Index

* Indices are created in an existing table to locate rows more quickly and efficiently
* It is possible to create an index on one or more columns of a table, and each index is given a name.
* The users cannot see the indexes; they are just used to speed up queries.
* An index is a structure that provides rapid access to the rows of a table based on the values of one or more columns
* The index stores the data values and pointers to the rows where those data values occur
* In the index, the data values are arranged either in ascending or in descending order, so that the RDBMS can quickly lookup the index to find a particular value.
* It then follows the pointer to locate the row containing the value.
* The SQL user, who accesses a table, is unaware of the presence or absence of the index on the table.
* Indexing is a data structure technique to efficiently retrieve records from the database files based on some attributes on which the indexing has been done.
* Indexing is a way of sorting a number of records on multiple fields. Creating an index on a field in a table creates another data structure which holds the field value, and pointer to the record it relates to. This index structure is then sorted, allowing Binary Searches to be performed on it.
* The index is a data structure – remember that.
* A database index is a data structure that improves the speed of data retrieval operations on a database table at the cost of additional writes and storage space to maintain the index data structure
* Indexes are used to quickly locate data without having to search every row in a database table every time a database table is accessed.
* Indexes can be created using one or more columns of a database table, providing the basis for both rapid random lookups and efficient access of ordered records.

Advantages of Indexing

* It speeds up the execution of SQL statements with search conditions that refer to the indexed column(s)
* It is most appropriate when retrieval of data from tables is more frequent than inserts and updates

Disadvantages of having an INDEX

* It consumes additional disk space
* The INDEX must be updated every time a row is added to the table and every time the indexed column is updated in an existing row. This imposes additional overhead on INSERT and UPDATE statements for the table