

## **Project: Querying a Large Relational Database**

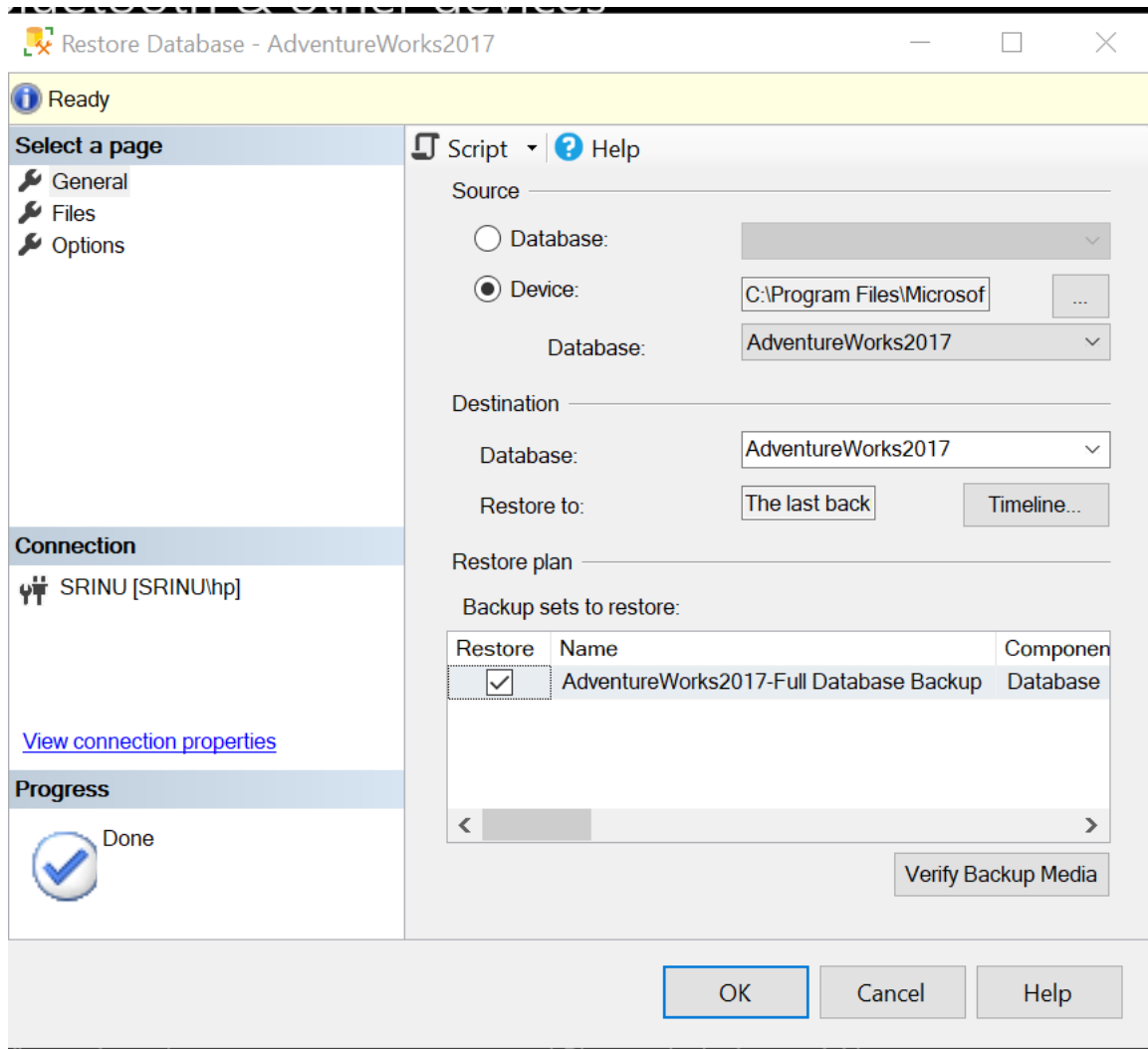
### Problem Statement:

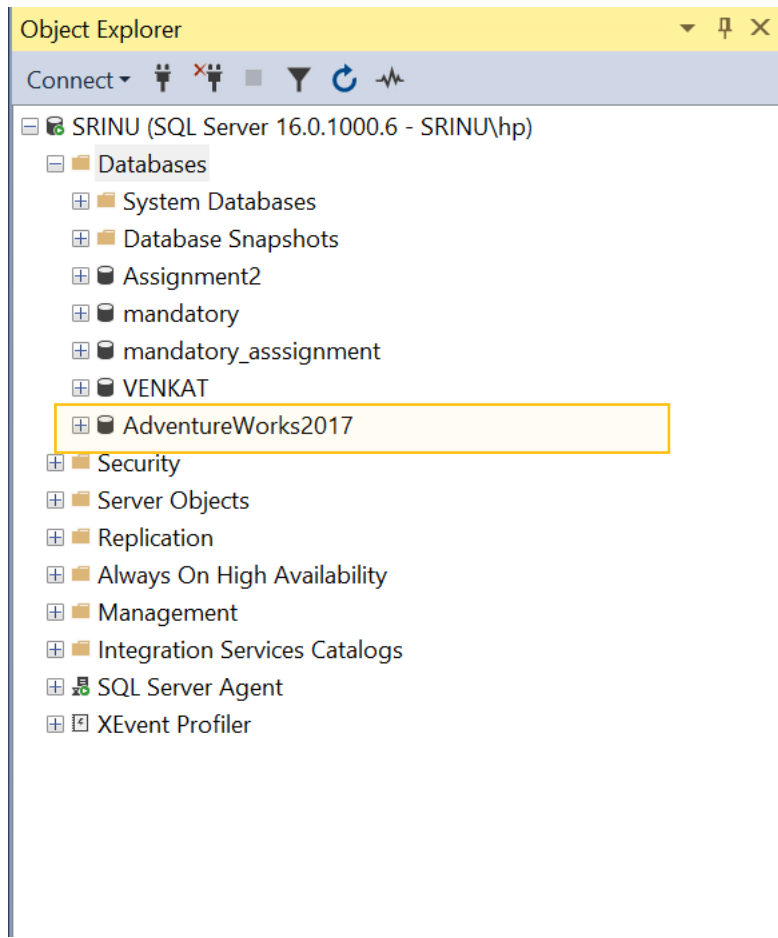
How to get details about customers by querying a database? Topics: In this project, you will work on downloading a database and restoring it on the server. You will then query the database to get customer details like name, phone number, email ID, sales made in a particular month, increase in month-on-month sales and even the total sales made to a particular customer. Highlights: Table basics and data types Various SQL operators Various SQL functions

### Tasks To Be Performed:

1. Download the AdventureWorks database from the following location and restore it in your server:  
Location:  
<https://github.com/Microsoft/sql-server-samples/releases/tag/adventureworks>  
File Name: AdventureWorks2012.bak  
AdventureWorks is a sample database shipped with SQL Server and it can be downloaded from the GitHub site. AdventureWorks has replaced Northwind and Pubs sample databases that were available in SQL Server in 2005. Microsoft keeps updating the sample database as it releases new versions.
2. Restore Backup:  
Follow the below steps to restore a backup of your database using SQL Server Management Studio:
  - a. Open SQL Server Management Studio and connect to the target SQL Server instance
  - b. Right-click on the Databases Node and select Restore Database
  - c. Select Device and click on the ellipsis (...)
  - d. In the dialog box, select Backup devices, click on Add, navigate to the database backup in the file system of the server, select the backup, and click on OK.
  - e. If needed, change the target location for the data and log files in the Files pane Note: It is a best practice to place the data and log files on different drives.
  - f. Now, click on OK This will initiate the database restore. After it completes, you will have the AdventureWorks database installed on your SQL Server instance.

- The backup file is downloaded from the provided hyperlink and restored to sql server





3. Perform the following with help of the above database:
  - a. Get all the details from the person table including email ID, phone number and phone number type

The screenshot shows the SQL Server Enterprise Manager interface. The left pane displays a query window with the following SQL code:

```

select * from sysobjects where type='U'

select * from [Person].[Person]
select * from [Person].[EmailAddress]
select * from [Person].[PersonPhone]
select * from [Person].[PhoneNumberType]

select P.FirstName, P.MiddleName, P.LastName, E.EmailAddressID, PN.PhoneNumber, PNT.PhoneNumberTypeID
from
[Person].[Person] P inner join [Person].[EmailAddress] E on P.BusinessEntityID=E.BusinessEntityID
inner join [Person].[PersonPhone] PN on E.BusinessEntityID=PN.BusinessEntityID
inner join [Person].[PhoneNumberType] PNT on PN.PhoneNumberTypeID=PNT.PhoneNumberTypeID
  
```

The right pane shows the Object Explorer with the 'AdventureWorks2017' database expanded, displaying various tables and views.

The bottom pane shows the query results in a table format:

	FirstName	MiddleName	LastName	EmailAddressID	PhoneNumber	PhoneNumberTypeID
1	Syed	E	Abbas	285	926-555-0182	3
2	Catherine	R	Abel	292	747-555-0171	1
3	Kim	NULL	Abercrombie	293	334-555-0137	3
4	Kim	NULL	Abercrombie	1365	919-555-0100	3
5	Kim	B	Abercrombie	38	208-555-0114	1
6	Hazem	E	Abolrous	211	869-555-0125	3
7	Sam	NULL	Abolrous	1552	567-555-0100	3
8	Humberto	NULL	Acevedo	294	509-555-0127	1
9	Gustavo	NULL	Achong	291	398-555-0132	1
10	Pilar	NULL	Ackerman	295	1 (11) 500 555-0132	1
11	Pilar	G	Ackerman	121	577-555-0185	3
12	Aaron	B	Adams	16062	417-555-0154	1

The status bar at the bottom indicates: Query executed successfully. SRINU (16.0 RTM) SRINU\hp (63) AdventureWorks2017 00:00:00 19,972 rows

b. Get the details of the sales header order made in May 2011

```
--b. Get the details of the sales header order made in May 2011
select * from [Sales].[SalesOrderHeader] where MONTH(orderdate)=05 and Year(orderdate)=2011
```

	SalesOrderID	RevisionNumber	OrderDate	DueDate	ShipDate	Status	OnlineOrderFlag	SalesOrderNumber	PurchaseOrderNumber	
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	PO522145787	
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	PO18850127500	
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	PO18473189620	
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	PO18444174044	
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	PO18009186470	
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	PO16617121983	
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	PO16588191572	
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	PO16008173883	
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	PO15428132599	
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	PO14732180295	
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	PO14123169936	

Query executed successfully. SRINU (16.0 RTM) SRINU\hp (63) AdventureWorks2017 00:00:00 43 rows

c. Get the details of the sales details order made in the month of May 2011

```
--c. Get the details of the sales details order made in the month of May 2011
select * from [Sales].[SalesOrderHeader]
select * from [Sales].[SalesOrderDetail]

select O.OrderDate,D.*
from [Sales].[SalesOrderHeader] O
inner join [Sales].[SalesOrderDetail] D
on O.SalesOrderID=D.SalesOrderID
where MONTH(orderdate)=05 and Year(orderdate)=2011
```

	OrderDate	SalesOrderID	SalesOrderDetailID	CarrierTrackingNumber	OrderQty	ProductID	SpecialOfferID	UnitPrice	UnitPriceDiscount	LineTotal	rowguid
1	2011-05-31 00:00:00.000	43701	357	NULL	1	773	1	3399.99	0.00	3399.990000	5FF3B05F-
2	2011-05-31 00:00:00.000	43700	356	NULL	1	767	1	699.0982	0.00	699.098200	6D43204A-
3	2011-05-31 00:00:00.000	43699	355	NULL	1	773	1	3399.99	0.00	3399.990000	2543C7BF-
4	2011-05-31 00:00:00.000	43698	354	NULL	1	773	1	3399.99	0.00	3399.990000	A2D7730F-
5	2011-05-31 00:00:00.000	43697	353	NULL	1	749	1	3578.27	0.00	3578.270000	CA258BF8-
6	2011-05-31 00:00:00.000	43696	352	50C1-41FA-BE	1	762	1	419.4589	0.00	419.458900	A2C11A04-
7	2011-05-31 00:00:00.000	43695	344	A89C-4D25-B9	2	774	1	2039.994	0.00	4079.988000	2F50094D-
8	2011-05-31 00:00:00.000	43695	345	A89C-4D25-B9	2	748	1	722.5949	0.00	1445.189800	A1A41FDF
9	2011-05-31 00:00:00.000	43695	346	A89C-4D25-B9	1	747	1	714.7043	0.00	714.704300	8A331A93-
10	2011-05-31 00:00:00.000	43695	347	A89C-4D25-B9	1	742	1	722.5949	0.00	722.594900	DAD8891E
11	2011-05-31 00:00:00.000	43695	348	A89C-4D25-B9	5	777	1	2024.994	0.00	10124.970000	18B1E281-

Query executed successfully. SRINU (16.0 RTM) SRINU\hp (63) AdventureWorks2017 00:00:00 357 rows

d. Get the total sales made in May 2011

```
--d. Get the total sales made in May 2011

select sum(D.LineTotal)
from [Sales].[SalesOrderHeader] O
inner join [Sales].[SalesOrderDetail] D
on O.SalesOrderID=D.SalesOrderID
where MONTH(orderdate)=05 and Year(orderdate)=2011
```

	(No column name)
1	503805.916900

e. Get the total sales made in the year 2011 by month order by increasing sales

```
-- e. Get the total sales made in the year 2011 by month order by increasing sales
select MONTH(orderdate) as monthly_sales, sum(D.lineTotal) as TOTALSALES_IN_2011
from [Sales].[SalesOrderHeader] H
inner join [Sales].[SalesOrderDetail] D
on D.SalesOrderID=H.SalesOrderID
where Year(orderdate)=2011
group by month(orderdate)
order by TOTALSALES_IN_2011 ASC
```

100 %

Results Messages

	monthly_sales	TOTALSALES_IN_2011
1	6	458910.824800
2	9	502073.845800
3	5	503805.916900
4	11	737839.821400
5	12	1309863.251140
6	7	2044600.003338
7	8	2495816.733446
8	10	4588761.816130

f. Get the total sales made to the customer with FirstName='Gustavo' and LastName='Achong'

```
select P.FirstName,P.LastName, sum(S.TotalDue) total_sales
from sales.SalesOrderHeader S
inner join Sales.Customer C
on S.CustomerID = C.CustomerID
inner join person.Person P
on C.PersonID = P.BusinessEntityID
where P.FirstName = 'Gustavo' and P.LastName = 'Achong'
group by P.FirstName,P.LastName
```

100 %

Results Messages

	FirstName	LastName	total_sales
1	Gustavo	Achong	147804.9208

