

Lab53:

Indexes:

Clustered Index:

A clustered index sorts and stores the data rows in the table or view based on the key values. Each table can have only one clustered index because the data rows themselves can be sorted in only one order.

e.g.

Creating a clustered index on the Employee table using the EmployeeID column.

```
-- Creating a clustered index on the Employee table using the EmployeeID column
CREATE CLUSTERED INDEX IDX_EmployeeID ON dbo.Employee(EmployeeID);
```

This script creates a clustered index named IDX_EmployeeID on the EmployeeID column of the Employee table.

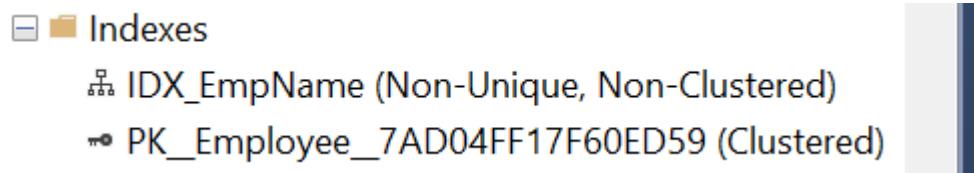
Non-Clustered Index:

A non-clustered index creates a separate structure to hold the index and pointers to the actual data rows in the table. A table can have multiple non-clustered indexes.

e.g.

```
-- Creating a non-clustered index on the EmpName column of the Employee table
CREATE NONCLUSTERED INDEX IDX_EmpName ON dbo.Employee(EmpName);
```

This script creates a non-clustered index named IDX_EmpName on the EmpName column of the Employee table.



Unique Index:

A unique index ensures that the indexed column(s) contain unique values, preventing duplicate entries.

E.g.

Creating a unique index on the PhoneNumber column of the Employee_Personal_Info table.

```
-- Creating a unique index on the PhoneNumber column of the Employee_Personal_Info table  
CREATE UNIQUE INDEX IDX_UniquePhoneNumber ON dbo.Employee_Personal_Info(PhoneNumber);
```

This script creates a unique index named IDX_UniquePhoneNumber on the PhoneNumber column of the Employee_Personal_Info table. Ensures PhoneNumber column is unique.

The screenshot shows the 'dbo.Employee_Personal_Info' table in the Object Explorer. Under the 'Indexes' node, a new index 'IDX_UniquePhoneNumber' is listed as 'Unique, Non-Clustered'.

Filtered Index:

A filtered index is a non-clustered index with a filter predicate, which allows you to index a subset of rows in the table.

e.g.

Creating a filtered index on the Employee table for employees with a salary greater than 50000.

```
CREATE NONCLUSTERED INDEX IDX_FilteredEmpSalary ON dbo.Employee(EmpSalary)  
WHERE EmpSalary > 50000;
```

This script creates a filtered index named IDX_FilteredEmpSalary on the EmpSalary column of the Employee table.

It includes only rows where EmpSalary is greater than 50000, improving query performance for this subset of data.

The screenshot shows the 'dbo.Employee' table in the Object Explorer. Under the 'Indexes' node, two indexes are listed: 'IDX_EmpName' and 'IDX_FilteredEmpSalary'. The 'IDX_FilteredEmpSalary' index is described as 'Non-Unique, Non-Clustered, Filtered'.

