

Part - 8

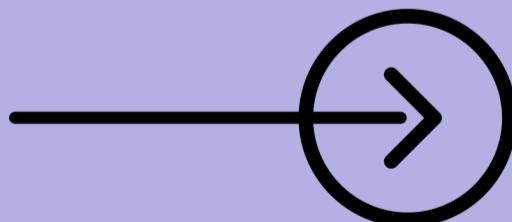
Data Modelling

Interview

Questions and Answers...!



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What is a clustered index and non-clustered index?

Clustered index defines the order in which data is physically stored in a table.

for example “Dictionary”.



**What is a
Non-Clustered index?**



Non - Clustered index:

- A non-clustered index is stored at one place and table data is stored in another place.

for example “Book Index”

as you know in a book a book index is stored at the starting of the book and the book data is stored after that, so they are at two different places. so this similarly happens with non - clustered index.

they are at one place and table data is stored at another place.



okayy.. means their are many differences



Key differences

- A table can have only one clustered index whereas a table can have multiple non-clustered index.
- Clustered index is faster as comparison to the non-clustered index. non-clustered is also good sometimes but it is not faster as much as the clustered index.
- In Clustered Index the data is physically sorted and stored in the index order. whereas Non-Clustered Index Creates a separate structure with pointers to the data, leaving the physical order unchanged.
- Clustered Index is Best for columns frequently used for sorting and searching, such as primary keys. whereas the Non-Clustered Index is best for columns frequently used in search conditions or joins, but not necessarily sorted.



wanna see some
Counter Questions

1 . Can you provide an example scenario where you would use a non-clustered index over a clustered index?

→ **Use a non-clustered index when you need fast lookups on columns not involved in sorting or ordering the data, such as a column used frequently in search conditions or joins.**

For instance, indexing an Email column in a Users table can speed up searches for specific email addresses, even if UserID is the clustered index.



Next Question

2. How does the choice between clustered and non-clustered indexes affect data insertion performance?

→ **Clustered indexes can affect insertion performance because the data needs to be physically sorted and stored in index order.**

Non-clustered indexes don't impact the physical order of data but require maintaining separate index structures, which can also slow down insertions as indexes need to be updated.



**Next
Please**

3. What is a potential downside of using too many non-clustered indexes on a table?

→ Having too many non-clustered indexes can lead to increased storage requirements and slower performance during data modification operations (inserts, updates, deletes)

because each index needs to be updated alongside the table data.



Next Aane do 😎

4. How do you decide which columns to include in a clustered index?

→ Choose columns for a clustered index based on how frequently they are used for sorting and searching.

Typically, columns with unique or primary key values are ideal, as they ensure data is stored in a logical order, enhancing query performance.



5. Can a table have both a clustered and non-clustered index on the same column?

What happens if you do?

→ **No, a table cannot have both a clustered and non-clustered index on the same column because a clustered index defines the physical order of the data, and only one clustered index can be defined per table.**

However, you can have multiple non-clustered indexes on the same column, which will create different index structures for various query patterns.



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