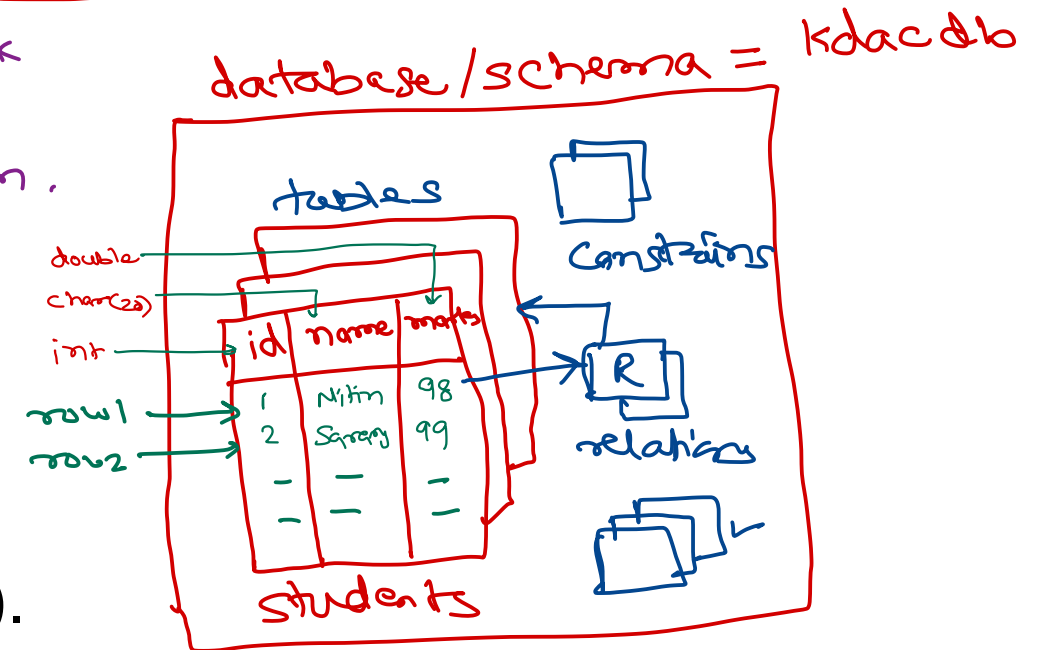# MySQL RDBMS

Trainer: Mr. Nilesh Ghule

Getting started

- root login can be used to perform CRUD as well as admin operations.
- It is recommended to create users for performing non-admin tasks.
  - mysql> CREATE DATABASE db;
  - mysql> SHOW DATABASES;
  - mysql> CREATE USER dbuser@localhost IDENTIFIED BY 'dbpass';
  - mysql> SELECT user, host FROM mysql.user;
  - mysql> GRANT ALL PRIVILEGES ON db.* TO dbuser@localhost;
  - mysql> FLUSH PRIVILEGES;
  - mysql> EXIT;
- terminal> mysql –u dbuser –pdbpass
  - mysql> SHOW DATABASES;
  - mysql> SELECT USER(), DATABASE();
  - mysql> USE db;
  - mysql> SHOW TABLES;
  - mysql> CREATE TABLE student(id INT, name VARCHAR(20), marks DOUBLE);
  - mysql> INSERT INTO student VALUES(1, 'Abc', 89.5);
  - mysql> SELECT * FROM student;
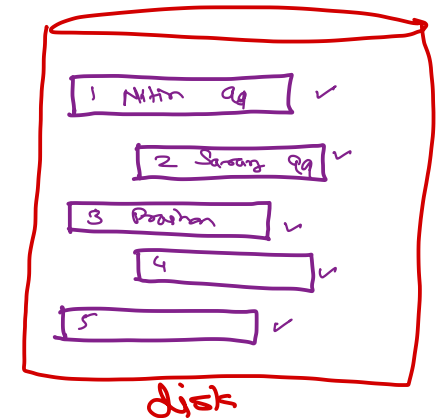
Database logical layout

- Database/schema is like a namespace/container that stores all db objects related to a project.

- It contains tables, constraints, relations, stored procedures, functions, triggers, ...

- There are some system databases e.g. mysql, performance_schema, information_schema, sys, ... They contains db internal/system information.
  - e.g. SELECT user, host FROM mysql.user;

- A database contains one or more tables.

- Tables have multiple columns.

- Each column is associated with a data-type.

- Columns may have zero or more constraints.

- The data in table is in multiple rows.

- Each row have multiple values (as per columns).

work in root login.

database/schema = kdacdb

tables
double
char(20)
int

id	name	marks
1	Nitin	98
2	Sarang	99

row1
row2

students

constraints
R
relations

Database physical layout /internals

- In MySQL, the data is stored on disk in its data directory i.e. /var/lib/mysql (linux)
- Each database/schema is a separate sub-directory in data dir. → ked ae
- Each table in the db, is a file on disk.
- e.g. student table in current db is stored in file /var/lib/mysql/db/student.ibd.
- Data is stored in binary format.
- A file may not be contiguously stored on hard disk.
- Data rows are not contiguous. They are scattered in the hard disk.
- In one row, all fields are consecutive.
- When records are selected, they are selected in any order.

1	Nitin	99	✓
2	Sarang	99	✓
3	Pravin		✓
4			✓
5			✓

disk

SQL scripts

- SQL script is multiple SQL queries written into a .sql file.
- SQL scripts are mainly used while database backup and restore operations.
- SQL scripts can be executed from terminal as:
    - terminal> mysql –u user –ppassword db < /path/to/sqlfile
- SQL scripts can be executed from command line as:
    - mysql> SOURCE /path/to/sqlfile
- Note that SOURCE is MySQL CLI client command.
- It reads commands one by one from the script and execute them on server.

Thank you!

Nilesh Ghule <nilesh@sunbeaminfo.com>