Restore and Recovery Overview

Restore of a database

- To recover a SQL Server database from a failure, a database administrator has to restore a set of SQL Server backups in a logically correct and meaningful restore sequence.
- SQL Server restore and recovery supports restoring data from backups of a whole database, a data file, or a data page.
- The database (a *complete database restore*): The whole database is restored and recovered, and the database is offline for the duration of the restore and recovery operations.
- The data file (a *file restore*):A data file or a set of files is restored and recovered. During a file restore, the filegroups that contain the files are automatically offline for the duration of the restore. Any attempt to access an offline filegroup causes an error.
- The data page (*a page restore*) :Under the full recovery model or bulk-logged recovery model, you can restore individual databases. Page restores can be performed on any database, regardless of the number of filegroups.

Restore Scenarios

Restore Scenario	Under Simple Recovery	Under Full/Bulk-Logged Recovery
Complete database restore	This is the basic restore strategy. A complete database restore might involve simply restoring and recovering a full database backup. Alternatively, a complete database restore might involve restoring a full database backup followed by restoring and recovering a differential backup.	This is the basic restore strategy. A complete database restore involves restoring a full database backup and, optionally, a differential backup (if any), followed by restoring all subsequent log backups (in sequence). The complete database restore is finished by recovering the last log backup and also restoring it (RESTORE WITH RECOVERY).
File restore	Restore one or more damaged read-only files, without restoring the entire database. File restore is available only if the database has at least one read-only filegroup.	Restores one or more files, without restoring the entire database. File restore can be performed while the database is offline or, for some editions of SQL Server, while the database remains online. During a file restore, the filegroups that contain the files that are being restored are always offline.
Page restore	Not applicable	Restores one or more damaged pages. Page restore can be performed while the database is offline or, for some editions of SQL Server, while the database remains online. During a page restore, the pages that are being restored are always offline. An unbroken chain of log backups must be available, up to the current log file, and they must all be applied to bring the page up-to-date with the current log file.

Recovery Models and supported restore operations

- The restore operations that are available for a database depend on its recovery model.
- The following table summarizes whether and to what extent each of the recovery models supports a given restore scenario.

Restore Operations	Full recovery	Bulk-Logged recovery	Simple recovery
Data recovery	Complete recovery (if the log is available).	Some data-loss exposure.	Any data since last full or differential backup is lost.
Point-in-time restore	Any time covered by the log backups.	Disallowed if the log backup contains any bulk-logged changes.	Not supported.
File restore *	Full support.	Sometimes.**	Available only for read-only secondary files.
Page restore *	Full support.	Sometimes.**	None.