



Understanding subqueries

- What is Subquery?
- Need of Subquery

Understanding Subquery

- **Subqueries** – Queries that are embedded into other queries.

```
--select FIRST_NAME, LAST_NAME, CITY from AUTHOR  
WHERE CITY='Toronto'
```

```
--select FirstName, LastName  
from [Person].[Person]  
where BusinessEntityID IN (select PersonID  
                           from [Sales].[Customer]  
                           where CustomerID IN  
                             (select CustomerID  
                              from [Sales].[SalesOrderHeader]  
                              where SalesOrderID in  
                                (select SalesOrderID as Order_id  
                                 from [Sales].[SalesOrderDetail]  
                                 where ProductID ='710'  
                                )  
                             )  
                           )  
);
```

Need of Subqueries

First Understand these tables:

```
select * from [Sales].[SalesOrderDetail]
```

	SalesOrderID	SalesOrderDetailID	CarrierTrackingNumber	OrderQty	ProductID	SpecialOfferID	UnitPrice	UnitPriceDiscount	LineTotal	rowguid
1	43659	1	4911-403C-98	1	776	1	2024.994	0.00	2024.994000	B207C96D-D9E6-402B-8
2	43659	2	4911-403C-98	3	777	1	2024.994	0.00	6074.982000	7ABB600D-1E77-41BE-8
3	43659	3	4911-403C-98	1	778	1	2024.994	0.00	2024.994000	475CF8C6-49F6-486E-B
4	43659	4	4911-403C-98	1	771	1	2039.994	0.00	2039.994000	04C4DE91-5815-45D6-8
5	43659	5	4911-403C-98	1	772	1	2039.994	0.00	2039.994000	5A74C7D2-E641-438E-A
6	43659	6	4911-403C-98	2	773	1	2039.994	0.00	4079.988000	CE472532-A4C0-45BA-8
7	43659	7	4911-403C-98	1	774	1	2039.994	0.00	2039.994000	80667840-F962-4EE3-96
8	43659	8	4911-403C-98	3	714	1	28.8404	0.00	86.521200	E9D54907-E7B7-4969-8
9	43659	9	4911-403C-98	1	716	1	28.8404	0.00	28.840400	AA542630-BDCD-4CE5-4
10	43659	10	4911-403C-98	6	709	1	5.70	0.00	34.200000	AC769034-3C2F-495C-A

```
select * from [Sales].[SalesOrderHeader]
```

	SalesOrderID	RevisionNumber	OrderDate	DueDate	ShipDate	Status	OnlineOrderFlag	SalesOrderNumber
1	43659	8	2011-05-31 00:00:00.000	2011-06-12 00:00:00.000	2011-06-07 00:00:00.000	5	0	SO43659
2	43660	8	2011-05-31 00:00:00.000	2011-06-12 00:00:00.000	2011-06-07 00:00:00.000	5	0	SO43660
3	43661	8	2011-05-31 00:00:00.000	2011-06-12 00:00:00.000	2011-06-07 00:00:00.000	5	0	SO43661
4	43662	8	2011-05-31 00:00:00.000	2011-06-12 00:00:00.000	2011-06-07 00:00:00.000	5	0	SO43662
5	43663	8	2011-05-31 00:00:00.000	2011-06-12 00:00:00.000	2011-06-07 00:00:00.000	5	0	SO43663
6	43664	8	2011-05-31 00:00:00.000	2011-06-12 00:00:00.000	2011-06-07 00:00:00.000	5	0	SO43664
7	43665	8	2011-05-31 00:00:00.000	2011-06-12 00:00:00.000	2011-06-07 00:00:00.000	5	0	SO43665
8	43666	8	2011-05-31 00:00:00.000	2011-06-12 00:00:00.000	2011-06-07 00:00:00.000	5	0	SO43666
9	43667	8	2011-05-31 00:00:00.000	2011-06-12 00:00:00.000	2011-06-07 00:00:00.000	5	0	SO43667
10	43668	8	2011-05-31 00:00:00.000	2011-06-12 00:00:00.000	2011-06-07 00:00:00.000	5	0	SO43668
11	43669	8	2011-05-31 00:00:00.000	2011-06-12 00:00:00.000	2011-06-07 00:00:00.000	5	0	SO43669
12	43670	8	2011-05-31 00:00:00.000	2011-06-12 00:00:00.000	2011-06-07 00:00:00.000	5	0	SO43670

```
select * from [Sales].[Customer]
```

	CustomerID	PersonID	StoreID	TerritoryID	AccountNumber	rowguid	ModifiedDate
1	1	NULL	934	1	AW00000001	3F5AE95E-B87D-4AED-95B4-C3797AFCB74F	2014-09-12 11:15:07.263
2	2	NULL	1028	1	AW00000002	E552F657-A9AF-4A7D-A645-C429D6E02491	2014-09-12 11:15:07.263
3	3	NULL	642	4	AW00000003	130774B1-DB21-4EF3-98C8-C104BCD6ED6D	2014-09-12 11:15:07.263
4	4	NULL	932	4	AW00000004	FF862851-1DAA-4044-BE7C-3E85583C054D	2014-09-12 11:15:07.263
5	5	NULL	1026	4	AW00000005	83905BDC-6F5E-4F71-B162-C98DA069F38A	2014-09-12 11:15:07.263
6	6	NULL	644	4	AW00000006	1A92DF88-BFA2-467D-BD54-FCB9E647FDD7	2014-09-12 11:15:07.263
7	7	NULL	930	1	AW00000007	03E9273E-B193-448E-9823-FE0C44AEED78	2014-09-12 11:15:07.263
8	8	NULL	1024	5	AW00000008	801368B1-4323-4BFA-8BEA-5B5B1E4BD4A0	2014-09-12 11:15:07.263
9	9	NULL	620	5	AW00000009	B900BB7F-23C3-481D-80DA-C49A5BD6F772	2014-09-12 11:15:07.263
10	10	NULL	928	6	AW00000010	CDB6698D-2FF1-4FBA-8F22-60AD1D11DABD	2014-09-12 11:15:07.263
11	11	NULL	1022	6	AW00000011	750F3495-59C4-48A0-80E1-E37EC6077D9	2014-09-12 11:15:07.263
12	12	NULL	622	6	AW00000012	947BCAF1-1F32-44F3-B9C3-0011F95FBE54	2014-09-12 11:15:07.263
13	13	NULL	434	7	AW00000013	B0FA5854-2511-439B-A7AC-50C9C460B175	2014-09-12 11:15:07.263

```
select * from [Person].[Person]
```

	BusinessEntityID	PersonType	NameStyle	Title	FirstName	MiddleName	LastName	Suffix	EmailPromotion	AdditionalC
1	1	EM	0	NULL	Ken	J	Sánchez	NULL	0	NULL
2	2	EM	0	NULL	Terri	Lee	Duffy	NULL	1	NULL
3	3	EM	0	NULL	Roberto	NULL	Tamburello	NULL	0	NULL
4	4	EM	0	NULL	Rob	NULL	Walters	NULL	0	NULL
5	5	EM	0	Ms.	Gail	A	Erickson	NULL	0	NULL
6	6	EM	0	Mr.	Jossef	H	Goldberg	NULL	0	NULL
7	7	EM	0	NULL	Dylan	A	Miller	NULL	2	NULL
8	8	EM	0	NULL	Diane	L	Margheim	NULL	0	NULL
9	9	EM	0	NULL	Gigi	N	Matthew	NULL	0	NULL
10	10	EM	0	NULL	Michael	NULL	Raboom	NULL	2	NULL

Need of Subqueries

➤ First Understand these tables:

```
select * from [Sales].[SalesOrderDetail]
```

	SalesOrderID	SalesOrderDetailID	CarrierTrackingNumber	OrderQty	ProductID	SpecialOfferID	UnitPrice	UnitPriceDiscount	LineTotal	rowguid
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9	43659	9	4911-403C-98	1	716	1	28.8404	0.00	28.840400	AA542630-BDCD-4CE5-4
10	43659	10	4911-403C-98	6	709	1	5.70	0.00	34.200000	AC769034-3C2F-495C-A

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3	43661	8	2011-05-31 00:00:00.000	2011-06-12 00:00:00.000	2011-06-07 00:00:00.000	5	0	SO43661
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5	43663	8	2011-05-31 00:00:00.000	2011-06-12 00:00:00.000	2011-06-07 00:00:00.000	5	0	SO43663
6	43664	8	2011-05-31 00:00:00.000	2011-06-12 00:00:00.000	2011-06-07 00:00:00.000	5	0	SO43664
7	43665	8	2011-05-31 00:00:00.000	2011-06-12 00:00:00.000	2011-06-07 00:00:00.000	5	0	SO43665
8	43666	8	2011-05-31 00:00:00.000	2011-06-12 00:00:00.000	2011-06-07 00:00:00.000	5	0	SO43666
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10	43668	8	2011-05-31 00:00:00.000	2011-06-12 00:00:00.000	2011-06-07 00:00:00.000	5	0	SO43668
11	43669	8	2011-05-31 00:00:00.000	2011-06-12 00:00:00.000	2011-06-07 00:00:00.000	5	0	SO43669
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4	4	NULL	932	4	AW00000004	FF862851-1DAA-4044-BE7C-3E85583C054D	2014-09-12 11:15:07.263
5	5	NULL	1026	4	AW00000005	83905BDC-6F5E-4F71-B162-C98DA069F38A	2014-09-12 11:15:07.263
6	6	NULL	644	4	AW00000006	1A92DF88-BFA2-467D-BD54-FCB9E647FDD7	2014-09-12 11:15:07.263
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8	8	NULL	1024	5	AW00000008	801368B1-4323-4BFA-8BEA-5B5B1E4BD4A0	2014-09-12 11:15:07.263
9	9	NULL	620	5	AW00000009	B900BB7F-23C3-481D-80DA-C49A5BD6F772	2014-09-12 11:15:07.263
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11	11	NULL	1022	6	AW00000011	750F3495-59C4-48A0-80E1-E37EC6077D9	2014-09-12 11:15:07.263
12	12	NULL	622	6	AW00000012	947BCAF1-1F32-44F3-B9C3-0011F95FBE54	2014-09-12 11:15:07.263
13	13	NULL	434	7	AW00000013	B0FA5854-2511-439B-A7AC-50C9C460B175	2014-09-12 11:15:07.263

```
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```

	BusinessEntityID	PersonType	NameStyle	Title	FirstName	MiddleName	LastName	Suffix	EmailPromotion	AdditionalC
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2	2	EM	0	NULL	Terri	Lee	Duffy	NULL	1	NULL
3	3	EM	0	NULL	Roberto	NULL	Tamburello	NULL	0	NULL
4	4	EM	0	NULL	Rob	NULL	Walters	NULL	0	NULL
5	5	EM	0	Ms.	Gail	A	Erickson	NULL	0	NULL
6	6	EM	0	Mr.	Jossef	H	Goldberg	NULL	0	NULL
7	7	EM	0	NULL	Dylan	A	Miller	NULL	2	NULL
8	8	EM	0	NULL	Diane	L	Margheim	NULL	0	NULL
9	9	EM	0	NULL	Gigi	N	Matthew	NULL	0	NULL
10	10	EM	0	NULL	Michael	NULL	Raboon	NULL	2	NULL

First Get the Order Id & Customer Id for a Product

```
select SalesOrderID as Order_id from [Sales].[SalesOrderDetail] where ProductID = '710'
```

109 %

Results Messages

	Order_id
1	43667
2	43670
3	43676

```
select CustomerID from [Sales].[SalesOrderHeader] where SalesOrderID in ('43667','43670','43676')
```

.09 %

Results Messages

	CustomerID
1	29974
2	29566
3	29811

Get the PersonID and Customer Details

```
select PersonID from [Sales].[Customer] where CustomerID IN ('29974','29566','29811')
```

09 %

Results Messages

	PersonID
1	487
2	1017
3	1373

```
select FirstName,LastName from [Person].[Person] where BusinessEntityID IN ('487','1017','1373')
```

09 %

Results Messages

	FirstName	LastName
1	Mae	Black
2	Mark	Hanson
3	Scott	MacDonald

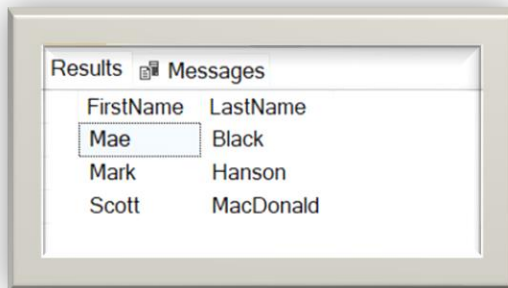
Get the PersonID and Customer Details

```
select SalesOrderID as Order_id from [Sales].[SalesOrderDetail] where ProductID = '710'
```

```
select CustomerID from [Sales].[SalesOrderHeader] where SalesOrderID in ('43667','43670','43676')
```

```
select PersonID from [Sales].[Customer] where CustomerID IN ('29974','29566','29811')
```

```
select FirstName,LastName from [Person].[Person] where BusinessEntityID IN ('487','1017','1373')
```



The screenshot shows a SQL Server query results window with a tab labeled 'Results'. The window displays a table with two columns: 'FirstName' and 'LastName'. The table contains three rows of data. The first row has 'Mae' in the first column and 'Black' in the second column. The second row has 'Mark' in the first column and 'Hanson' in the second column. The third row has 'Scott' in the first column and 'MacDonald' in the second column. The 'Mae' cell in the first row is highlighted with a blue selection box.

FirstName	LastName
Mae	Black
Mark	Hanson
Scott	MacDonald

Subqueries

```
select FirstName, LastName
from [Person].[Person]
where BusinessEntityID IN (select PersonID
                           from [Sales].[Customer]
                           where CustomerID IN
                              (select CustomerID
                               from [Sales].[SalesOrderHeader]
                               where SalesOrderID in
                                  (select SalesOrderID as Order_id
                                   from [Sales].[SalesOrderDetail]
                                   where ProductID = '710'
                                  )
                              )
                           )
);
```

Results Messages	
FirstName	LastName
Mae	Black
Mark	Hanson
Scott	MacDonald