

MySQL INDEX

Database Lab

INDEX

- A database **index** is a data structure that improves the speed of operations in a table.
- Indexes can be created using one or more columns, providing the basis for **both rapid random lookups and efficient ordering of access to records**.
- While creating an index, it should be taken into consideration **which all columns will be used to make SQL queries** and create one or more indexes on those columns.



INDEX (CONT.)

- Practically, indexes are also a **type of tables**, which keep primary key or index field and a pointer to each record into the actual table
- The 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**
- The INSERT and UPDATE statements take **more time** on tables having indexes, whereas the SELECT statements become **fast** on those tables.
 - The reason is that while doing insert or update, a database needs to insert or update the index values as well.



CREATING INDEX

- Creating index when creating the table
- Creating index using alter table command
- Creating index using create index command



INDEX USING CREATE TABLE

```
CREATE TABLE products(  
  prod_ID int unsigned auto_increment,  
  prod_name varchar(20) not null,  
  prod_category varchar(30) not null,  
  prod_price float(5,2) not null,  
  prod_desc varchar(200),  
  Primary key (prod_ID),  
  Index idx_pname (prod_name)  
);
```



CREATING INDEX USING ALTER TABLE COMMAND

- ALTER TABLE products
ADD INDEX idx_pcat (prod_category);



INDEX USING CREATE INDEX COMMAND

- `CREATE INDEX idx_cat ON products(
prod_name, prod_category);`



DROP INDEX


- DROP INDEX index_name ON table_name;
- DROP INDEX idx_pcat ON products;



SHOWING INDEX

- `SHOW INDEX FROM table_name;`
- `SHOW INDEX FROM products ;`
- `SHOW INDEX FROM products \G;`

Show each row details together
one after another



TO CHECK QUERY EXECUTION TIME

- Concept of profiling can be used
- Following steps can be followed

Set profiling to 1
Then execute query
Then show profiles

- SET profiling = 1;
- SELECT * FROM products;
- SHOW PROFILES;

