**Index Fragmentation (Rebuild or Reorganize an Index)**

* When index fragmentation occurs should you reorganize or rebuild a fragmented index (it depends)
* Whenever an insert, update, or delete operations occur against the underlying data, SQL automatically maintains indexes
* These operation cause index fragmentation and can cause performance issues
* Fragmentation exists when indexes have pages in which the logical ordering, based on the key value, does not match the physical ordering inside the data file
* When you Rebuild an index SQL drops and re-creates the index and removes fragmentation, reclaims disk space by compacting and reorders the index rows in contiguous pages
* When you Reorganize an index it defragments the leaf level of clustered and nonclustered indexes on tables and views by physically reordering the leaf-level
* The system function [sys.dm\_db\_index\_physical\_stats](https://msdn.microsoft.com/en-us/library/ms188917.aspx), allows you to detect fragmentation
* If avg\_fragmentation\_in\_percent value
* > 5% and < = 30% REORGANIZE
* > 30% REBUILD
* Rebuilding an index can be executed online or offline.
* Reorganizing an index is always executed online.