**INDEXES**

**INDEXES** : DATABASE OBJECTS USED FOR FASTER SEARCH OPERATIONS [**WHERE**, ON, HAVING….]

FOR EASY ACCESS TO THE ACTUAL TABLE.

**BASIC TYPES OF INDEXES**:

**1. CLUSTERED INDEX**:

THIS INDEX WILL HELP THE QUERY TO FIND EXACT LOCATION OF THE TABLE DATA (INSIDE DATA FILE).

WHENEVER WE DEFINE **PRIMARY KEY**, ONE CLUSTERED INDEX IS AUTO CREATED.

A TABLE CAN HAVE UPTO 1 CLUSTERED INDEX. MEANS, A TABLE CAN HAVE **UPTO 1 PRIMARY KEY**.

**2. NON CLUSTERED INDEX**:

THIS INDEX REFERENCES OR DIRECTS THE QUERY TO THE TABLE DATA.

DOES NOT CONTAIN EXACT LOCATION BUT CONTAINS “REFERENCE INFORMATION (DISK OFFSET)” TO THE ADDRESS OF TABLE.

WHENEVER WE DEFINE **UNIQUE KEY**, ONE NONCLUSTERED INDEX IS AUTO CREATED.

A TABLE CAN HAVE UPTO 999 NON CLUSTERED INDEXES. UPTO **999 UNIQUE KEYS**.

IN OUR EXAMPLE @ FOR **UNIVERSITY DATABASE**, COURSES TABLE HAS PRIMARY KEY ON COURSEID COLUMN. SO, 1 CLUSTERED INDEX IS AUTO CREATED ON COURSEID COLUMN.

BUT FOR FASTER **SEARCH** OF OTHER COLUMNS LIKE COURSENAME, WE NEED TO CREATE OUR OWN INDEX(ES):

**SYNTAX** : CREATE CLUSTERED | NONCLUSTERED INDEX <INDEXNAME> ON <TABLE-NAME> (<<COLUMN-NAME>>)

**EXAMPLE:**

CREATE NONCLUSTERED INDEX INDX\_CRSNAME ON TBLCOURSES(CourseName)

**QUERY OPTIMIZER** : THIS IS AN INTERNAL SQL SERVER DATABASE ENGINE COMPONENT.

THIS COMPONENT DECIDES THE BEST INDEX FROM THE AVAILABLE LIST OF INDEXES TO EXECUTE A GIVEN QUERY.