



# Module 16: Restore and Backup

## 1. What is Backup and Restore in SQL Server?

### Backup:

Creates a **copy of your database**, which can be used later in case of data loss, corruption, or transfer to another server.

### Restore:

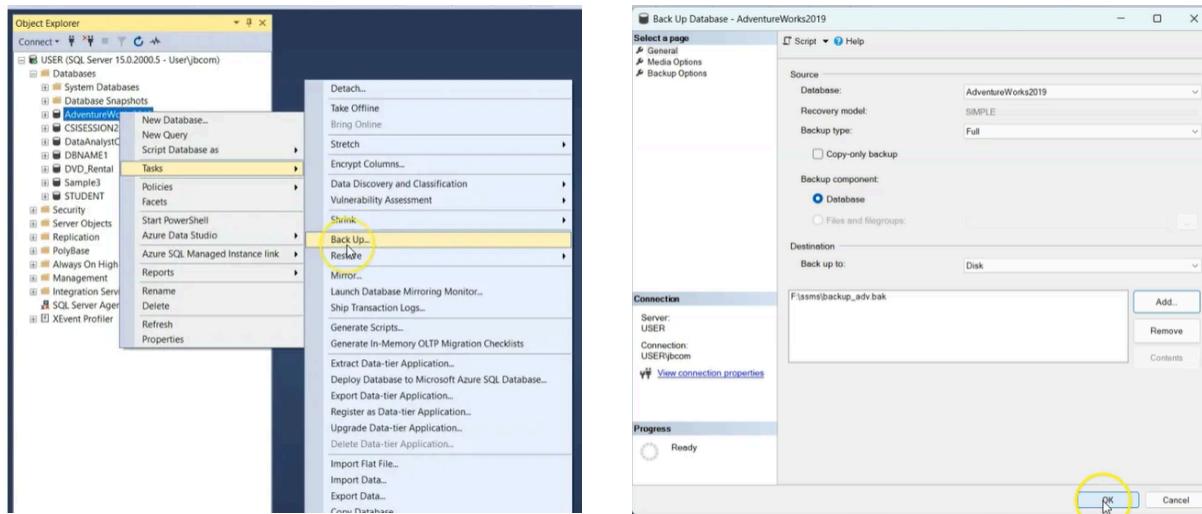
Takes the **backup file** and brings the database back to its previous state.

## 2. How to Take a Backup in SQL Server (Using SSMS)



### Step-by-step:

1. Right-click on the database you want to back up
2. Click **Tasks > Back Up...**
3. Select backup **type**: Full, Differential, or Transaction Log
4. Choose the **destination path** ( **.bak** file)
5. Click **OK**



### Query to Take Backup:

```
BACKUP DATABASE YourDatabaseName  
TO DISK = 'C:\Backup\YourDatabaseName.bak'  
WITH FORMAT;
```

The screenshot shows the Object Explorer on the left with a connection to 'USER SQL Server 15.0.2000.5 - User\jcom'. In the center, a query window titled 'SQLQuery1.sql' contains the following T-SQL code:

```

1 BACKUP DATABASE [DataAnalystCourse] TO DISK = N'F:\ssms\backup_data_analyst.bak' WITH NOFOR
2 GO
3

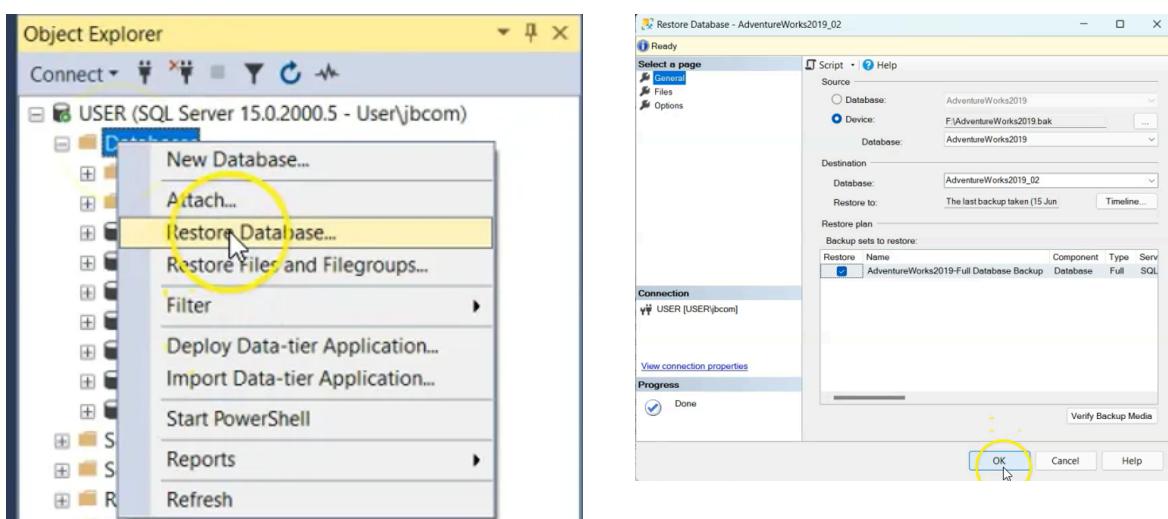
```

The status bar at the bottom indicates 'Query executed successfully.'

## 3. How to Restore a Database in SQL Server (Using SSMS)

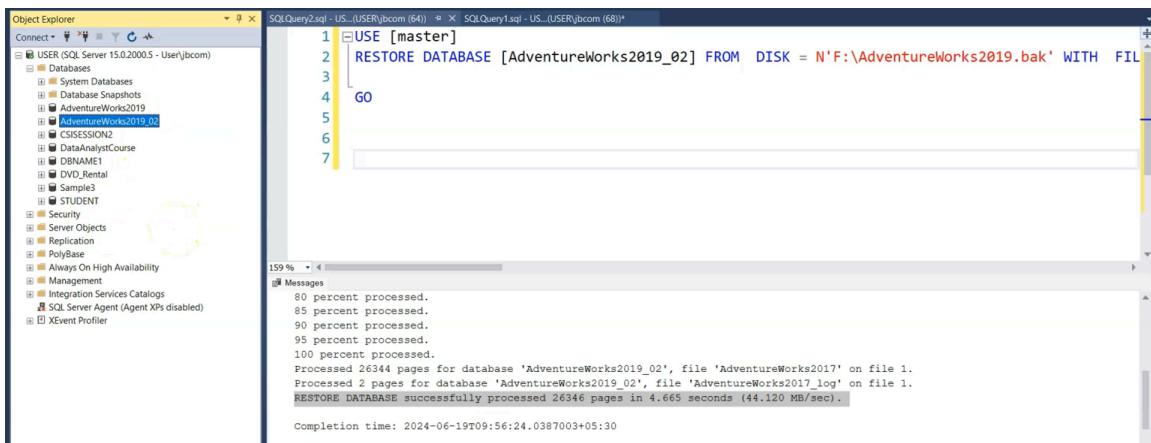
### Step-by-step:

1. Right-click on **Databases**
2. Select **Restore Database...**
3. Choose **Device** → Browse for **.bak** file
4. Select the file, click **OK**
5. Optionally change the destination database name
6. Click **OK**



## Query to Restore:

```
RESTORE DATABASE YourDatabaseName  
FROM DISK = 'C:\Backup\YourDatabaseName.bak'  
WITH REPLACE;
```



The screenshot shows the SSMS interface with the Object Explorer on the left and the Results pane on the right. In the Object Explorer, the 'Databases' node is expanded, showing several databases including 'AdventureWorksLT2019\_02'. In the Results pane, a T-SQL script is run:

```
1 USE [master]  
2 RESTORE DATABASE [AdventureWorks2019_02] FROM DISK = N'F:\AdventureWorks2019.bak' WITH FILE  
3 GO  
4  
5  
6  
7
```

Execution results show the progress and completion of the restore:

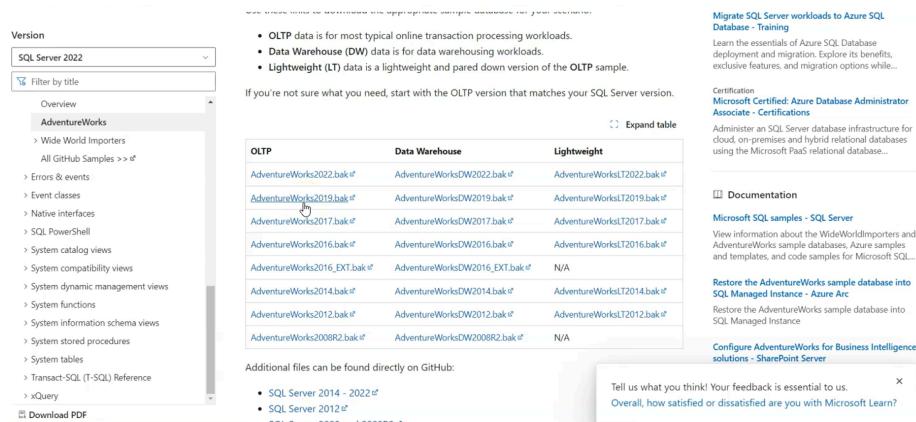
```
159 %  
Messages  
80 percent processed.  
85 percent processed.  
90 percent processed.  
95 percent processed.  
100 percent processed.  
Processed 26344 pages for database 'AdventureWorks2019_02', file 'AdventureWorks2017' on file 1.  
Processed 2 pages for database 'AdventureWorks2019_02', file 'AdventureWorks2017_log' on file 1.  
RESTORE DATABASE successfully processed 26346 pages in 4.665 seconds (44.120 MB/sec.).  
Completion time: 2024-06-19T09:56:24.0387003+05:30
```

## 4. How to Get a Sample Database – AdventureWorks

### Step-by-step to download:

1. Search: **AdventureWorks sample database**
2. Click on the **first Microsoft Docs link**
3. Download the **AdventureWorks.bak** file
4. Follow Microsoft documentation to **restore it in SSMS**

### [Microsoft Official AdventureWorks Page](#)



The screenshot shows the Microsoft Docs page for the AdventureWorks sample database. It includes a sidebar for filtering by version (SQL Server 2022) and title, and a main content area with the following sections:

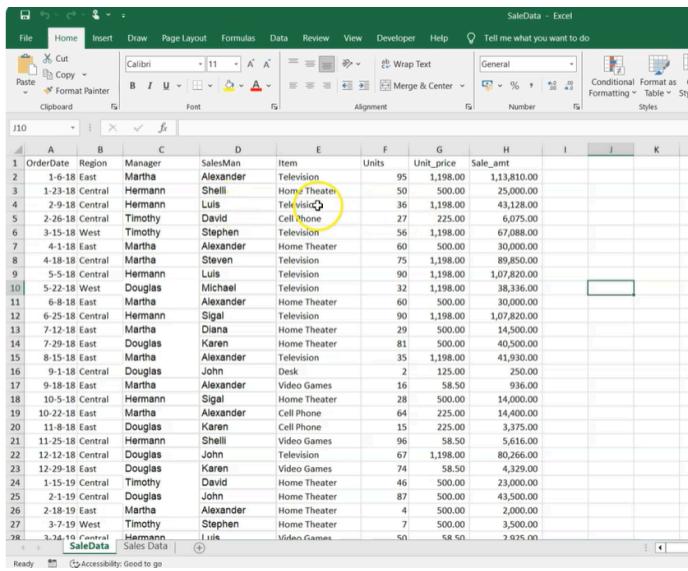
- Version**: SQL Server 2022.
- OLTP**, **Data Warehouse**, **Lightweight** tables (links to .bak files).
- Migrate SQL Server workloads to Azure SQL Database - Training**: A link to learn about migration.
- Certification**: Microsoft Certified: Azure Database Administrator Associate - Certification.
- Documentation**: Links to Microsoft SQL samples - SQL Server and Restore the AdventureWorks sample database into SQL Managed Instance - Azure Arc.
- Configure AdventureWorks for Business Intelligence solutions - SharePoint Server**.
- Additional file can be found directly on GitHub:** Links to SQL Server 2014 - 2022 and SQL Server 2012.
- Tell us what you think! Your feedback is essential to us.** A feedback survey.

## 5. Creating Tables Using CSV Files (Data Import)

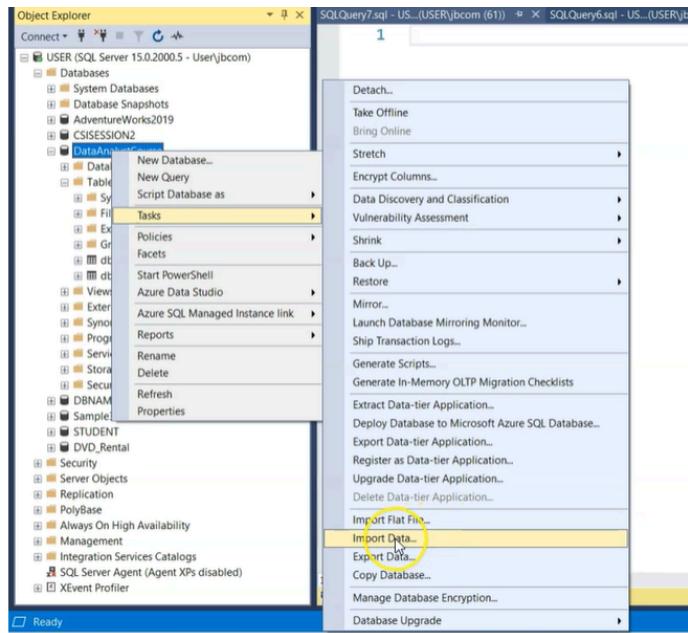
### Steps using SQL Server Import Wizard:

1. Right-click on the **Database** → Tasks → **Import Data**
2. The SQL Server Import and Export Wizard will open
3. Choose **Data Source** (e.g., Flat File for CSV)
4. Browse and select your **CSV file**
5. Choose **Destination** (SQL Server DB)
6. Map columns (edit if required)
7. Click **Next** and **Finish**

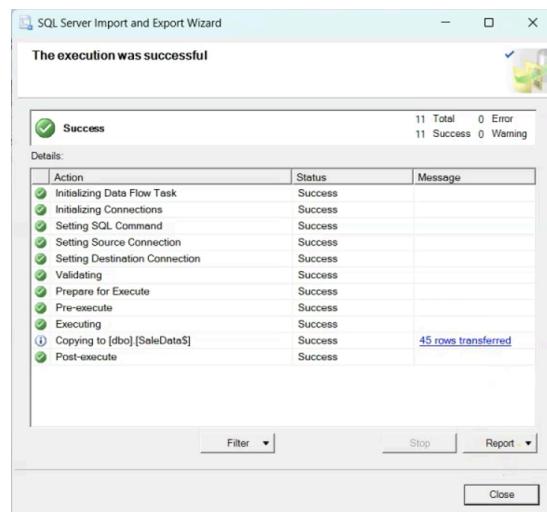
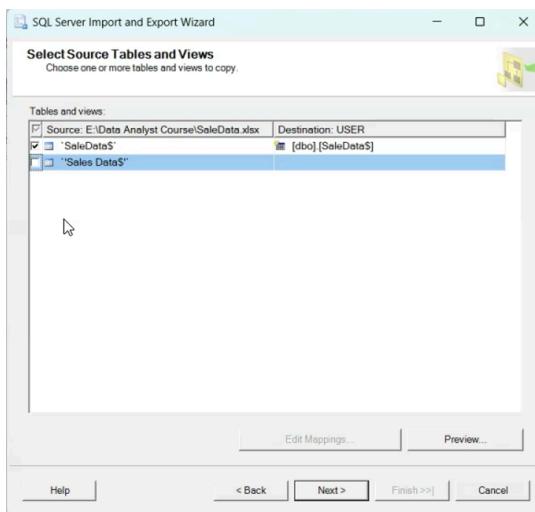
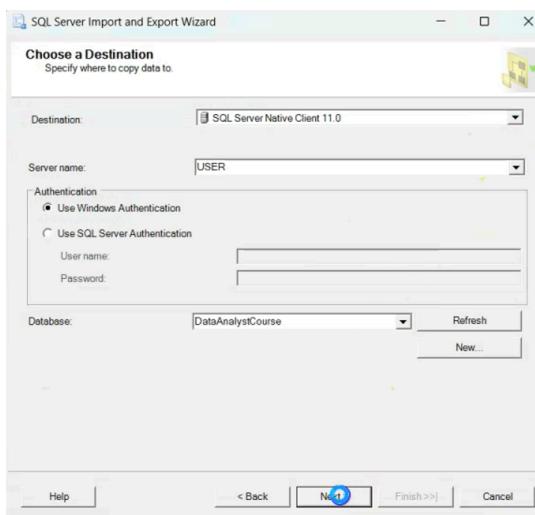
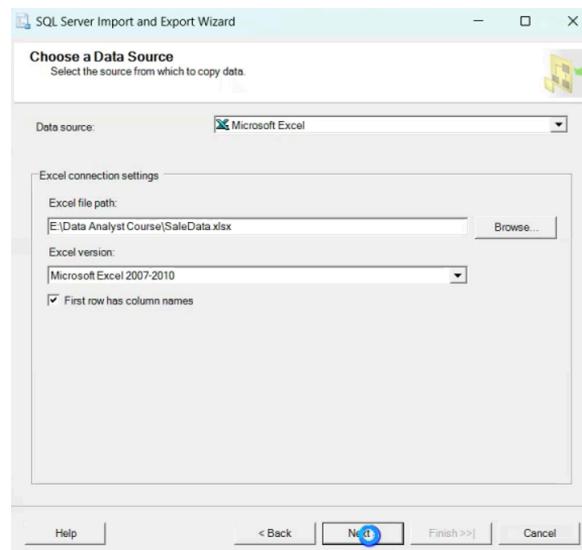
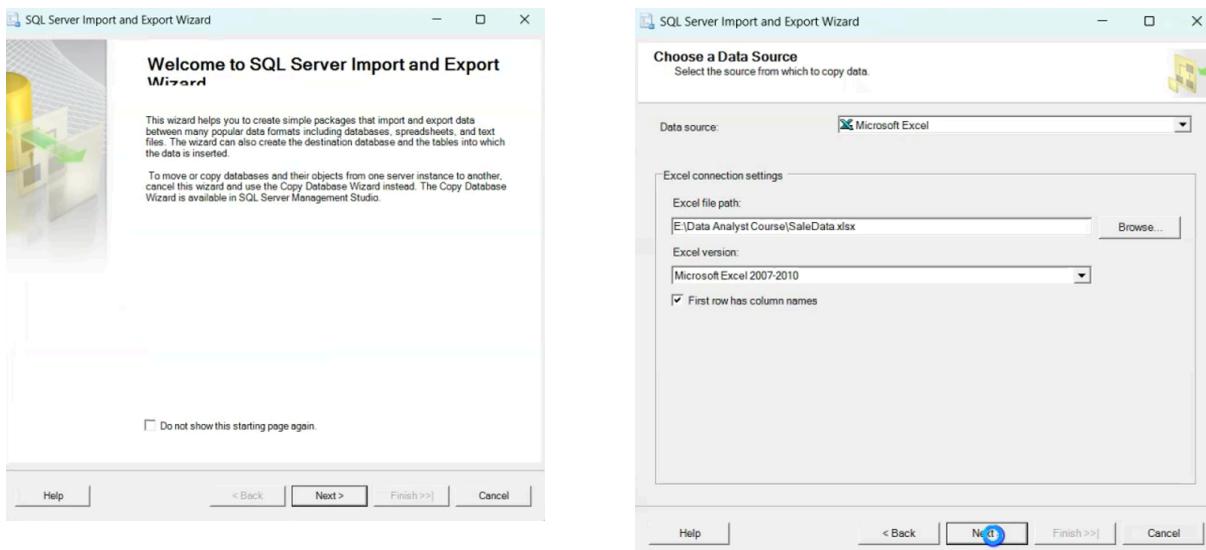
 Your table will be created and filled with the CSV data!



	A	B	C	D	E	F	G	H	I	J	K
1	OrderDate	Region	Manager	SalesMan	Item	Units	Unit_price	Sale_amt			
2	1-18-18	East	Martha	Alexander	Television	95	1,198.00	113,810.00			
3	1-23-18	Central	Hermann	Shelli	Home Theater	50	500.00	25,000.00			
4	2-9-18	Central	Hermann	Luis	Television	36	1,198.00	43,128.00			
5	2-26-18	Central	Timothy	David	Cell Phone	27	225.00	6,075.00			
6	3-15-18	West	Timothy	Stephen	Television	56	1,198.00	67,088.00			
7	4-1-18	East	Martha	Alexander	Home Theater	60	500.00	30,000.00			
8	4-18-18	Central	Martha	Steven	Television	75	1,198.00	89,850.00			
9	5-5-18	Central	Hermann	Luis	Television	90	1,198.00	107,820.00			
10	5-22-18	West	Douglas	Michael	Television	32	1,198.00	38,336.00			
11	6-8-18	East	Martha	Alexander	Home Theater	60	500.00	30,000.00			
12	6-25-18	Central	Hermann	Sigal	Television	90	1,198.00	107,820.00			
13	7-12-18	East	Martha	Diana	Home Theater	29	500.00	14,500.00			
14	7-29-18	East	Douglas	Karen	Home Theater	81	500.00	40,500.00			
15	8-15-18	East	Martha	Alexander	Television	35	1,198.00	41,930.00			
16	9-1-18	Central	Douglas	John	Desk	2	125.00	250.00			
17	9-18-18	East	Martha	Alexander	Video Games	16	58.50	936.00			
18	10-5-18	Central	Hermann	Sigal	Home Theater	28	500.00	14,000.00			
19	10-22-18	East	Martha	Alexander	Cell Phone	64	225.00	14,400.00			
20	11-8-18	East	Douglas	Karen	Cell Phone	15	225.00	3,375.00			
21	11-25-18	Central	Hermann	Shelli	Video Game	96	58.50	5,616.00			
22	12-12-18	Central	Douglas	John	Television	67	1,198.00	80,266.00			
23	12-29-18	East	Douglas	Karen	Video Games	74	58.50	4,329.00			
24	1-15-19	Central	Timothy	David	Home Theater	46	500.00	23,000.00			
25	2-1-19	Central	Douglas	John	Home Theater	87	500.00	43,500.00			
26	2-18-19	East	Martha	Alexander	Home Theater	4	500.00	2,000.00			
27	3-7-19	West	Timothy	Stephen	Home Theater	7	500.00	3,500.00			
28	3-24-19	Central	Hermann	Luis	Video Games	50	58.50	2,925.00			



The screenshot shows the Object Explorer pane on the left with the 'DataAnalysis' database selected. The context menu for this database is open, with the 'Tasks' option highlighted. Under the 'Tasks' submenu, the 'Import Flat File...' and 'Import Data...' options are also highlighted. The main SSMS window shows two open queries: 'SQLQuery7.sql' and 'SQLQuery6.sql'.



The screenshot shows the Microsoft SQL Server Management Studio (SSMS) interface. In the Object Explorer on the left, a database named 'USER (SQL Server 15.0.2000.5 - User\jbc0m)' is expanded, showing various objects like Databases, Tables, Views, and Procedures. In the center, a query window displays a T-SQL script for selecting top 1000 rows from the 'AdventureworksLT' database. The results grid shows a table with columns: OrderDate, Region, Manager, SalesMan, Item, Units, Unit\_price, and Sale\_amt. The data consists of 21 rows of sales records. A status bar at the bottom right indicates 'USER (15)'.

```

1  /***** Script for SelectTopNRows command from SSMS *****/
2  SELECT TOP (1000) [OrderDate]
3      ,[Region]
4      ,[Manager]
5      ,[SalesMan]
6      ,[Item]
7      ,[Units]
8      ,[Unit_price]
9      ,[Sale_amt]
FROM [AdventureworksLT].[dbo].[SalesLT].[SalesOrderDetail]

```

OrderDate	Region	Manager	SalesMan	Item	Units	Unit_price	Sale_amt
2018-01-06 00:00:00.000	East	Martha	Alexander	Television	95	1198	113810
2018-01-23 00:00:00.000	Central	Hermann	Shelli	Home Theater	50	500	25000
2018-02-09 00:00:00.000	Central	Hermann	Luis	Television	36	1198	43128
2018-02-26 00:00:00.000	Central	Timothy	David	Cell Phone	27	225	6075
2018-03-15 00:00:00.000	West	Timothy	Stephen	Television	56	1198	67088
2018-04-01 00:00:00.000	East	Martha	Alexander	Home Theater	60	500	30000
2018-04-18 00:00:00.000	Central	Martha	Steve	Television	75	1198	89850
2018-05-05 00:00:00.000	Central	Hermann	Luis	Television	90	1198	107820
2018-05-22 00:00:00.000	West	Douglas	Michael	Television	32	1198	38336
2018-06-08 00:00:00.000	East	Martha	Alexander	Home Theater	60	500	30000
2018-06-25 00:00:00.000	Central	Hermann	Sigal	Television	90	1198	107820
2018-07-12 00:00:00.000	East	Martha	Diana	Home Theater	29	500	14500
2018-07-29 00:00:00.000	East	Douglas	Karen	Home Theater	81	500	40500
2018-08-15 00:00:00.000	East	Martha	Alexander	Television	35	1198	41930
2018-09-01 00:00:00.000	Central	Douglas	John	Desk	2	125	250
2018-09-18 00:00:00.000	East	Martha	Alexander	Video Games	16	58.5	936
2018-10-05 00:00:00.000	Central	Hermann	Sigal	Home Theater	28	500	14000
2018-10-22 00:00:00.000	East	Martha	Alexander	Cell Phone	64	225	14400
2018-11-08 00:00:00.000	East	Douglas	Karen	Cell Phone	15	225	3375
2018-11-25 00:00:00.000	Central	Hermann	Shelli	Video Games	96	58.5	5616
2018-12-12 00:00:00.000	Central	Douglas	John	Television	67	1198	80266

Query executed successfully. USER (15)



## Key Points to Remember

- Backup is a **must-have safety net**.
- .bak file is the **standard SQL Server backup format**.
- Always check** the correct destination and file paths.
- Use `WITH REPLACE` in restore only when you're sure to overwrite.
- For large databases, use **compression** in backup options.
- Keep backup files in a **secure and non-local** location if possible.
- Use the **Import Wizard** for quickly creating tables from external sources like Excel/CSV.



## Bonus Tips

- For sensitive data, consider **encrypted backups**.
- Schedule regular backups via **SQL Server Agent Jobs**.
- Use `SELECT INTO` or `BULK INSERT` for importing data via T-SQL if not using the wizard.