4615
  }, {
    "JobTitle": "Senior Design Engineer",
    "AverageRate": 36.0577
  }, {
    "JobTitle": "Accounts Manager",
    "AverageRate": 34.7356
  }, {
    "JobTitle": "Design Engineer",
    "AverageRate": 32.6923
  }, {
    "JobTitle": "Network Administrator",
    "AverageRate": 32.4519
  }
]}
--FOR JSON PATH, ROOT ('Average Salary Per Position'), INCLUDE_NULL_VALUES;
```

JSON file | length: 6,898 | lines: 206 | Ln: 1 | Col: 2 | Sel: 0 | 0 | Windows (CR LF) | UTF-8 | INS

Proposition #13 (Complex)

Show the cost of products in all orders for a specified customer



Order (Sales)			
Column Name	Data Type	Allow Nulls	
OrderId	Udt.SurrogateKeyIn...	<input type="checkbox"/>	
CustomerId	Udt.SurrogateKeyIn...	<input checked="" type="checkbox"/>	
EmployeeId	Udt.SurrogateKeyIn...	<input type="checkbox"/>	
ShipperId	Udt.SurrogateKeyIn...	<input type="checkbox"/>	
OrderDate	Udt.DateYYYYMM...	<input type="checkbox"/>	
RequiredDate	Udt.DateYYYYMM...	<input type="checkbox"/>	
ShipToDate	Udt.DateYYYYMM...	<input checked="" type="checkbox"/>	
Freight	Udt.Currency:money	<input type="checkbox"/>	
ShipToName	Udt.ContactName:...	<input type="checkbox"/>	
ShipToAddress	Udt.Address:nvarch...	<input type="checkbox"/>	
ShipToCity	Udt.City:nvarchar(15)	<input type="checkbox"/>	
ShipToRegion	Udt.Region:nvarch...	<input checked="" type="checkbox"/>	
ShipToPostalCode	Udt.PostalCode:nv...	<input checked="" type="checkbox"/>	
ShipToCountry	Udt.Country:nvarc...	<input type="checkbox"/>	
UserAuthenticationId	int	<input checked="" type="checkbox"/>	
DateAdded	datetime2(7)	<input checked="" type="checkbox"/>	
DateOfLastUpdate	datetime2(7)	<input checked="" type="checkbox"/>	
		<input type="checkbox"/>	

Customer (Sales) *			
Column Name	Data Type	Allow Nulls	
CustomerId	Udt.SurrogateKeyIn...	<input type="checkbox"/>	
CustomerCompanyName	Udt.CompanyNam...	<input type="checkbox"/>	
CustomerContactName	Udt.ContactName:...	<input type="checkbox"/>	
CustomerContactTitle	Udt.Title:nvarchar(3...	<input type="checkbox"/>	
CustomerAddress	Udt.Address:nvarch...	<input type="checkbox"/>	
CustomerCity	Udt.City:nvarchar(15)	<input type="checkbox"/>	
CustomerRegion	Udt.Region:nvarch...	<input checked="" type="checkbox"/>	
CustomerPostalCode	Udt.PostalCode:nv...	<input checked="" type="checkbox"/>	
CustomerCountry	Udt.Country:nvarc...	<input type="checkbox"/>	
CustomerPhoneNumber	Udt.TelephoneNum...	<input type="checkbox"/>	
CustomerFaxNumber	Udt.TelephoneNum...	<input checked="" type="checkbox"/>	
		<input type="checkbox"/>	

OrderDetail (Sales)			
Column Name	Data Type	Allow Nulls	
OrderId	Udt.SurrogateKeyIn...	<input type="checkbox"/>	
ProductId	Udt.SurrogateKeyIn...	<input type="checkbox"/>	
UnitPrice	Udt.Currency:money	<input type="checkbox"/>	
Quantity	Udt.QuantitySmall:...	<input type="checkbox"/>	
DiscountPercentage	Udt.Percentage:nu...	<input type="checkbox"/>	
		<input type="checkbox"/>	

Columns from Tables

Table Name	Column Name
Order	OrderId
Customer	CustomerId
OrderDetail	ProductId, UnitPrice, Quantity

Order By

Table Name	Column Name	Sort Order
Customer	CustomerId	ASC

```
USE Northwinds2020TSQLV6;
DROP FUNCTION IF EXISTS dbo.get_cost_of_products_for_customer_order;
GO
CREATE FUNCTION dbo.get_cost_of_products_for_customer_order
(
    @customer AS INT
)
RETURNS TABLE
AS
RETURN SELECT CustomerId,
              OrderId
          FROM Sales.[Order]
          WHERE CustomerId = @customer;
GO
DECLARE @CustomerNumber INT;
SET @CustomerNumber = 50;
SELECT SO.CustomerId,
       GC.OrderId,
       SOD.ProductId,
       (SOD.UnitPrice * SOD.Quantity) AS TotalCost
FROM   dbo.get_cost_of_products_for_customer_order(@CustomerNumber) AS GC
       INNER JOIN Sales.[Customer] AS SO
           ON GC.CustomerId = SO.CustomerId
       INNER JOIN Sales.[OrderDetail] AS SOD
           ON SOD.OrderId = GC.OrderId
GROUP BY (SOD.UnitPrice * SOD.Quantity),
         SO.CustomerId,
         GC.OrderId,
         SOD.ProductId

--Uncomment Below to get JSON output
--FOR JSON PATH, ROOT ('Cost of Products for Specific Customer'), INCLUDE_NULL_VALUES;

DROP FUNCTION IF EXISTS dbo.get_cost_of_products_for_customer_order
```

```

USE Northwinds2020TSQLV6;
DROP FUNCTION IF EXISTS dbo.get_cost_of_products_for_customer_order;
GO
CREATE FUNCTION dbo.get_cost_of_products_for_customer_order
(
    @customer AS INT
)
RETURNS TABLE
AS
RETURN SELECT CustomerId,
               OrderId,
               FROM Sales.[Order]
               WHERE CustomerId = @customer;
GO
DECLARE @CustomerNumber INT;
SET @CustomerNumber = 50;
SELECT GC.CustomerId,
       GC.OrderId,
       SOD.ProductId,
       (SOD.UnitPrice * SOD.Quantity) AS TotalCost
FROM dbo.get_cost_of_products_for_customer_order(@CustomerNumber) AS GC
INNER JOIN Sales.[Customer] AS SO
ON GC.CustomerId = SO.CustomerId
INNER JOIN Sales.[OrderDetail] AS SOD
ON SOD.OrderId = GC.OrderId
GROUP BY (SOD.UnitPrice * SOD.Quantity),
         GC.CustomerId,
         GC.OrderId,
         SOD.ProductId;
DROP FUNCTION IF EXISTS dbo.get_cost_of_products_for_customer_order;

--FOR JSON PATH, ROOT ('Cost of Products for Specific Customer'), INCLUDE_NULL_VALUES;

```

96 %

Results

Messages

	CustomerId	OrderId	ProductId	TotalCost
1	50	10529	55	336.00
2	50	10529	68	250.00
3	50	10529	69	360.00
4	50	10649	28	912.00
5	50	10649	72	522.00
6	50	10760	25	168.00

Query executed successfully.

localhost,12001 (15.0 RTM) | sa (60) | Northwinds2020TSQLV6 | 00:00:00 | 17 rows

JSToolApp JSON Viewer

Refresh

Search

ROOT

Cost of Products for Specific Customer: [Array]

[0]: [Object]

CustomerId: 50

OrderId: 10529

ProductId: 55

TotalCost: 336.0000

[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]

```

1  "Cost of Products for Specific Customer": [ {
2    "CustomerId": 50,
3    "OrderId": 10529,
4    "ProductId": 55,
5    "TotalCost": 336.0000
6  }, {
7    "CustomerId": 50,
8    "OrderId": 10529,
9    "ProductId": 68,
10   "TotalCost": 250.0000
11 }, {
12   "CustomerId": 50,
13   "OrderId": 10529,
14   "ProductId": 69,
15   "TotalCost": 360.0000
16 }, {
17   "CustomerId": 50,
18   "OrderId": 10649,
19   "ProductId": 28,
20   "TotalCost": 912.0000
21 }, {
22   "CustomerId": 50,
23   "OrderId": 10649,

```

JSON file

length: 2,455 lines: 88

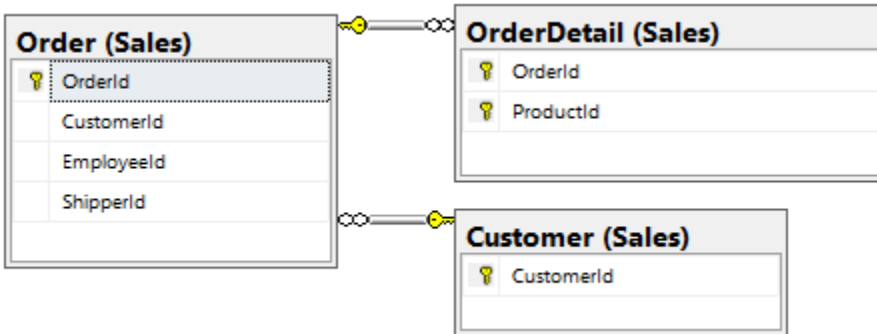
Ln: 1 Col: 3 Sel: 0 | 0

Windows (CRLF) | UTF-8

INS

Proposition #14 (Complex)

Show the Amount of Days until the Order is Shipped



Order (Sales)			
	Column Name	Data Type	Allow Nulls
🔑	OrderId	Udt.SurrogateKeyIntint	<input type="checkbox"/>
	CustomerId	Udt.SurrogateKeyIntint	<input checked="" type="checkbox"/>
	EmployeeId	Udt.SurrogateKeyIntint	<input type="checkbox"/>
	ShipperId	Udt.SurrogateKeyIntint	<input type="checkbox"/>
	OrderDate	Udt.DateYYYYMMDD...	<input type="checkbox"/>
	RequiredDate	Udt.DateYYYYMMDD...	<input type="checkbox"/>
	ShipToDate	Udt.DateYYYYMMDD...	<input checked="" type="checkbox"/>
	Freight	Udt.Currency:money	<input type="checkbox"/>
	ShipToName	Udt.ContactName:nv...	<input type="checkbox"/>
	ShipToAddress	Udt.Address:nvarchar(...)	<input type="checkbox"/>
	ShipToCity	Udt.City:nvarchar(15)	<input type="checkbox"/>
	ShipToRegion	Udt.Region:nvarchar(...)	<input checked="" type="checkbox"/>
	ShipToPostalCode	Udt.PostalCode:nvarc...	<input checked="" type="checkbox"/>
	ShipToCountry	Udt.Country:nvarchar...	<input type="checkbox"/>
	UserAuthenticationId	int	<input checked="" type="checkbox"/>
	DateAdded	datetime2(7)	<input checked="" type="checkbox"/>
	DateOfLastUpdate	datetime2(7)	<input checked="" type="checkbox"/>

OrderDetail (Sales)			
	Column Name	Data Type	Allow Nulls
🔑	OrderId	Udt.SurrogateKeyIntint	<input type="checkbox"/>
🔑	ProductId	Udt.SurrogateKeyIntint	<input type="checkbox"/>
	UnitPrice	Udt.Currency:money	<input type="checkbox"/>
	Quantity	Udt.QuantitySmallsm...	<input type="checkbox"/>
	DiscountPercentage	Udt.Percentage:nume...	<input type="checkbox"/>

Customer (Sales)			
	Column Name	Data Type	Allow Nulls
🔑	CustomerId	Udt.SurrogateKeyIntint	<input type="checkbox"/>
	CustomerCompanyName	Udt.CompanyName:n...	<input type="checkbox"/>
	CustomerContactName	Udt.ContactName:nv...	<input type="checkbox"/>
	CustomerContactTitle	Udt.Title:nvarchar(30)	<input type="checkbox"/>
	CustomerAddress	Udt.Address:nvarchar(...)	<input type="checkbox"/>
	CustomerCity	Udt.City:nvarchar(15)	<input type="checkbox"/>
	CustomerRegion	Udt.Region:nvarchar(...)	<input checked="" type="checkbox"/>
	CustomerPostalCode	Udt.PostalCode:nvarc...	<input checked="" type="checkbox"/>
	CustomerCountry	Udt.Country:nvarchar...	<input type="checkbox"/>
	CustomerPhoneNumber	Udt.TelephoneNumb...	<input type="checkbox"/>
	CustomerFaxNumber	Udt.TelephoneNumb...	<input checked="" type="checkbox"/>

Columns from Tables

Table Name	Column Name
Order	OrderId
Customer	CustomerId
OrderDetail	OrderDate, ShipToDate

Order By

Table Name	Column Name	Sort Order
Customer	CustomeId	ASC

```
USE Northwinds2020TSQLV6;
DROP FUNCTION IF EXISTS dbo.get_days_until_ship;

GO
CREATE FUNCTION dbo.get_days_until_ship(@ordernumber int)
RETURNS INT
AS
BEGIN
    DECLARE @days_until_ship INT;
    SELECT @days_until_ship = DATEDIFF(DAY, OrderDate, ShipToDate)
    FROM Sales.[Order]
        WHERE OrderId = @ordernumber
    RETURN @days_until_ship;
END;
GO

DECLARE @order_number int;
SET @order_number = 10270

SELECT SO.CustomerId, SO.orderid, dbo.get_days_until_ship(@order_number) AS DAYSUNTILSHIP
FROM SALES. [Order] AS SO
    INNER JOIN Sales.[OrderDetail] AS OD
        ON SO.ORDERID = OD.OrderId
    INNER JOIN Sales.[CUSTOMER] AS SC
        ON SO.CUSTOMERID = SC.CUSTOMERID
    WHERE SO.ORDERID = @order_number
GROUP BY SO.CustomerId,
    SO.OrderId

--Uncomment Below to get JSON output
--FOR JSON PATH, ROOT ('Days Until Order is Shipped'), INCLUDE_NULL_VALUES;
DROP FUNCTION IF EXISTS dbo.get_days_until_ship
```

```
USE Northwinds2020TSQLV6;
DROP FUNCTION IF EXISTS dbo.get_days_until_ship;
GO
CREATE FUNCTION dbo.get_days_until_ship(@ordernumber int)
RETURNS INT
AS
BEGIN
    DECLARE @days_until_ship INT;
    SELECT @days_until_ship = DATEDIFF(DAY, OrderDate, ShipToDate)
    FROM Sales.[Order]
    WHERE OrderId = @ordernumber
    RETURN @days_until_ship;
END;
GO

DECLARE @order_number int;
SET @order_number = 10270

SELECT SO.CustomerId, SO.OrderId, dbo.get_days_until_ship(@order_number) AS DAYSUNTILSHIP
FROM SALES.[Order] AS SO
    INNER JOIN Sales.[OrderDetail] AS OD
        ON SO.ORDERID = OD.OrderId
    INNER JOIN Sales.[CUSTOMER] AS SC
        ON SO.CUSTOMERID = SC.CUSTOMERID
WHERE SO.ORDERID = @order_number
GROUP BY SO.CustomerId,
         SO.OrderId

--Uncomment Below to get JSON output
--FOR JSON PATH, ROOT ('Days Until Order is Shipped'), INCLUDE_NULL_VALUES;
DROP FUNCTION IF EXISTS dbo.get_days_until_ship
```

Results Messages

	CustomerId	orderid	DAYSUNTILSHIP
1	87	10270	1

Query executed successfully. localhost,12001 (15.0 RTM) sa (60) Northwinds2020TSQLV6 00:00:00 1 rows

ROOT

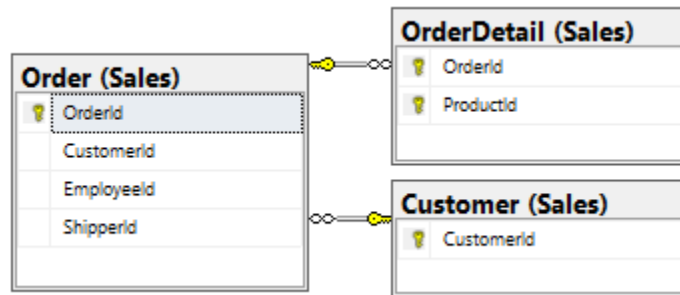
- Days Until Order is Shipped: [Array]
- [0]: [Object]
- CustomerId: 87
- orderid: 10270
- DAYSUNTILSHIP: 1

```
{
  "Days Until Order is Shipped": [ {
    "CustomerId": 87,
    "orderid": 10270,
    "DAYSUNTILSHIP": 1
  } ]
}
```

JSON file length: 157 lines: 9 Ln: 9 Col: 1 Sel: 0 | 0 Windows (CR LF) UTF-8 INS

Proposition #15 (Complex)

Write a function that shows the total quantity going to each region of specified country



Column Name	Data Type	Allow Nulls
Orderid	Udt.SurrogateKeyInt...	<input type="checkbox"/>
Customerid	Udt.SurrogateKeyInt...	<input checked="" type="checkbox"/>
Employeeid	Udt.SurrogateKeyInt...	<input type="checkbox"/>
Shipperid	Udt.SurrogateKeyInt...	<input type="checkbox"/>
OrderDate	Udt.DateYYYYMMMD...	<input type="checkbox"/>
RequiredDate	Udt.DateYYYYMMMD...	<input type="checkbox"/>
ShipToDate	Udt.DateYYYYMMMD...	<input checked="" type="checkbox"/>
Freight	Udt.Currency:money	<input type="checkbox"/>
ShipToName	Udt.ContactName:n...	<input type="checkbox"/>
ShipToAddress	Udt.Address:nvarcha...	<input type="checkbox"/>
ShipToCity	Udt.City:nvarchar(15)	<input type="checkbox"/>
ShipToRegion	Udt.Region:nvarchar(...)	<input checked="" type="checkbox"/>
ShipToPostalCode	Udt.PostalCode:nvar...	<input checked="" type="checkbox"/>
ShipToCountry	Udt.Country:nvarcha...	<input type="checkbox"/>
UserAuthenticationId	int	<input checked="" type="checkbox"/>
DateAdded	datetime2(7)	<input checked="" type="checkbox"/>
DateOfLastUpdate	datetime2(7)	<input checked="" type="checkbox"/>

Column Name	Data Type	Allow Nulls
Orderid	Udt.SurrogateKeyInt...	<input type="checkbox"/>
Productid	Udt.SurrogateKeyInt...	<input type="checkbox"/>
UnitPrice	Udt.Currency:money	<input type="checkbox"/>
Quantity	Udt.QuantitySmall...	<input type="checkbox"/>
DiscountPercentage	Udt.Percentage:num...	<input type="checkbox"/>

Column Name	Data Type	Allow Nulls
Customerid	Udt.SurrogateKeyInt...	<input type="checkbox"/>
CustomerCompanyName	Udt.CompanyName...	<input type="checkbox"/>
CustomerContactName	Udt.ContactName:n...	<input type="checkbox"/>
CustomerContactTitle	Udt.Title:nvarchar(30)	<input type="checkbox"/>
CustomerAddress	Udt.Address:nvarcha...	<input type="checkbox"/>
CustomerCity	Udt.City:nvarchar(15)	<input type="checkbox"/>
CustomerRegion	Udt.Region:nvarchar(...)	<input checked="" type="checkbox"/>
CustomerPostalCode	Udt.PostalCode:nvar...	<input checked="" type="checkbox"/>
CustomerCountry	Udt.Country:nvarcha...	<input type="checkbox"/>
CustomerPhoneNumber	Udt.TelephoneNumb...	<input type="checkbox"/>
CustomerFaxNumber	Udt.TelephoneNumb...	<input checked="" type="checkbox"/>

Columns from Tables

Table Name	Column Name
Order	ShipToRegion
Customer	CustomerId
OrderDetail	Quantity, ShipToRegion

Order By

Table Name	Column Name	Sort Order
OrderDetail	ShipToRegion	ASC

```
USE Northwinds2020TSQLV6;
DROP FUNCTION IF EXISTS dbo.UnitsToCountry;

GO
CREATE FUNCTION dbo.UnitsToCountry(@Country NVARCHAR(50))
RETURNS TABLE
AS
RETURN SELECT SUM(SOD.Quantity) AS TotalUnits, SO.ShipToRegion
        FROM SALES.[ORDER] AS SO
            LEFT JOIN SALES.[ORDERDETAIL] AS SOD
                ON SO.ORDERID = SOD.ORDERID
            LEFT JOIN SALES.[CUSTOMER] AS SC
                ON SO.CustomerId = SC.CustomerId
        GROUP BY SO.ShipToRegion, SO.ShipToCountry
        HAVING SO.ShipToCountry = @Country;

GO

DECLARE @COUNTRY nvarchar(50)
SET @country = 'USA'

SELECT C.ShipToRegion, C.TotalUnits
FROM dbo.UnitsToCountry(@Country) AS C
ORDER BY C.ShipToRegion

--Uncomment Below to get JSON output
--FOR JSON PATH, ROOT ('Orders to Country Region'), INCLUDE_NULL_VALUES;

DROP FUNCTION IF EXISTS dbo.UnitsToCountry;
```

```
USE Northwinds2020TSQLV6;
DROP FUNCTION IF EXISTS dbo.UnitsToCountry;
GO
CREATE FUNCTION dbo.UnitsToCountry(@Country NVARCHAR(50))
RETURNS TABLE
AS
RETURN SELECT SUM(SOD.Quantity) AS TotalUnits, SO.ShipToRegion
FROM SALES.[ORDER] AS SO
LEFT JOIN SALES.[ORDERDETAIL] AS SOD
ON SO.ORDERID = SOD.ORDERID
LEFT JOIN SALES.[CUSTOMER] AS SC
ON SO.CustomerId = SC.CustomerId
GROUP BY SO.ShipToRegion, SO.ShipToCountry
HAVING SO.ShipToCountry = @Country;
GO

DECLARE @COUNTRY nvarchar(50)
SET @country = 'USA'

SELECT C.ShipToRegion, C.TotalUnits
FROM dbo.UnitsToCountry(@Country) AS C
ORDER BY C.ShipToRegion

--Uncomment Below to get JSON output
--FOR JSON PATH, ROOT ('Orders to Country Region'), INCLUDE_NULL_VALUES;

DROP FUNCTION IF EXISTS dbo.UnitsToCountry;
```

104 %

Results Messages

	ShipToRegion	TotalUnits
1	AK	603
2	CA	181
3	ID	4958
4	MT	59
5	NM	1383
6	OR	647
7	WA	1172

Query executed successfully. localhost:12001 (15.0 RTM) sa (60) Northwinds2020TSQLV6 00:00:00 8 rows

Refresh Search

ROOT

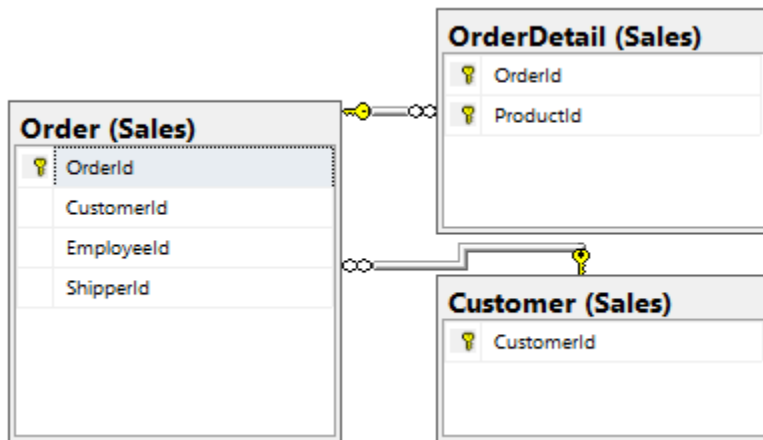
- Orders to Country Region: [Array]
 - [0]: [Object]
 - ShipToRegion: "AK"
 - TotalUnits: 603
 - [1]: [Object]
 - [2]: [Object]
 - [3]: [Object]
 - [4]: [Object]
 - [5]: [Object]
 - [6]: [Object]
 - [7]: [Object]

```
1  {
2    "Orders to Country Region": [ {
3      "ShipToRegion": "AK",
4      "TotalUnits": 603
5    }, {
6      "ShipToRegion": "CA",
7      "TotalUnits": 181
8    }, {
9      "ShipToRegion": "ID",
10     "TotalUnits": 4958
11   }, {
12     "ShipToRegion": "MT",
13     "TotalUnits": 59
14   }, {
15     "ShipToRegion": "NM",
16     "TotalUnits": 1383
17   }, {
18     "ShipToRegion": "OR",
19     "TotalUnits": 647
20   }, {
21     "ShipToRegion": "WA",
22     "TotalUnits": 1172
23   }, {
24     "ShipToRegion": "WY",
25     "TotalUnits": 327
26   }
27 ]
28 }
```

JSON file length: 686 lines: 28 Ln: 1 Col: 2 Sel: 0|0 Windows (CR LF) UTF-8 INS

Proposition #16 (Complex)

Write a function that shows the total quantity going to each region of specified country



Order (Sales)			
Column Name	Data Type	Allow Nulls	
OrderId	Udt.SurrogateKeyf...	<input type="checkbox"/>	
CustomerId	Udt.SurrogateKeyf...	<input checked="" type="checkbox"/>	
EmployeeId	Udt.SurrogateKeyf...	<input type="checkbox"/>	
ShipperId	Udt.SurrogateKeyf...	<input type="checkbox"/>	
OrderDate	Udt.DateYYYYMM...	<input type="checkbox"/>	
RequiredDate	Udt.DateYYYYMM...	<input type="checkbox"/>	
ShipToDate	Udt.DateYYYYMM...	<input checked="" type="checkbox"/>	
Freight	Udt.Currencymon...	<input type="checkbox"/>	
ShipToName	Udt.ContactName...	<input type="checkbox"/>	
ShipToAddress	Udt.Addressvar...	<input type="checkbox"/>	
ShipToCity	Udt.Citynvarchar...	<input type="checkbox"/>	
ShipToRegion	Udt.Regionvarch...	<input checked="" type="checkbox"/>	
ShipToPostalCode	Udt.PostalCodem...	<input checked="" type="checkbox"/>	
ShipToCountry	Udt.Countryvarc...	<input type="checkbox"/>	
UserAuthenticationId	int	<input checked="" type="checkbox"/>	
DateAdded	datetime2(?)	<input checked="" type="checkbox"/>	
DateOfLastUpdate	datetime2(?)	<input checked="" type="checkbox"/>	

OrderDetail (Sales)			
Column Name	Data Type	Allow Nulls	
OrderId	Udt.SurrogateKeyf...	<input type="checkbox"/>	
ProductId	Udt.SurrogateKeyf...	<input type="checkbox"/>	
UnitPrice	Udt.Currencymon...	<input type="checkbox"/>	
Quantity	Udt.Quantitysmal...	<input type="checkbox"/>	
DiscountPercentage	Udt.Percentagesu...	<input type="checkbox"/>	

Customer (Sales)			
Column Name	Data Type	Allow Nulls	
CustomerId	Udt.SurrogateKeyf...	<input type="checkbox"/>	
CustomerCompanyName	Udt.CompanyName...	<input type="checkbox"/>	
CustomerContactName	Udt.ContactName...	<input type="checkbox"/>	
CustomerContactTitle	Udt.Titlenvarchar...	<input type="checkbox"/>	
CustomerAddress	Udt.Addressvar...	<input type="checkbox"/>	
CustomerCity	Udt.Citynvarchar...	<input type="checkbox"/>	
CustomerRegion	Udt.Regionvarch...	<input checked="" type="checkbox"/>	
CustomerPostalCode	Udt.PostalCodem...	<input checked="" type="checkbox"/>	
CustomerCountry	Udt.Countryvarc...	<input type="checkbox"/>	
CustomerPhoneNumber	Udt.TelephoneNu...	<input type="checkbox"/>	
CustomerFaxNumber	Udt.TelephoneNu...	<input checked="" type="checkbox"/>	

Columns from Tables

Table Name	Column Name
Order	OrderId
Customer	CustomerId
OrderDetail	ShipToCity

Order By

Table Name	Column Name	Sort Order
Order	OrderId	ASC

```
USE Northwinds2020TSQLV6;
DROP FUNCTION IF EXISTS dbo.UnitsToCity;

GO
CREATE FUNCTION dbo.UnitsToCity
(
    @City NVARCHAR(50)
)
RETURNS TABLE
AS
RETURN SELECT SO.OrderId,
              SO.CustomerId,
              SO.ShipToCity
FROM Sales.Customer AS C
      INNER JOIN Sales.[Order] AS SO
        ON C.CustomerId = SO.CustomerId
      INNER JOIN Sales.OrderDetail AS OD
        ON OD.OrderId = SO.OrderId
WHERE SO.ShipToCity = @City
GROUP BY SO.OrderId,
         SO.CustomerId,
         SO.ShipToCity;

GO

DECLARE @City NVARCHAR(50);
SET @City = N'London';

SELECT OrderId,
       CustomerId,
       ShipToCity
FROM dbo.UnitsToCity(@City)
GROUP BY OrderId,
         CustomerId,
         ShipToCity
ORDER BY OrderId,
         CustomerId

--Uncomment Below to get JSON output
--FOR JSON PATH, ROOT ('All Orders to a City'), INCLUDE_NULL_VALUES

DROP FUNCTION IF EXISTS dbo.UnitsToCity;
```



```
--USE Northwinds2020TSQLV6;
DROP FUNCTION IF EXISTS dbo.UnitsToCity;

GO
--CREATE FUNCTION dbo.UnitsToCity
--(
--    @City NVARCHAR(50)
--)
--RETURNS TABLE
--AS
--RETURN SELECT SO.OrderId,
--              SO.CustomerId,
--              SO.ShipToCity
--          FROM Sales.Customer AS C
--          INNER JOIN Sales.[Order] AS SO
--              ON C.CustomerId = SO.CustomerId
--          INNER JOIN Sales.OrderDetail AS OD
--              ON OD.OrderId = SO.OrderId
--          WHERE SO.ShipToCity = @City
--          GROUP BY SO.OrderId,
--                 SO.CustomerId,
--                 SO.ShipToCity;

GO

--DECLARE @City NVARCHAR(50);
--SET @City = N'London';

--SELECT OrderId,
--       CustomerId,
--       ShipToCity
--FROM dbo.UnitsToCity(@City)
--GROUP BY OrderId,
--       CustomerId,
--       ShipToCity
--ORDER BY OrderId,
--       CustomerId;

----Uncomment Below to get JSON output
--FOR JSON PATH, ROOT ('All Orders to a City'), INCLUDE_NULL_VALUES;

DROP FUNCTION IF EXISTS dbo.UnitsToCity;
```

71 %

Results Messages

	OrderId	CustomerId	ShipToCity
1	10289	11	London
2	10359	72	London
3	10364	19	London
4	10377	72	London
5	10388	72	London
6	10400	19	London
7	10435	16	London

Query executed successfully. localhost:12001 (15.0 RTM) sa (60) Northwinds2020TSQLV6 00:00:00 33 rows

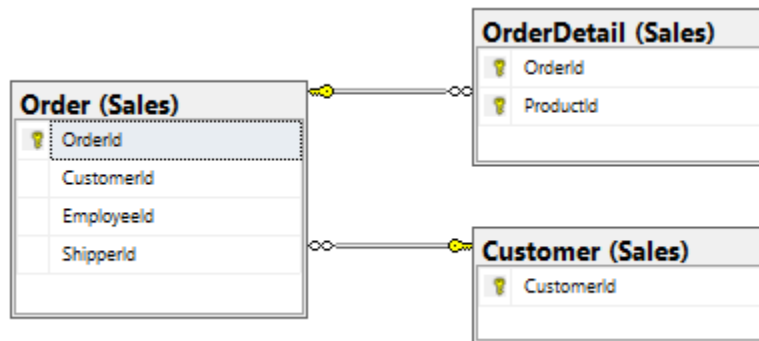
JSON file

```
1 {
2   "All Orders to a City": [
3     {
4       "OrderId": 10289,
5       "CustomerId": 11,
6       "ShipToCity": "London"
7     },
8     {
9       "OrderId": 10359,
10      "CustomerId": 72,
11      "ShipToCity": "London"
12     },
13     {
14       "OrderId": 10364,
15       "CustomerId": 19,
16       "ShipToCity": "London"
17     },
18     {
19       "OrderId": 10377,
20       "CustomerId": 72,
21       "ShipToCity": "London"
22     },
23     {
24       "OrderId": 10388,
25       "CustomerId": 72,
26       "ShipToCity": "London"
27     },
28     {
29       "OrderId": 10400,
30       "CustomerId": 19,
31       "ShipToCity": "London"
32     },
33     {
34       "OrderId": 10435,
35       "CustomerId": 16,
36       "ShipToCity": "London"
37     }
38   ]
39 }
```

length: 3,738 lines: 137 Ln: 1 Col: 1 Sel: 0 | 0 Windows (CR LF) UTF-8 INS

Proposition #17 (Complex)

Show the Total Units an Employee has sold to Each Customer



Column Name	Data Type	Allow Nulls
Orderid	Udt.SurrogateKeyInt...	<input type="checkbox"/>
Customerid	Udt.SurrogateKeyInt...	<input checked="" type="checkbox"/>
Employeeid	Udt.SurrogateKeyInt...	<input type="checkbox"/>
Shipperid	Udt.SurrogateKeyInt...	<input type="checkbox"/>
OrderDate	Udt.DateYYYYMMDD...	<input type="checkbox"/>
RequiredDate	Udt.DateYYYYMMDD...	<input type="checkbox"/>
ShipToDate	Udt.DateYYYYMMDD...	<input checked="" type="checkbox"/>
Freight	Udt.Currency:money	<input type="checkbox"/>
ShipToName	Udt.ContactName:n...	<input type="checkbox"/>
ShipToAddress	Udt.Address:nvarcha...	<input type="checkbox"/>
ShipToCity	Udt.City:nvarchar(15)	<input type="checkbox"/>
ShipToRegion	Udt.Region:nvarchar(...)	<input checked="" type="checkbox"/>
ShipToPostalCode	Udt.PostalCode:nvar...	<input checked="" type="checkbox"/>
ShipToCountry	Udt.Country:nvarcha...	<input type="checkbox"/>
UserAuthenticationId	int	<input checked="" type="checkbox"/>
DateAdded	datetime2(7)	<input checked="" type="checkbox"/>
DateOfLastUpdate	datetime2(7)	<input checked="" type="checkbox"/>

Column Name	Data Type	Allow Nulls
Orderid	Udt.SurrogateKeyInt...	<input type="checkbox"/>
Productid	Udt.SurrogateKeyInt...	<input type="checkbox"/>
UnitPrice	Udt.Currency:money	<input type="checkbox"/>
Quantity	Udt.QuantitySmalls...	<input type="checkbox"/>
DiscountPercentage	Udt.Percentage:num...	<input type="checkbox"/>

Column Name	Data Type	Allow Nulls
Customerid	Udt.SurrogateKeyInt...	<input type="checkbox"/>
CustomerCompanyName	Udt.CompanyName:...	<input type="checkbox"/>
CustomerContactName	Udt.ContactName:n...	<input type="checkbox"/>
CustomerContactTitle	Udt.Title:nvarchar(30)	<input type="checkbox"/>
CustomerAddress	Udt.Address:nvarcha...	<input type="checkbox"/>
CustomerCity	Udt.City:nvarchar(15)	<input type="checkbox"/>
CustomerRegion	Udt.Region:nvarchar(...)	<input checked="" type="checkbox"/>
CustomerPostalCode	Udt.PostalCode:nvar...	<input checked="" type="checkbox"/>
CustomerCountry	Udt.Country:nvarcha...	<input type="checkbox"/>
CustomerPhoneNumber	Udt.TelephoneNumb...	<input type="checkbox"/>
CustomerFaxNumber	Udt.TelephoneNumb...	<input checked="" type="checkbox"/>

Columns from Tables

Table Name	Column Name
Order	EmployeeId
Customer	CustomerId
OrderDetail	Quantity

Order By

Table Name	Column Name	Sort Order
Order	EmployeeId	ASC

```
USE Northwinds2020TSQLV6;
```

```
DROP FUNCTION IF EXISTS dbo.EmployeeSaleAmountPerCustomer;
```

```
GO
```

```
CREATE FUNCTION dbo.EmployeeSaleAmountPerCustomer
```

```
(
```

```
    @EmployeeID INT
```

```
)
```

```
RETURNS TABLE
```

```
AS
```

```
RETURN SELECT SUM(OD.Quantity) AS NumSold,
```

```
    C.CustomerId,
```

```
    O.EmployeeId
```

```
FROM Sales.Customer AS C
```

```
    INNER JOIN Sales.[Order] AS O
```

```
        ON O.CustomerId = C.CustomerId
```

```
    INNER JOIN Sales.OrderDetail AS OD
```

```
        ON OD.OrderId = O.OrderId
```

```
WHERE O.EmployeeId = @EmployeeID
```

```
GROUP BY C.CustomerId,
```

```
    O.EmployeeId;
```

```
GO
```

```
DECLARE @EmployeeId INT;
```

```
SET @EmployeeId = 1;
```

```
SELECT EmployeeId,
```

```
    CustomerId,
```

```
    NumSold
```

```
FROM dbo.EmployeeSaleAmountPerCustomer(@EmployeeId)
```

```
--Uncomment Below to get JSON output
```

```
--FOR JSON PATH, ROOT ('Units sold to Customers from Each Employee'), INCLUDE_NULL_VALUES
```

```
DROP FUNCTION IF EXISTS dbo.EmployeeSaleAmountPerCustomer;
```

USE Northwinds2020TSQLV6;
DROP FUNCTION IF EXISTS dbo.EmployeeSaleAmountPerCustomer;
GO
CREATE FUNCTION dbo.EmployeeSaleAmountPerCustomer
(
 @EmployeeId INT
)
RETURNS TABLE
AS
RETURN SELECT SUM(OD.Quantity) AS NumSold,
 C.CustomerId,
 O.EmployeeId
FROM Sales.Customer AS C
 INNER JOIN Sales.[Order] AS O
 ON O.CustomerId = C.CustomerId
 INNER JOIN Sales.OrderDetail AS OD
 ON OD.OrderId = O.OrderId
WHERE O.EmployeeId = @EmployeeId
GROUP BY C.CustomerId,
 O.EmployeeId;
GO

DECLARE @EmployeeId INT;
SET @EmployeeId = 1;

SELECT EmployeeId,
 CustomerId,
 NumSold
FROM dbo.EmployeeSaleAmountPerCustomer(@EmployeeId)

--Uncomment Below to get JSON output
--FOR JSON PATH, ROOT ('Units sold to Customers from Each Employee'), INCLUDE_NULL_VALUES

DROP FUNCTION IF EXISTS dbo.EmployeeSaleAmountPerCustomer;

ResultsMessages

	EmployeeId	CustomerId	NumSold
1	1	1	35
2	1	3	38
3	1	4	164
4	1	5	235
5	1	9	153
6	1	10	77

Query executed successfully.localhost:12001 (15.0 RTM)sa (60)Northwinds2020TSQLV600:00:0065 rows

Units sold to Customers from Each Employee: [Array]

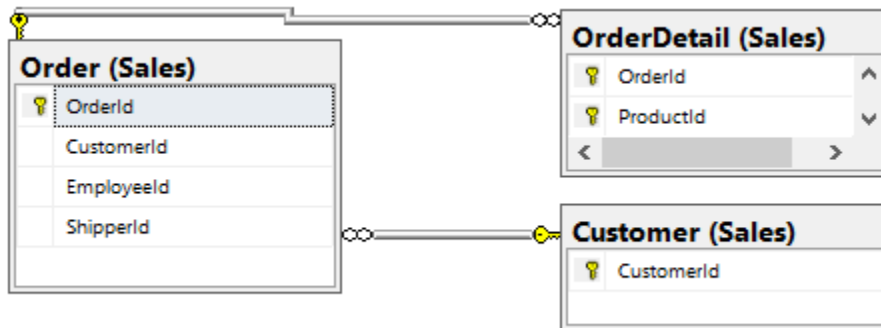
- [0]: Object
 - EmployeeId: 1
 - CustomerId: 1
 - NumSold: 35
- [1]: Object
- [2]: Object
- [3]: Object
- [4]: Object
- [5]: Object
- [6]: Object
- [7]: Object
- [8]: Object
- [9]: Object
- [10]: Object
- [11]: Object
- [12]: Object
- [13]: Object
- [14]: Object
- [15]: Object
- [16]: Object
- [17]: 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
- [31]: Object
- [32]: Object
- [33]: Object
- [34]: Object
- [35]: Object
- [36]: Object
- [37]: Object
- [38]: Object
- [39]: Object

```
"Units sold to Customers from Each Employee": [{  
  "EmployeeId": 1,  
  "CustomerId": 1,  
  "NumSold": 35  
}, {  
  "EmployeeId": 1,  
  "CustomerId": 3,  
  "NumSold": 38  
}, {  
  "EmployeeId": 1,  
  "CustomerId": 4,  
  "NumSold": 164  
}, {  
  "EmployeeId": 1,  
  "CustomerId": 5,  
  "NumSold": 235  
}, {  
  "EmployeeId": 1,  
  "CustomerId": 9,  
  "NumSold": 153  
}, {  
  "EmployeeId": 1,  
  "CustomerId": 10,  
  "NumSold": 77  
}, {  
  "EmployeeId": 1,  
  "CustomerId": 11,  
  "NumSold": 0  
}]
```

JSON filelength: 6,705lines: 264Ln: 1Col: 2Sel: 0|0Windows (CR LF)UTF-8INS

Proposition #18 (Complex)

Show the Average Discount to a Specific Customer



Order (Sales)			
Column Name	Data Type	Allow Nulls	
Orderid	Udt.SurrogateKeyIntint	<input type="checkbox"/>	
Customerid	Udt.SurrogateKeyIntint	<input checked="" type="checkbox"/>	
Employeeid	Udt.SurrogateKeyIntint	<input type="checkbox"/>	
Shipperid	Udt.SurrogateKeyIntint	<input type="checkbox"/>	
OrderDate	Udt.DateYYYYMMDD...	<input type="checkbox"/>	
RequiredDate	Udt.DateYYYYMMDD...	<input type="checkbox"/>	
ShipToDate	Udt.DateYYYYMMDD...	<input checked="" type="checkbox"/>	
Freight	Udt.Currency:money	<input type="checkbox"/>	
ShipToName	Udt.ContactName:nv...	<input type="checkbox"/>	
ShipToAddress	Udt.Address:nvarchar(...)	<input type="checkbox"/>	
ShipToCity	Udt.City:nvarchar(15)	<input type="checkbox"/>	
ShipToRegion	Udt.Region:nvarchar(...)	<input checked="" type="checkbox"/>	
ShipToPostalCode	Udt.PostalCode:nvarc...	<input checked="" type="checkbox"/>	
ShipToCountry	Udt.Country:nvarchar...	<input type="checkbox"/>	
UserAuthenticationId	int	<input checked="" type="checkbox"/>	
DateAdded	datetime2(7)	<input checked="" type="checkbox"/>	
DateOfLastUpdate	datetime2(7)	<input checked="" type="checkbox"/>	
		<input type="checkbox"/>	

OrderDetail (Sales)			
Column Name	Data Type	Allow Nulls	
Orderid	Udt.SurrogateKeyIntint	<input type="checkbox"/>	
Productid	Udt.SurrogateKeyIntint	<input type="checkbox"/>	
UnitPrice	Udt.Currency:money	<input type="checkbox"/>	
Quantity	Udt.QuantitySmallsm...	<input type="checkbox"/>	
DiscountPercentage	Udt.Percentage:nume...	<input type="checkbox"/>	
		<input type="checkbox"/>	

Customer (Sales)			
Column Name	Data Type	Allow Nulls	
Customerid	Udt.SurrogateKeyIntint	<input type="checkbox"/>	
CustomerCompanyName	Udt.CompanyName:n...	<input type="checkbox"/>	
CustomerContactName	Udt.ContactName:nv...	<input type="checkbox"/>	
CustomerContactTitle	Udt.Title:nvarchar(30)	<input type="checkbox"/>	
CustomerAddress	Udt.Address:nvarchar(...)	<input type="checkbox"/>	
CustomerCity	Udt.City:nvarchar(15)	<input type="checkbox"/>	
CustomerRegion	Udt.Region:nvarchar(...)	<input checked="" type="checkbox"/>	
CustomerPostalCode	Udt.PostalCode:nvarc...	<input checked="" type="checkbox"/>	
CustomerCountry	Udt.Country:nvarchar...	<input type="checkbox"/>	
CustomerPhoneNumber	Udt.TelephoneNumb...	<input type="checkbox"/>	
CustomerFaxNumber	Udt.TelephoneNumb...	<input checked="" type="checkbox"/>	
		<input type="checkbox"/>	

Columns from Tables

Table Name	Column Name
Order	OrderId
Customer	CustomerId
OrderDetail	DiscountPercentage

Order By

Table Name	Column Name	Sort Order
Customer	CustomerId	ASC

```
USE Northwinds2020TSQLV6;
```

```
DROP FUNCTION IF EXISTS dbo.AvgerageCustomerDiscount;
```

```
GO
```

```
CREATE FUNCTION dbo.AvgerageCustomerDiscount
```

```
(
```

```
    @CustomerId INT
```

```
)
```

```
RETURNS TABLE
```

```
AS
```

```
RETURN SELECT C.CustomerId,  
              AVG(OD.DiscountPercentage) AS AverageDiscountPercent  
FROM Sales.Customer AS C  
      INNER JOIN Sales.[Order] AS O  
          ON O.CustomerId = C.CustomerId  
      INNER JOIN Sales.OrderDetail AS OD  
          ON OD.OrderId = O.OrderId  
WHERE O.CustomerId = @CustomerId  
GROUP BY C.CustomerId;
```

```
GO
```

```
DECLARE @EmployeeId INT;
```

```
SET @EmployeeId = 1;
```

```
SELECT CustomerId,  
       AverageDiscountPercent  
FROM dbo.AvgerageCustomerDiscount(@EmployeeId)
```

```
--Uncomment Below to get JSON output
```

```
--FOR JSON PATH, ROOT ('Average Customer Discount'), INCLUDE_NULL_VALUES
```

```
DROP FUNCTION IF EXISTS dbo.AvgerageCustomerDiscount;
```

```
USE Northwinds2020TSQLV6;

DROP FUNCTION IF EXISTS dbo.AverageCustomerDiscount;
GO
CREATE FUNCTION dbo.AverageCustomerDiscount
(
    @CustomerId INT
)
RETURNS TABLE
AS
RETURN SELECT C.CustomerId,
              AVG(OD.DiscountPercentage) AS AverageDiscountPercent
FROM Sales.Customer AS C
    INNER JOIN Sales.[Order] AS O
        ON O.CustomerId = C.CustomerId
    INNER JOIN Sales.OrderDetail AS OD
        ON OD.OrderId = O.OrderId
WHERE O.CustomerId = @CustomerId
GROUP BY C.CustomerId;
GO

DECLARE @EmployeeId INT;
SET @EmployeeId = 1;

SELECT CustomerId,
       AverageDiscountPercent
FROM dbo.AverageCustomerDiscount(@EmployeeId);

--Uncomment Below to get JSON output
--FOR JSON PATH, ROOT ('Average Customer Discount'), INCLUDE_NULL_VALUES

DROP FUNCTION IF EXISTS dbo.AverageCustomerDiscount;
```

95 %

CustomerId	AverageDiscountPercent
1	0.087500

Query executed successfully. | localhost:12001 (15.0 RTM) | sa (60) | Northwinds2020TSQLV6 | 00:00:00 | 1 rows

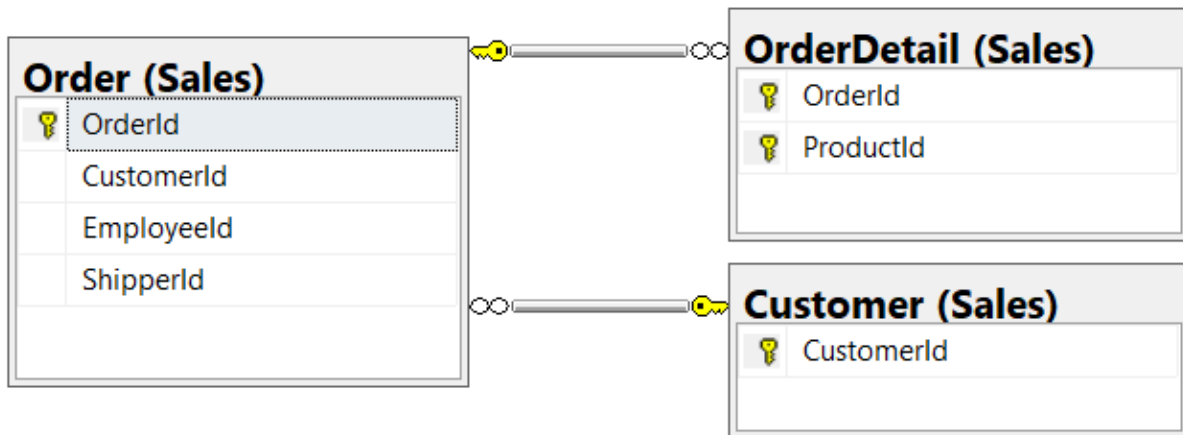
ROOT
Average Customer Discount: [Array]
[0]: [Object]
- CustomerId: 1
- AverageDiscountPercent: 0.087500

```
2  "Average Customer Discount": [ {  
3    "CustomerId": 1,  
4    "AverageDiscountPercent": 0.087500  
5  }  
6  ]  
7  }  
8
```

JSON file | length: 139 | lines: 8 | Ln: 1 | Col: 2 | Sel: 0 | 0 | Windows (CR LF) | UTF-8 | INS

Proposition #19 (Complex)

Return the Customers Favorite Item (Defined by Largest Quantity Ordered)



Order (Sales)			
Column Name	Data Type	Allow Nulls	
OrderId	Udt.SurrogateKeyIntint	<input type="checkbox"/>	
CustomerId	Udt.SurrogateKeyIntint	<input checked="" type="checkbox"/>	
EmployeeId	Udt.SurrogateKeyIntint	<input type="checkbox"/>	
ShipperId	Udt.SurrogateKeyIntint	<input type="checkbox"/>	
OrderDate	Udt.DateYYYYMMDD...	<input type="checkbox"/>	
RequiredDate	Udt.DateYYYYMMDD...	<input type="checkbox"/>	
ShipToDate	Udt.DateYYYYMMDD...	<input checked="" type="checkbox"/>	
Freight	Udt.Currency:money	<input type="checkbox"/>	
ShipToName	Udt.ContactName:nv...	<input type="checkbox"/>	
ShipToAddress	Udt.Address:nvarchar(...)	<input type="checkbox"/>	
ShipToCity	Udt.City:nvarchar(15)	<input type="checkbox"/>	
ShipToRegion	Udt.Region:nvarchar(...)	<input checked="" type="checkbox"/>	
ShipToPostalCode	Udt.PostalCode:nvarc...	<input checked="" type="checkbox"/>	
ShipToCountry	Udt.Country:nvarchar...	<input type="checkbox"/>	
UserAuthenticationId	int	<input checked="" type="checkbox"/>	
DateAdded	datetime2(7)	<input checked="" type="checkbox"/>	
DateOfLastUpdate	datetime2(7)	<input checked="" type="checkbox"/>	
		<input type="checkbox"/>	

OrderDetail (Sales)			
Column Name	Data Type	Allow Nulls	
OrderId	Udt.SurrogateKeyIntint	<input type="checkbox"/>	
ProductId	Udt.SurrogateKeyIntint	<input type="checkbox"/>	
UnitPrice	Udt.Currency:money	<input type="checkbox"/>	
Quantity	Udt.QuantitySmall:sm...	<input type="checkbox"/>	
DiscountPercentage	Udt.Percentage:nume...	<input type="checkbox"/>	
		<input type="checkbox"/>	

Customer (Sales)			
Column Name	Data Type	Allow Nulls	
CustomerId	Udt.SurrogateKeyIntint	<input type="checkbox"/>	
CustomerCompanyName	Udt.CompanyName:n...	<input type="checkbox"/>	
CustomerContactName	Udt.ContactName:nv...	<input type="checkbox"/>	
CustomerContactTitle	Udt.Title:nvarchar(30)	<input type="checkbox"/>	
CustomerAddress	Udt.Address:nvarchar(...)	<input type="checkbox"/>	
CustomerCity	Udt.City:nvarchar(15)	<input type="checkbox"/>	
CustomerRegion	Udt.Region:nvarchar(...)	<input checked="" type="checkbox"/>	
CustomerPostalCode	Udt.PostalCode:nvarc...	<input checked="" type="checkbox"/>	
CustomerCountry	Udt.Country:nvarchar...	<input type="checkbox"/>	
CustomerPhoneNumber	Udt.TelephoneNumb...	<input type="checkbox"/>	
CustomerFaxNumber	Udt.TelephoneNumb...	<input checked="" type="checkbox"/>	
		<input type="checkbox"/>	

Columns from Tables

Table Name	Column Name
Order	OrderId
Customer	CustomerId
OrderDetail	Quantity, ProductId

Order By

Table Name	Column Name	Sort Order
Customer	CustomerId	ASC

```
USE Northwinds2020TSQLV6;
```

```
DROP FUNCTION IF EXISTS dbo.CustomersFavoriteItem;
```

```
GO
```

```
CREATE FUNCTION dbo.CustomersFavoriteItem
```

```
(
```

```
    @CustomerId INT
```

```
)
```

```
RETURNS TABLE
```

```
AS
```

```
RETURN SELECT TOP (1)
```

```
    C.CustomerId,
```

```
    OD.Quantity,
```

```
    OD.ProductId
```

```
FROM Sales.Customer AS C
```

```
    INNER JOIN Sales.[Order] AS O
```

```
        ON O.CustomerId = C.CustomerId
```

```
    INNER JOIN Sales.OrderDetail AS OD
```

```
        ON OD.OrderId = O.OrderId
```

```
WHERE O.CustomerId = @CustomerId
```

```
GROUP BY C.CustomerId,
```

```
    OD.Quantity,
```

```
    OD.ProductId
```

```
ORDER BY OD.Quantity DESC;
```

```
GO
```

```
DECLARE @CustomerId INT;
```

```
SET @CustomerId = 1;
```

```
SELECT CustomerId,
```

```
    ProductId,
```

```
    Quantity
```

```
FROM dbo.CustomersFavoriteItem(@CustomerId
```

```
--Uncomment Below to get JSON output
```

```
--FOR JSON PATH, ROOT ('Largest Customer Quantity Order'), INCLUDE_NULL_VALUES
```

```
DROP FUNCTION IF EXISTS dbo.CustomersFavoriteItem;
```

78 %

Results Messages

	CustomerId	ProductId	Quantity
1	1	58	40

```

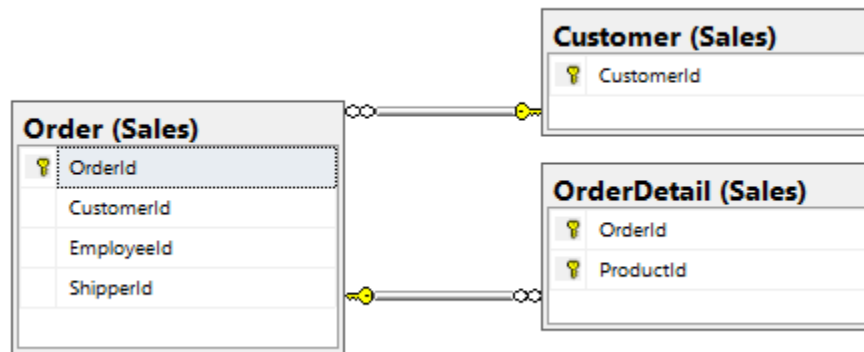
ROOT
├── Largest Customer Quantity Order: [Array]
│   └── [0]: [Object]
│       ├── CustomerId: 1
│       ├── ProductId: 58
│       └── Quantity: 40

```

JSON file	length : 155 lines : 9	Ln : 1 Col : 2 Sel : 0 0	Windows (CR LF)	UTF-8	INS
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Proposition #20 (Complex)

Return the Customers Favorite Item (Defined by Largest Quantity Ordered)



Order (Sales)			
Column Name	Data Type	Allow Nulls	
OrderId	Udt.SurrogateKeyIntint	<input type="checkbox"/>	
CustomerId	Udt.SurrogateKeyIntint	<input checked="" type="checkbox"/>	
EmployeeId	Udt.SurrogateKeyIntint	<input type="checkbox"/>	
ShipperId	Udt.SurrogateKeyIntint	<input type="checkbox"/>	
OrderDate	Udt.DateYYYYMMDD...	<input type="checkbox"/>	
RequiredDate	Udt.DateYYYYMMDD...	<input type="checkbox"/>	
ShipToDate	Udt.DateYYYYMMDD...	<input checked="" type="checkbox"/>	
Freight	Udt.Currency:money	<input type="checkbox"/>	
ShipToName	Udt.ContactName:nv...	<input type="checkbox"/>	
ShipToAddress	Udt.Address:nvarchar(...)	<input type="checkbox"/>	
ShipToCity	Udt.City:nvarchar(15)	<input type="checkbox"/>	
ShipToRegion	Udt.Region:nvarchar(...)	<input checked="" type="checkbox"/>	
ShipToPostalCode	Udt.PostalCode:nvarc...	<input checked="" type="checkbox"/>	
ShipToCountry	Udt.Country:nvarchar...	<input type="checkbox"/>	
UserAuthenticationId	int	<input checked="" type="checkbox"/>	
DateAdded	datetime2(7)	<input checked="" type="checkbox"/>	
DateOfLastUpdate	datetime2(7)	<input checked="" type="checkbox"/>	
		<input type="checkbox"/>	

Customer (Sales)			
Column Name	Data Type	Allow Nulls	
CustomerId	Udt.SurrogateKeyIntint	<input type="checkbox"/>	
CustomerCompanyName	Udt.CompanyName:nv...	<input type="checkbox"/>	
CustomerContactName	Udt.ContactName:nv...	<input type="checkbox"/>	
CustomerContactTitle	Udt.Title:nvarchar(30)	<input type="checkbox"/>	
CustomerAddress	Udt.Address:nvarchar(...)	<input type="checkbox"/>	
CustomerCity	Udt.City:nvarchar(15)	<input type="checkbox"/>	
CustomerRegion	Udt.Region:nvarchar(...)	<input checked="" type="checkbox"/>	
CustomerPostalCode	Udt.PostalCode:nvarc...	<input checked="" type="checkbox"/>	
CustomerCountry	Udt.Country:nvarchar...	<input type="checkbox"/>	
CustomerPhoneNumber	Udt.TelephoneNumb...	<input type="checkbox"/>	
CustomerFaxNumber	Udt.TelephoneNumb...	<input checked="" type="checkbox"/>	
		<input type="checkbox"/>	

OrderDetail (Sales)			
Column Name	Data Type	Allow Nulls	
OrderId	Udt.SurrogateKeyIntint	<input type="checkbox"/>	
ProductId	Udt.SurrogateKeyIntint	<input type="checkbox"/>	
UnitPrice	Udt.Currency:money	<input type="checkbox"/>	
Quantity	Udt.QuantitySmallsm...	<input type="checkbox"/>	
DiscountPercentage	Udt.Percentage:nume...	<input type="checkbox"/>	
		<input type="checkbox"/>	

Columns from Tables

Table Name	Column Name
Order	EmployeeId
Customer	CustomerId
OrderDetail	OrderId

Order By

Table Name	Column Name	Sort Order
Order	EmployeeId	ASC

```
USE Northwinds2020TSQLV6;
```

```
DROP FUNCTION IF EXISTS dbo.EmployeesFavoriteCustomer;
```

```
GO
```

```
CREATE FUNCTION dbo.EmployeesFavoriteCustomer
```

```
(
```

```
    @EmployeeId INT
```

```
)
```

```
RETURNS TABLE
```

```
AS
```

```
RETURN SELECT TOP (1)
```

```
    O.EmployeeId,
```

```
    COUNT(C.CustomerId) AS CustomerCount,
```

```
    C.CustomerId
```

```
FROM Sales.Customer AS C
```

```
    INNER JOIN Sales.[Order] AS O
```

```
        ON O.CustomerId = C.CustomerId
```

```
    INNER JOIN Sales.OrderDetail AS OD
```

```
        ON OD.OrderId = O.OrderId
```

```
WHERE O.EmployeeId = @EmployeeId
```

```
GROUP BY O.EmployeeId,
```

```
    C.CustomerId
```

```
ORDER BY COUNT(C.CustomerId) DESC;
```

```
GO
```

```
DECLARE @EmployeeId INT;
```

```
SET @EmployeeId = 1;
```

```
SELECT EmployeeId,
```

```
    CustomerId,
```

```
    CustomerCount
```

```
FROM dbo.EmployeesFavoriteCustomer(@EmployeeId)
```

```
--Uncomment Below to get JSON output
```

```
--FOR JSON PATH, ROOT ('Most Orders between an Employee and Customer'),
```

```
INCLUDE_NULL_VALUES
```

```
DROP FUNCTION IF EXISTS dbo.EmployeesFavoriteCustomer;
```

USE Northwinds2020TSQLV6;

DROP FUNCTION IF EXISTS dbo.EmployeesFavoriteCustomer;

GO

CREATE FUNCTION dbo.EmployeesFavoriteCustomer

(

@EmployeeId INT

)

RETURNS TABLE

AS

RETURN SELECT TOP (1)

@EmployeeId,

COUNT(C.CustomerId) AS CustomerCount,

C.CustomerId

FROM Sales.Customer AS C

INNER JOIN Sales.[Order] AS O

ON O.CustomerId = C.CustomerId

INNER JOIN Sales.OrderDetail AS OD

ON OD.OrderId = O.OrderId

WHERE O.EmployeeId = @EmployeeId

GROUP BY O.EmployeeId,

C.CustomerId

ORDER BY COUNT(C.CustomerId) DESC;

GO

DECLARE @EmployeeId INT;

SET @EmployeeId = 1;

SELECT EmployeeId,

CustomerId,

CustomerCount

FROM dbo.EmployeesFavoriteCustomer(@EmployeeId)

--Uncomment Below to get JSON output

--FOR JSON PATH, ROOT ('Most Orders between an Employee and Customer'), INCLUDE_NULL_VALUES

DROP FUNCTION IF EXISTS dbo.EmployeesFavoriteCustomer;

78 %

ResultsMessages

	EmployeeId	CustomerId	CustomerCount
1	1	65	36

Query executed successfully.

localhost:12001 (15.0 RTM)sa (60)Northwinds2020TSQLV600:00:001 rows

ROOT

Most Orders between an Employee and Customer: [A]

[0]: [Object]

EmployeeId: 1

CustomerId: 65

CustomerCount: 36

2

3

4

5

6

7

8

"Most Orders between an Employee and Customer": [{

"EmployeeId": 1,

"CustomerId": 65,

"CustomerCount": 36

}]

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