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# Part 38 – Adv. & Dis-adv. of Indexes

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# In this session we will learn

- Advantages and disadvantages of indexes
- The types of queries that can benefit from indexes
- Covering Queries

**Prerequisite:**

**Part 35 - Index basics**
**Part 36 - Clustered and Non-clustered indexes**
**Part 37 - Unique and Non-Unique Indexes**

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# Advantages of Indexes

**In Part 35, we have learnt that, Indexes are used by queries to find data quickly.**

| Id | FirstName | LastName | Salary | Gender | City |
|---|---|---|---|---|---|
| 1 | Mike | Sandoz | 4500 | Male | New York |
| 2 | Sara | Menco | 6500 | Female | London |
| 3 | John | Barber | 2500 | Male | Sydney |
| 4 | Pam | Grove | 3500 | Female | Toronto |
| 5 | James | Mirch | 7500 | Male | London |

| Salary | Row Address |
|---|---|
| 2500 | Row Address |
| 3500 | Row Address |
| 4500 | Row Address |
| 6500 | Row Address |
| 7500 | Row Address |

```
--SELECT statement with a WHERE clause
Select * from tblEmployee where Salary > 4000 and Salary < 8000

--DELETE and UPDATE statement
Delete from tblEmployee where Salary = 2500
Update tblEmployee Set Salary = 9000 where Salary = 7500

--ORDER BY ASCENDING
Select * from tblEmployee order by Salary

--ORDER BY DESCENDING
Select * from tblEmployee order by Salary Desc

--GROUP BY
Select Salary, COUNT(Salary) as Total
from tblEmployee
Group By Salary
```



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# Disadvantages of Indexes

**Additional DiskSpace:** Clustered Index does not, require any additional storage. Every Non-Clustered index requires additional space as it is stored separately from the table. The amount of space required will depend on the size of the table, and the number and types of columns used in the index.

**Insert Update and Delete statements can become slow:** When DML (Data Manipulation Language) statements (INSERT, UPDATE, DELETE) modifies data in a table, the data in all the indexes also needs to be updated. Indexes can help, to search and locate the rows, that we want to delete, but too many indexes to update can actually hurt the performance of data modifications.

**What is a covering query-** If all the columns that you have requested in the SELECT clause of query, are present in the index, then there is no need to lookup in the table again. The requested columns data can simply be returned from the index.

**A clustered index, always covers a query,** since it contains all of the data in a table. A composite index is an index on two or more columns. Both clustered and non-clustered indexes can be composite indexes. To a certain extent, a composite index, can cover a query.



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# Additional Resources

- PRAGIM Home Page:
  - www.PragimTech.com
- Resources:
  - ASP.NET Interview Questions
  - www.VenkatASPInterview.Blogspot.com
  - C# Interview Questions
  - www.VenkatCSharpInterview.Blogspot.com
  - SQL Server Interview Questions
  - www.venkatsqlinterview.Blogspot.com



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