



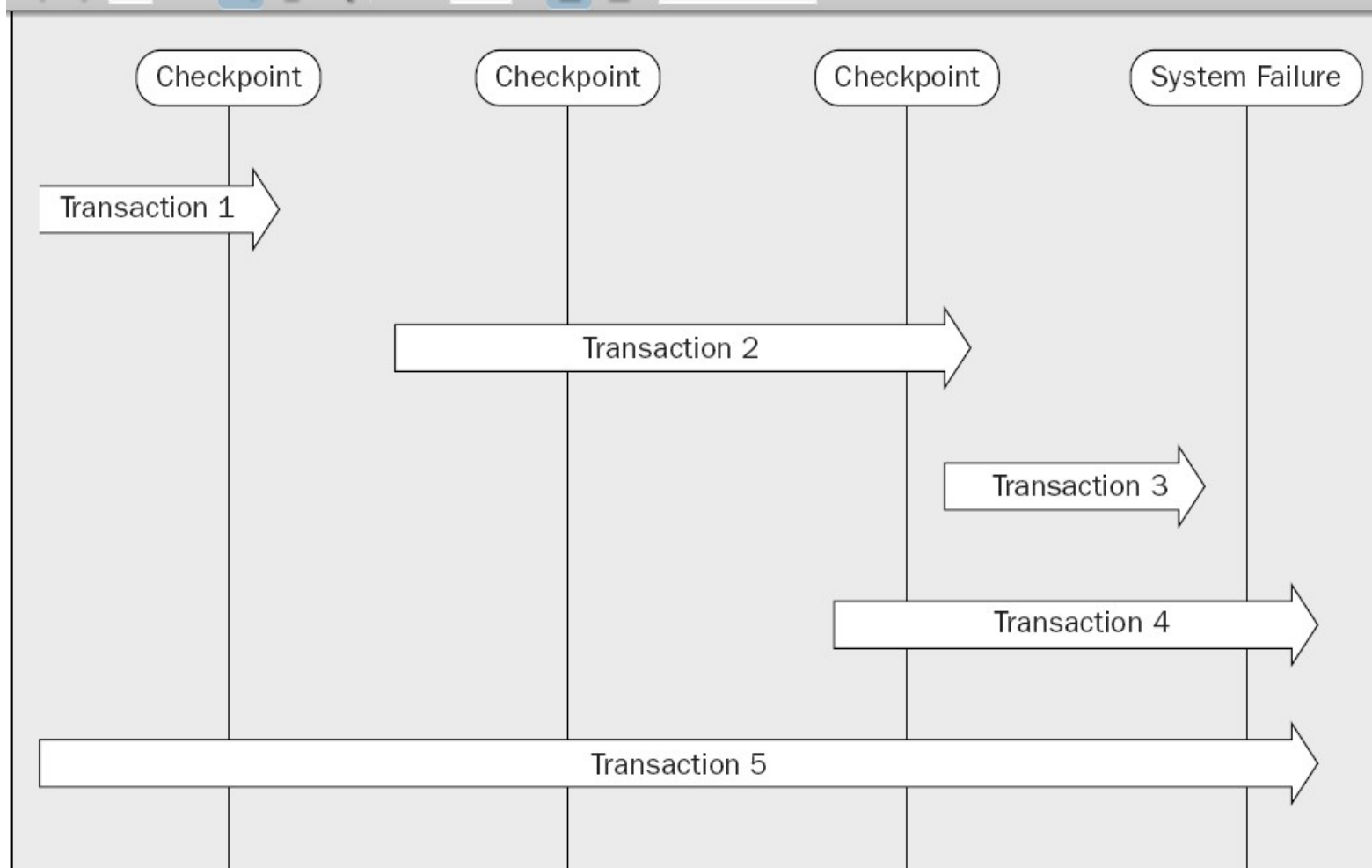
Backup and Recovery



Backup and Recovery

- The purpose of creating backups is to enable you to recover a damaged database
- A recovery happens every time that SQL Server starts
 - SQL Server takes the database file, then applies any committed changes that are in the log since the last checkpoint
 - Any changes in the log that do not have a corresponding commit are rolled back — that is, they are essentially forgotten

Recovery





Recovery (cont.)

■ Transaction 1

- ☐ The transaction has already been fully committed to the database.
- ☐ There is no need to do anything at recovery.

■ Transaction 2

- ☐ The transaction had not been committed at the time the last checkpoint was issued.
- ☐ This transaction would be rolled forward (redone) using the log info from the transaction log file.
- ☐ (i.e.)applying logged changes to data in a database to bring the data forward



Recovery (cont.)

■ Transaction 3

- ☐ Same as Transaction 2, the only difference is that Transaction 3 didn't even exist at that time of the last checkpoint
- ☐ This transaction would be rolled forward (redone) using the log info from the transaction log file.

■ Transaction 4

- ☐ This transaction wasn't completed at the time of system failure
- ☐ It will be rolled back.

■ Transaction 5

- ☐ Same as Transaction 4.
- ☐ The transaction was not committed at the time of system failure and must therefore be rolled back.



The Recovery Model

- The Recovery Model of a database determines what types of backups and what restore scenarios are supported for the database.
- A recovery model is a database property that controls how the transaction log is managed.
- Depending on the recovery model for your database, different types of backups can be used



Backup Types

■ Full Backup:

- ☐ a full backup of your actual database file as it is as of the last transaction that was committed.

■ Differential Backup :

- ☐ Can be referred to as a “backup since another backup”
- ☐ Writes out the changes that have happened since the last full backup.
- ☐ Run much faster than a full backup does and take up less space

■ Transaction Log Backup :

- ☐ This is a copy of the transaction log.
- ☐ Can be used if your database is set to Full or Bulk logging.



Database & Restore statements

- A database backup is made by using the BACKUP DATABASE statement

- Examples

```
BACKUP DATABASE myDB  
TO DISK = 'Z:\SQLServerBackups\myDB.bak'  
GO
```

- The Restore Database command enables you to Restore an entire database from a database backup file

- Examples

```
RESTORE DATABASE myDB  
FROM DISK = 'Z:\SQLServerBackups\myDB.bak'
```