Database technologies

Why we use database.

1. It allows to share the data across applications.
2. It provides security to the data.
3. It supports transaction control.

Types of databases

1. SQL
    a. These databases allows to store structured data
    b. Transaction control is available
    c. And database is secure
    d. Examples ---Oracle, MySQL, SQL-server,PostgreSQL
2. NOSQL
    a. Unstructured database
    b. It is main designed for big data management
    c. It is usually used in media application.

    Examples –MongoDB, Canssandra, CuchbaseDB
3. Graph DB
    a. When you want to display data in graphical format, then we use GraphDB
    b. The data is stored in the form of nodes and properties
    c. Examples- GraphDB, Neo4j
4. Memory DB
    a. In certain projects where you need less data, and faster retrieval, those project uses memory databases
    b. In this the data is available in the RAM
    c. So it requires some backup database, when you need to shutdown the machine otherwise data loss will be there
    Examples-→ MemDB, VoltDB

SQL Database----MySQL

Accid	Custid	Cname	Address	Balance	Type	Adhar card no
100	1	Kishori	Baner	5678	Saving	1111
101	1	Kishori	Baner	7777	Current	1111
102	1	Kishori	Baner	5555	Demat	1111
103	2	Revati	Aundh	6666	Saving	1234

1. Primary key-→ minimal set of attributes which identifies the row uniquely is called as primary key
    It stores unique data, and null values are not allowed (unique+not null)

    Example accid is primary key.

2. Unique key--→any attribute whose value should be unique in the column, is called as unique key, but in unique key null values are allowed

Empno	Ename	Passportno	Adharcard num	Mobile	Email	salary
			12sdfg34567			
			12sdfg34567			

3. Candidate key-→ if in a table, there are multiple minimal set of columns to identify the row uniquely, then those are called as candidate key.
   Empno
   Adharcard no
   Mobile
   Passport
4. Alternate key--→ all candidate keys keys which are not selected as primary key are called as alternate key
5. Super key---→any combination of attributes which identifies the row uniquely is called as super key.

Accid

Accid+custid

Accid+custid+cname

6. Foreign key--→When you enter the data in the table, if you refer a column of same table or different table, to maintain correctness of data, then it is called as foreign key.

Studid	Sname	adress
1	Rajesh	
2	Revati	
3	Atharva	

Studid	Cname	marks
1	Java	97
1	C++	95
1	.net	88
2	Java	
2	C++	
2	.net	

SQL databases it support the transaction, because it supports ACID property

1. Automicity---→ all the steps should get executed as a single unit
2. Consistency-→After every transaction the data should be always in correct state.
3. Isolation--→When the transaction is happening , then the in between changes will be visible only to the user who is performing the transaction, and it will npt be visible to other users, then it is called as isolation
4. Durability--→It the data is in correct state always , is happening for longer period of time

Transaction--→ It is a step by step operation , in which either all steps should happen or none should happen, then it is called as transaction

Transfer fund , withdrawal, deposited amt

SQL-→ structured Query language

Type statements in SQL

DQL	Data query language	Select
DDL	Data definition language	Create, Alter, drop truncate
DML	Data Manipulation language	Insert, update,delete
TCL	Transaction control statements	Commit, rollback, savepoint
DCL	Data control language	Grant, revoke

DQL (Data Query language)

Select [Distinct] *| list of columns

From <table name>

Where <condition>

Group by <column names>

Having <condition>

Order by <column names>

-----to find all columns from emp table

Select * from emp;

-----to create database acts 0923

Create database if not exists acts0923;

----to change the database

Use acts0923

------to load the data from .sql file

Source d:\mysql-database\demobldmysql.sql

---- to check the data

Select * from emp;

Select * from dept;

Select * from salgrade;

Operators in database

Arithmetic operators

+, -, *, / , %

Relational operators

>, <, >=, <=, = , !=

Logical operators

And, or, not

[not] Between…and	When you want to check the range of values use between… and operator, Given values are inclusive

--to display all employees with sal > 2000 and sal < 4000

Select empno,ename,sal

From emp

Where sal > 2000 and sal < 4000;

Or

Select empno,ename,sal

From emp

Where sal between 2001 and

----find all users who joined in year 1980

Select *

From emp

Where hiredate between ‘1980-01-01’ and ‘1980-12-31’