
Database

- A database is a collection of data.
- A database may contain a single table or multiple tables.
- MySQL operates on port 3306.

Types of Databases

- Relational Database / SQL Database
- (MySQL, MariaDB, Aurora, PostgreSQL)
- Non-Relational Database / NoSQL Database
- (DynamoDB, MongoDB)

Examples of Default Databases

- Information_schema
- Performance_schema
- mysql
- sys

Step 1)

- Create a Security Group (SG) with port numbers 22 and 3306.

Step 2)

- Create a Linux instance with ports 22 and 3306 open.

Step 3)

- Go to the RDS service and create a MySQL database.

Step 4)

- Connect to the Linux machine.

Install the MySQL package using the command

- `yum install -y mysql`

Connect to the database using the command

- `mysql -h endpoint -u username -p password`

To see all databases

- `show databases;`

To create a database

- `create database database_name;`

To delete a database

- `drop database database_name;`

To enter into the database

- `use database_name;`

(OR)

- `connect database_name;`

To exit from the database

- `exit;`

`create table dec_batch(roll_no int(5), name varchar(10), city varchar(10), marks int(5));`

`create table dec_batch(roll_no int(5), name varchar(10), city varchar(10), marks int(5));`

1. `insert into dec_batch values('1','sandesh','pune','70');`
2. `insert into dec_batch values('2','ankita','mumbai','80');`
3. `insert into dec_batch values('3','aditya','mumbai','70');`
4. `insert into dec_batch values('4','nitin','nagpur','60');`
5. `insert into dec_batch values('5','yash','nagpur','90');`
6. `insert into dec_batch values('6','vaibhav','pune','90');`

1. `select max(marks) from dec_batch;`
2. `select min(marks) from dec_batch;`
3. `select sum(marks) from dec_batch;`
4. `select avg(marks) from dec_batch;`

select city

desc dec_batch;

- select * from dec_batch;

select city from dec_batch;

- select distinct city from dec_batch;

select * from dec_batch where city="mumbai";

- select name from dec_batch where marks>80;

select * from dec_batch where city="pune" or city="mumbai";

- select * from dec_batch where city="pune" and marks=85;

select * from dec_batch where not city="pune";

- select * from dec_batch where not city="pune" and not city="mumbai";

select name from nov_batch where name like "m%";

- update nov_batch set marks=85 where name="mayur";

alter table nov_batch add column company varchar(10);

- alter table nov_batch drop column company;
- delete from nov_batch where roll_no=5;

command to take a backup of the database

command to take a backup of the database

- mysqldump -h endpoint database_name > path_where_we_have_to_take_backup_of_database -u username -ppassword
- mysqldump -h db1.c7lrhlzhj02u.us-east-2.rds.amazonaws.com db1 > /file1 -u admin -padmin123

1. go to the database
2. drop database db1;
3. create database db1;
4. use db1;
5. show tables;
6. Exit;

command to restore a database

- mysql -h endpoint database_name < path_from_where_we_have_to_restore_database -u username -ppassword
- mysql -h db1.c7lrhlzhj02u.us-east-2.rds.amazonaws.com db1 < /file1 -u admin -padmin123

we can take a backup of the database manually & Automatically (by using cron)

- 30 05 * * * mysqldump -h db1.c7lrhlzhj02u.us-east-2.rds.amazonaws.com db1 > /file1 -u admin -padmin123

To see all users in the database:

- select user from mysql.user;

To see the permissions of a user:

- show grants for 'username';

To create a 'sagar' user:

- create user 'sagar'@'%' identified by 'Android@50';

To give read-only access to db1 for the 'sagar' user:

- grant select on db1.* to 'sagar'@'%';

To refresh the changes:

- flush privileges;

To give read-only access to all databases for the 'sagar' user:

- grant select on *.* to 'sagar'@'%';
- flush privileges;

To give create access to all databases for the 'sagar' user:

- grant create on *.* to 'sagar'@'%';
- flush privileges;

To give insert access to all databases for the 'sagar' user:

- grant insert on *.* to 'sagar'@'%';
- flush privileges;

To give select, create, and insert access to the 'sagar' user for all databases:

- grant select, create, insert on *.* to 'sagar'@'%';
- flush privileges;

To give full access to db1 for the 'sagar' user:

- grant all privileges on db1.* to 'sagar'@'%';
- flush privileges;

To delete a user:

- drop user 'username';

Diff between MySQL & Dynamodb

- MySQL is a relational database that organizes data into tables with rows and columns.
- DynamoDB is a non-relational database that stores data in a key-value format.
- MySQL database supports CLI, while DynamoDB supports a GUI.
- DynamoDB is faster than MySQL.

What do you know about MySQL databases?

1. I know how to:
2. Create and delete databases
3. Connect to databases
4. Create, delete, and update tables
5. Use the WHERE clause
6. Use the AND, OR, and NOT operators
7. Use the MIN, MAX, SUM, and AVG functions
8. Take a backup of a database
9. Restore a database
10. Manage users in databases