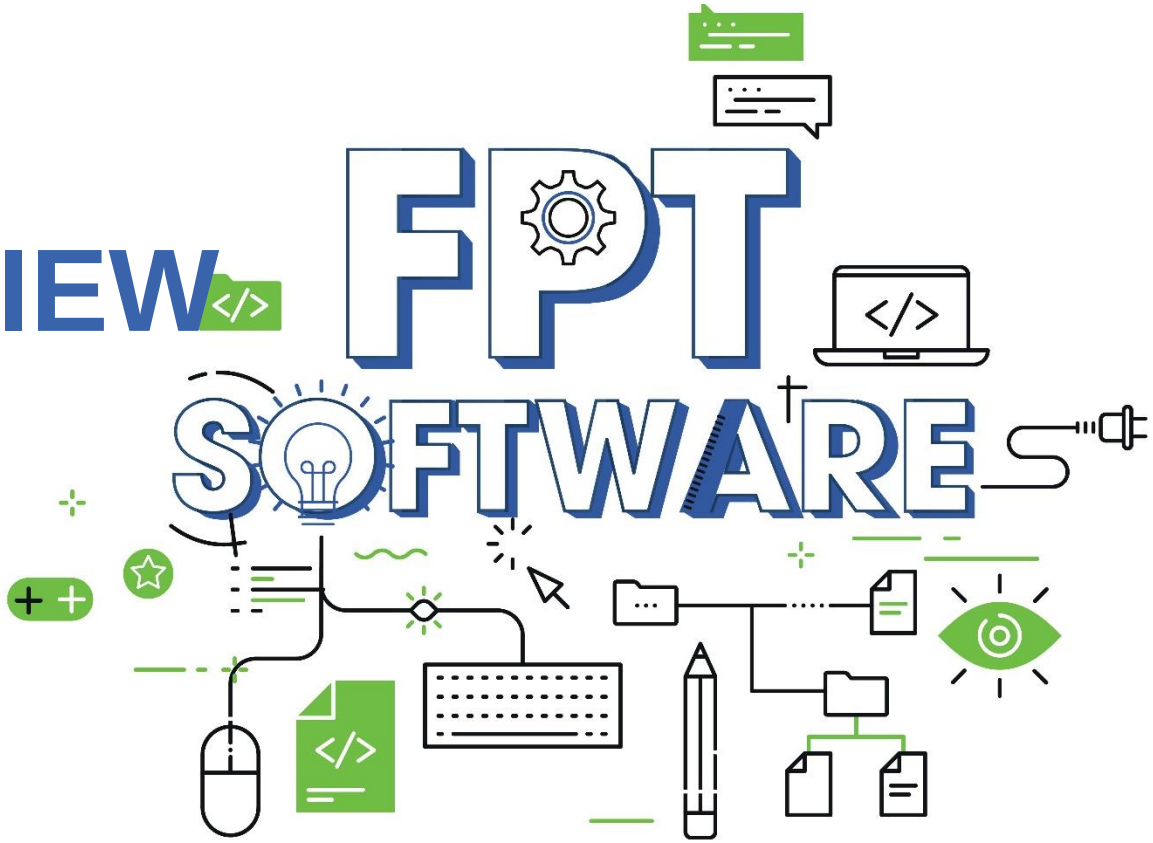
TABLE INDEXES and VIEW

Fsoft Academy



Lesson Objectives

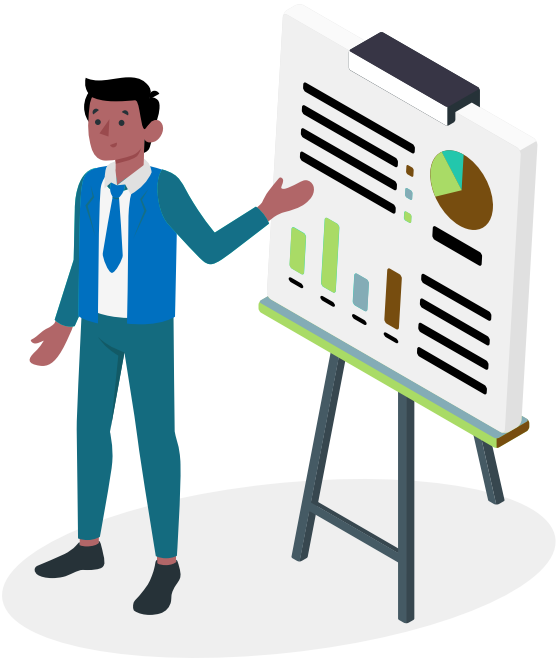
01 Create Indexes to improve query retrieval speed

02 Create, maintain, and use View

03 Demo

Agenda

1. Table Indexes
2. View
3. Naming Convention and Styles

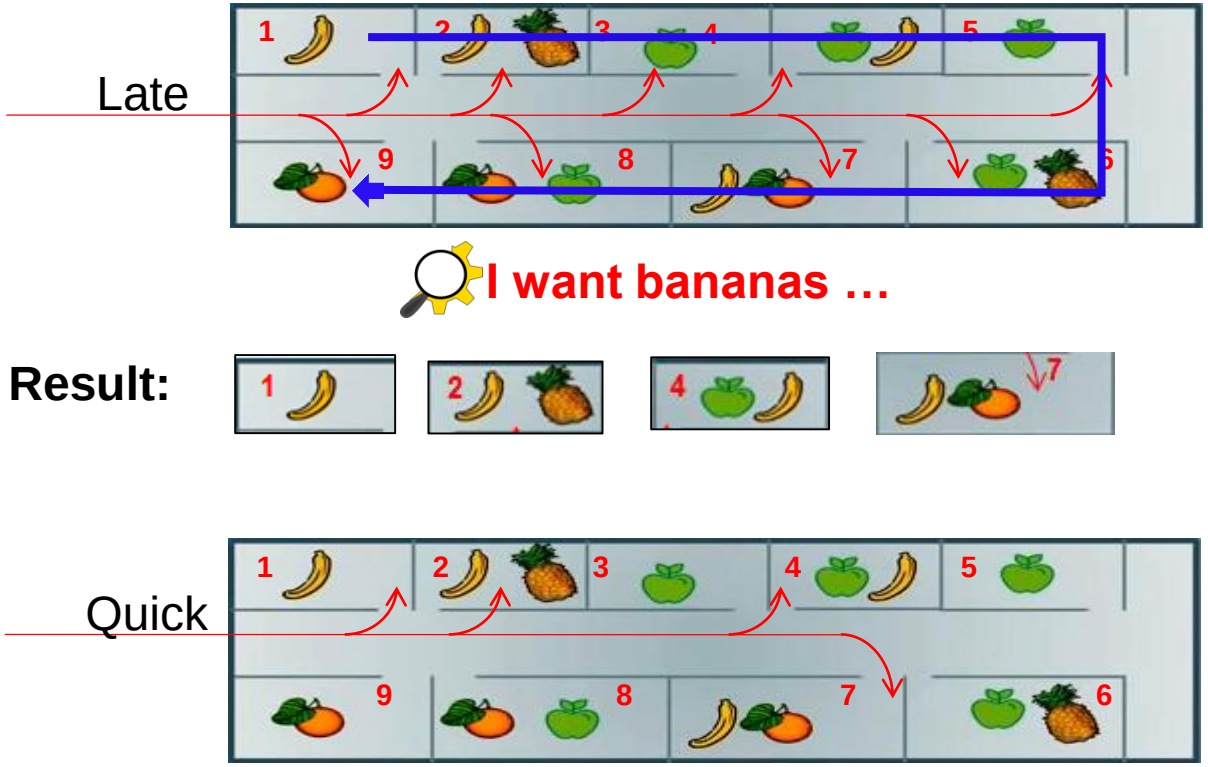


Section1

TABLE INDEXES

Why use indexes?

- An index in database is similar to an index in a book
- Indexes in database help speed up search queries. Allow find data in a table without scanning the entire table.



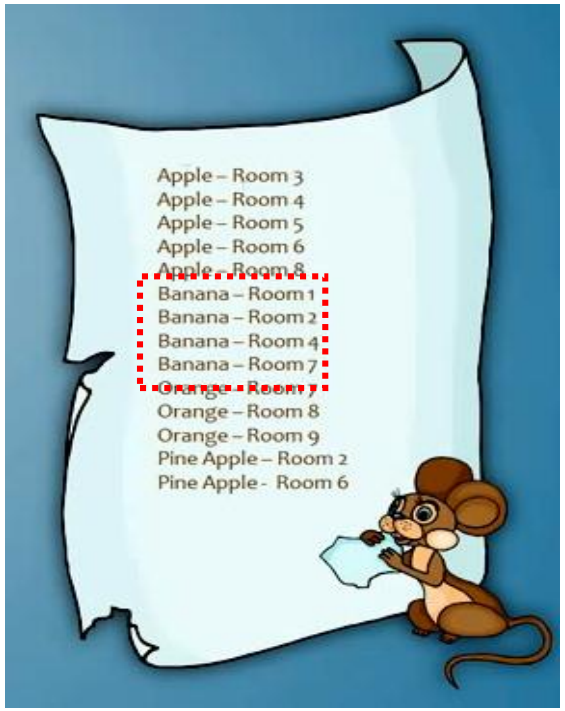


Table Indexes

```
CREATE TABLE dbo.PhoneBook (
        LastName        varchar(50) NOT NULL,
        FirsName        varchar(50) NOT NULL,
        PhoneNumber     varchar(50) NOT NULL
);
```

Table Indexes

```
CREATE TABLE dbo.PhoneBook (
        LastName        varchar(50) NOT NULL,
        FirsName        varchar(50) NOT NULL,
        PhoneNumber     varchar(50) NOT NULL
);
```

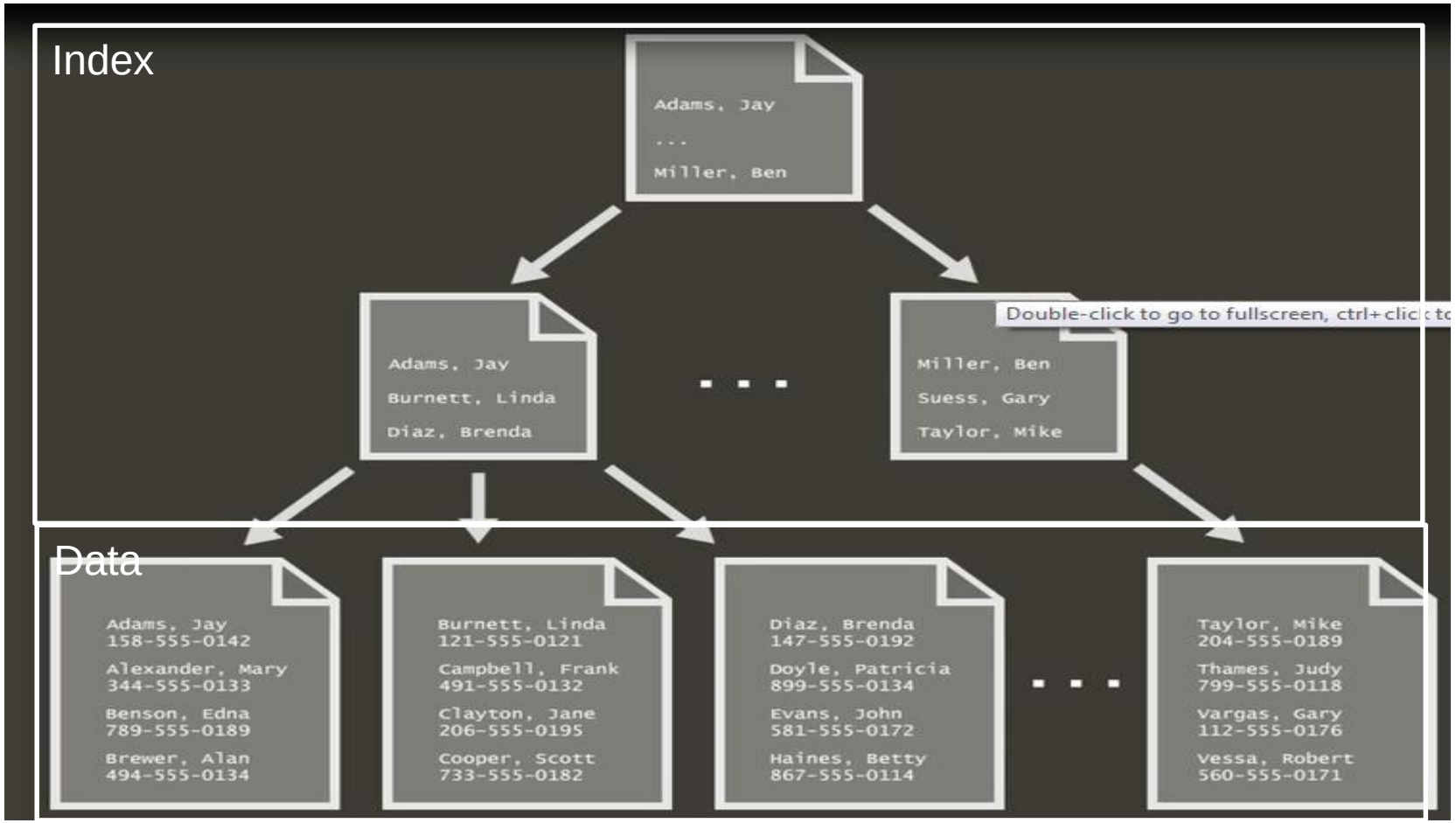
Result:
783-555-0110

Table Indexes

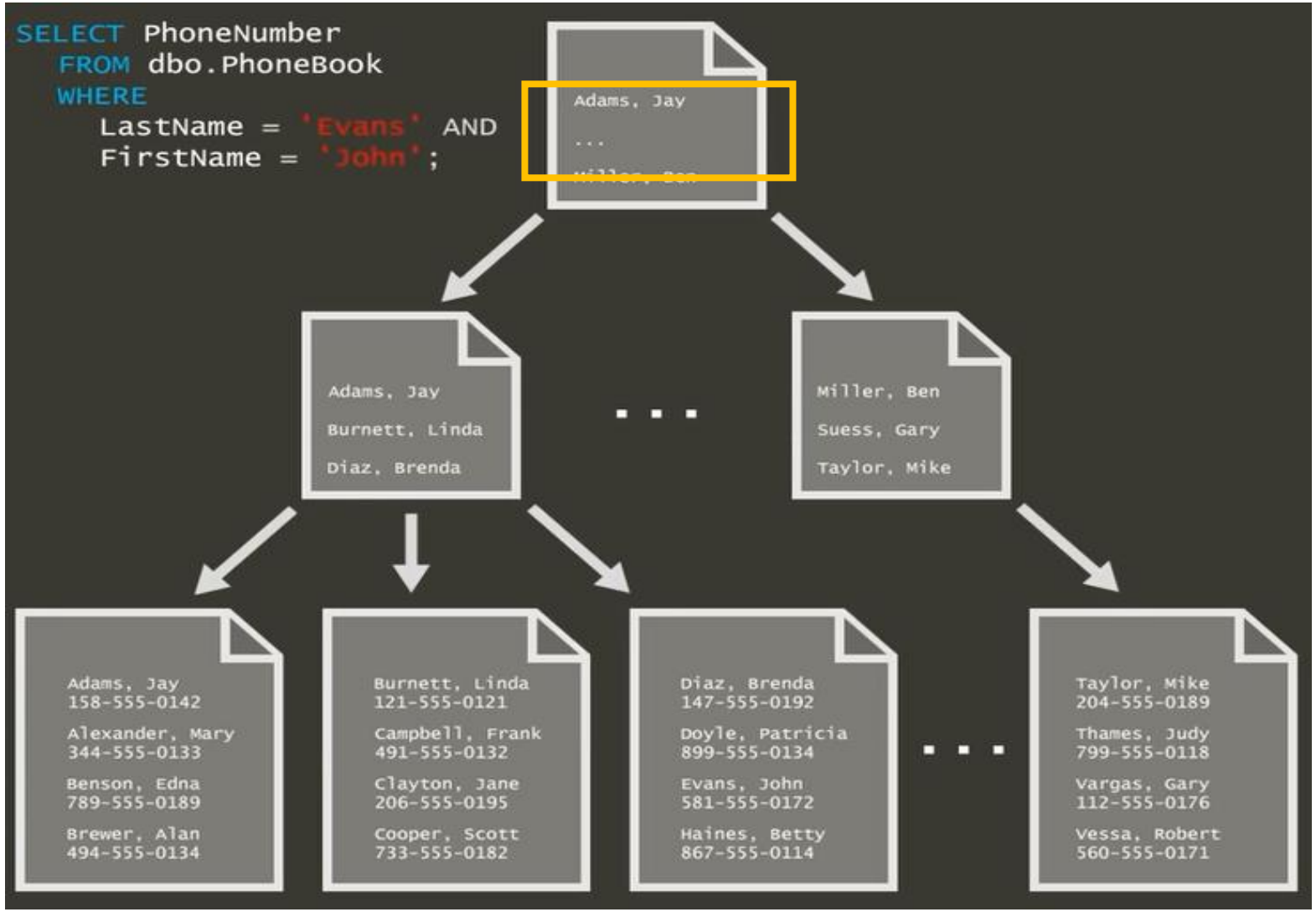
- **There are 2 types of major Indexes:**
  - ✓ ***Clustered***
    - Data is stored in the order on the clustered index
    - Only 1 clustered index per table
    - Usually the Primary Key
    - Sort and store the data rows in the table based on their key value.
  - ✓ ***Non-clustered***
    - Data is not stored in the order on the non clustered index
    - Have a structure completely separate from the data rows.

Clustered Index

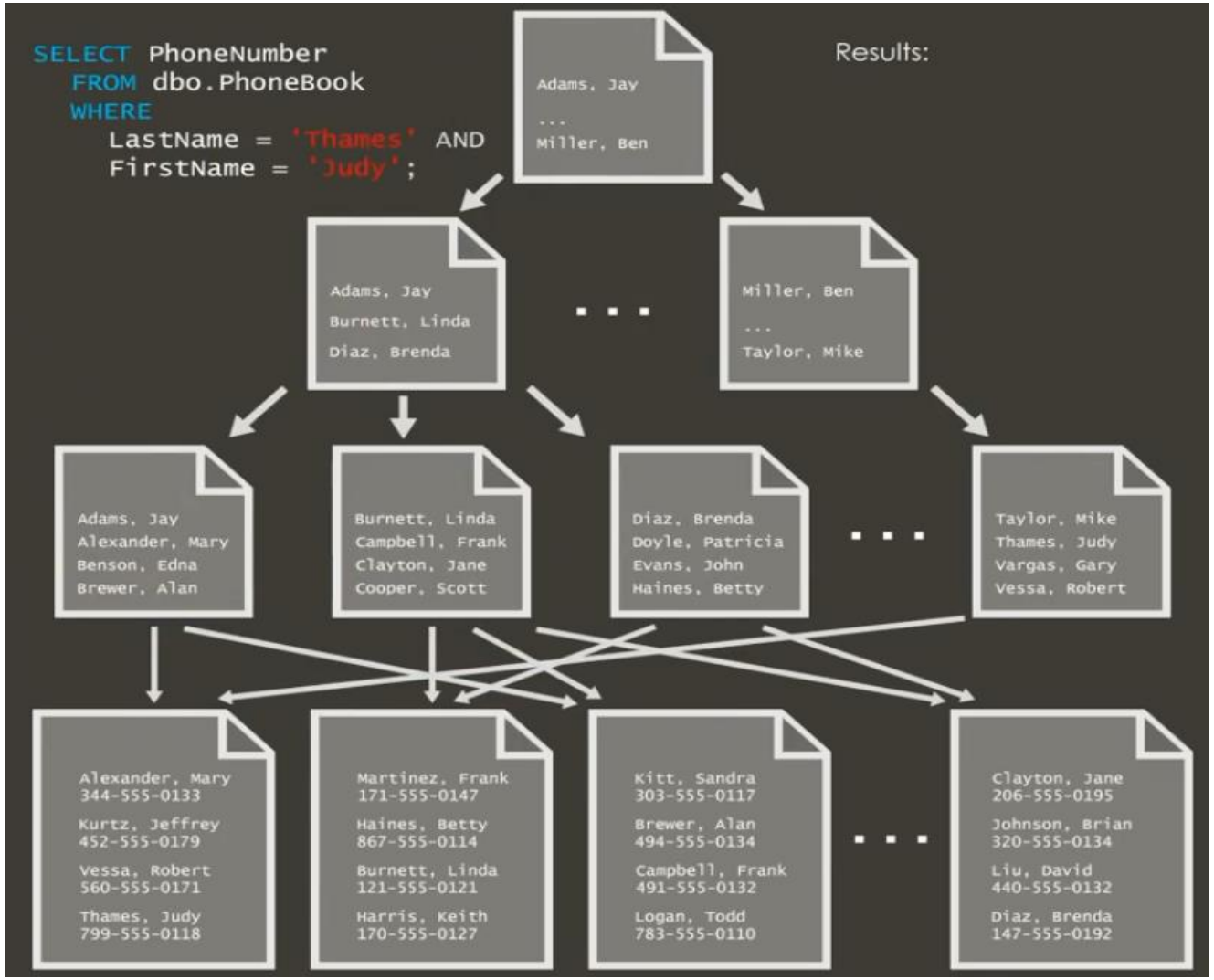
```
CREATE CLUSTERED INDEX IX_PhoneBook_CI ON dbo.PhoneBook (LastName, FirstName)
```



Clustered Index



Non - Clustered Index



Creating an Index

- Create a new index:

```
CREATE INDEX index_name
ON  table_name (column1_name, column2_name, …)
```

- Deleting an Index

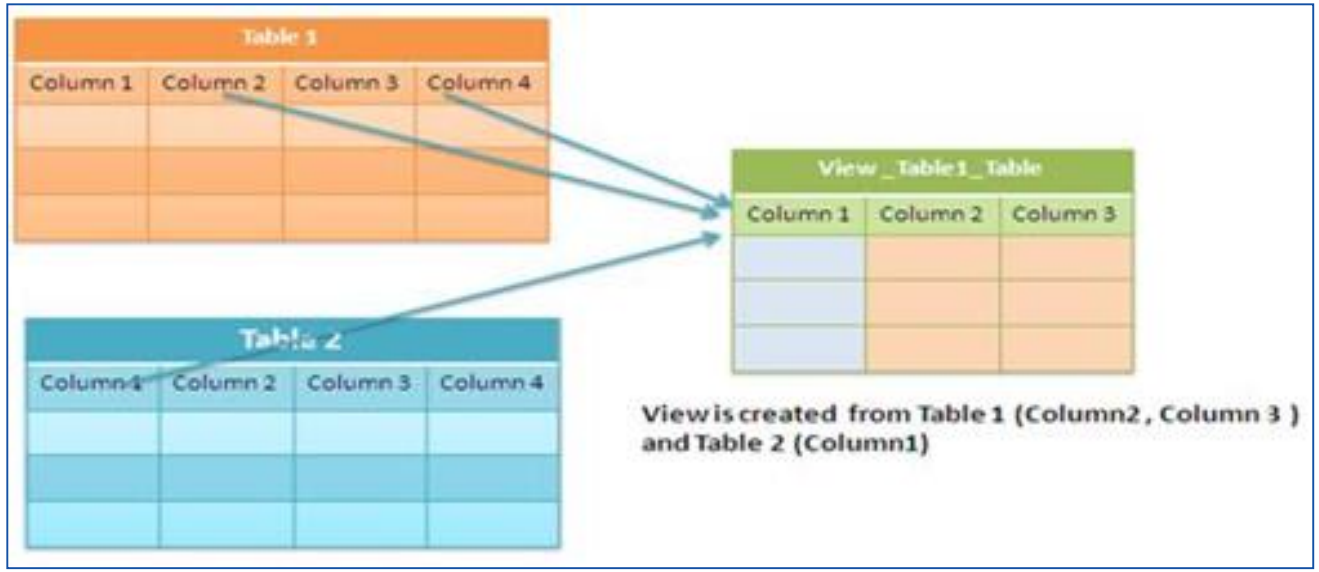
```
DROP INDEX table_name.index_name
```

Section2

VIEWS

What is a view?

- A View is a logical or virtual table. The fields in a view are fields from one or more real tables in the database.
- There are two major reasons you might want to use views:
  - ✓ Views allow you to limit the data users can access
  - ✓ Views reduce complexity for end users.



Creating a view

```
CREATE VIEW  View_Name [list of column names]
AS
SELECT…
```

Example:

```
CREATE VIEW view_EmployeeByDpt
AS
SELECT  ID, NAME, AGE, DEPT_NAME
FROM    EMP, DEPARTMENT
WHERE   EMP.DEP_ID = DEPARTMENT.DEPT_ID
```

```
SELECT * FROM view_EmployeeByDpt
```

Table: EMP

ID	NAME	AGE	DEP_ID
1	John	25	3
2	Mike	30	2
3	Parm	25	1
4	Todd	23	4
5	Sara	35	1
6	Ben	40	3

Table: DEPARTMENT

DEPT_ID	DEPT_NAME
1	IT
2	Payroll
3	HR
4	Admin

view_EmployeeByDpt

ID	NAME	AGE	DEPT_NAME
1	John	25	HR
2	Mike	30	Payroll
3	Parm	25	IT
4	Todd	23	Admin
5	Sara	35	IT
6	Ben	40	HR

Deleting a view

- Syntax:

```
DROP VIEW View_Name
```

- Example:

```
DROP VIEW view_EmployeeByDpt
```

ID	NAME	A	PT_I	EPT_NAME
1	John	25		HR
2	Nick	NULL		Payroll
3	Parm	25		IT
4	Todd		4	min
5	Sara		1	IT
6	Ben		3	HR

view_EmployeeByDpt

Section3

Naming convention and styles

NAMING CONVENTION AND STYLES

1.Use UPPER CASE for all T-SQL constructs, excepts Types

Correct:

```
SELECT MAX([Salary]) FROM dbo.[EmployeeSalary]
```

Incorrect:

```
SELECT max([Salary]) from dbo.[EmployeeSalary]
```

2.Use lower case for all T-SQL Types and Usernames

Correct:

```
DECLARE @MaxValue int
```

Incorrect:

```
DECLARE @MaxValue INT
```

NAMING CONVENTION AND STYLES

3.Use Pascal casing for all UDO's

Correct:

```
CREATE TABLE dbo.EmployeeSalary
(
        EmployeeSalaryID  INT
)
```

Incorrect:

```
CREATE TABLE dbo.Employeesalary
(
        EmployeesalaryID  int
)
```

NAMING CONVENTION AND STYLES

4.Avoid abbreviations and single character names

Correct:

```
DECLARE @RecordCount int
```

Incorrect:

```
DECLARE @Rc int
```

5.UDO naming must confer to the following regular expression ([a-zA-Z][a-zA-Z0-9]).

Do not use any special or language dependent characters to name objects. Constraints can use the underscore character.

Correct:

```
CREATE TABLE dbo.[EmployeeSalary]
```

Incorrect:

```
CREATE TABLE dbo.[Employee Salary]
```

NAMING CONVENTION AND STYLES

6.Use the following prefixes when naming objects

usp_: User stored procedures

ufn_: User defined functions

view_: Views

IX_: Indexes

DF_: Default constraints

PK_: Primary Key constraints

FK_: Foreign Key constraints

CHK_: Check constraints

UNI_: Unique constraints

Correct:

```
CREATE PROCEDURE dbo.usp_EmployeeSelectAll
```

Incorrect:

```
CREATE PROCEDURE dbo.EmployeeSelectRetired --without preffixed
```

NAMING CONVENTION AND STYLES

7. **Name tables in the singular form**

Correct:

```
CREATE TABLE dbo.[Employee]
```

Incorrect:

```
CREATE TABLE dbo.[Employees]
```

8. **Tables that map one-to many, many-to-many relationships should be named by concatenating the names of the tables in question, starting with the most central table's name.**

Correct:

```
CREATE TABLE dbo.[EmployeeSalary]
```

Summary

- Table Indexes
  - ✓ Why use indexes?
  - ✓ Create, maintain and use index
- View
  - ✓Create, maintain and use view
- Naming convention
- Demo

THANK YOU!