MySQL – INDEXES

An index is a data structure that improves the speed of operations on a database table. They are a special type of lookup tables pointing to the data. Indexes can be created on one or more columns, providing the basis for both rapid random lookups and efficient ordering of access to records.

Indexes, however, reduce the efficiency of INSERT and UPDATE operations on a table. This is because when we insert or update a data value in a table, indexes also need to be modified accordingly. So, they are not always appropriate to use.

Users cannot see the indexes, they are just used to speed up queries and will be used by the Database Search Engine to locate records very fast.

Types of MySQL Indexes

Indexes can be defined on single or multiple columns of a MySQL table. The decision to add indexes on a table column(s) depends on the type of data that needs to be searched. MySQL provides the following types of indexes −

- **Simple Index**
- **Unique Index**
- **Primary Key Index**
- **Fulltext Index**
- **Descending Index**

Simple Index

A simple index is a basic type of index where the values inserted into the column, containing this index, are searched easily. In such case, the column can contain duplicate values or NULL.

Unique Index

A Unique index does not allow any duplicate values to be inserted into a table column (where the index is defined on).It can be added to single or multiple columns of a table. If it is added to a single column, the values of that column must be unique. But if it is added to multiple columns, the combination of values in these columns must be unique.

Primary Key Index

Primary Key Index is an extension of unique index, as the primary key column must always contain unique values and these values must not be NULL. Primary key can be set to a single column of a database table, or multiple columns as well (which is not recommended).

Fulltext Index

In a database, sometimes you would have to search for a blob of text instead of a record. You can use fulltext index for it. As its name suggests, it is used to make the text searches in a table easier.

Descending Index

The descending index is only available in MySQL versions after 8.0. It is simple index used to store data in a reverse order. Using this index, it is easy to search for the latest values inserted into the database table.