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DBT

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1. DDL –

Create – table

Drop – table, columns alter table drop column

Alter – alter structure

Truncate – remove all records structure remains(should be DML, but makes copy of structure of table but then drop table)

Comment

Rename – database

1. DQL

Select

1. DML
   1. Insert
   2. Update
   3. Delete
   4. Lock – control concurrency (ablity to allow multiple users affect transaction)
2. DCL
   1. Grant
   2. Revoke – withdraws user access privileges
3. TCL
   1. Commit
   2. Rollback
   3. SavePoint
   4. set transactions
4. Data Redundancy – multiple copies of same data (not normalized)

Data Anomalies – because of data redundancy

Normalization – process of organizing data, minimize the redundancy from relations

1NF – eliminate repeating

2NF – eliminate functional, no partial dependecies

3NF – eliminate transitive

4NF – eliminate Multi-value

5NF – eliminate join

1. Data types : char – fixed length(255)

Varchar –(65535)

Binary

Varbinary

Bool (zero and nonzero)

Boolean same as bool

Int

Flaot

Double

Date, datetime, timestamp,

1. Keys – primary key (not null, unique)

Unique key

Foreign key – links between tables create table orders(id int, primary key(id), foreign key (personId) references person(personId));

1. Group by, having, Like, distinct, between and, is null, is not null, (alter table drop index personId)
2. Aggregate functions – count(), sum(), avg(), max(), min(),
3. JOINS – inner joins(equi join) , left join, right join, full outer join, (cross join) cartesign, natural join (same data name and type is excluded), union
4. Subquery, index, views
5. Query engine =execute the sql operations default innodb

Myisam – small footprint, used in read-only

1. Procedures – collections of pre compiled statements create procedure (in, out, inout)

Call name()

1. Functions – procedure can support rollback while functions does not, procedure cannot be used in select statement while function can functions need to have return statement

Create Function(in) return data

1. Cursor – allow to retrieve each time at a time and manipulate data

Declare name cursor for statement;

Asensitive – points to actual data whereas an insensitive uses temp copy of data

Non scrollable – only fetch rows in order determined by select statement

Read only – cannot update data

1. Trigger – stored procedure in database
2. Error handling – declare continue handler for sqlEception set hasError = 1;

declare continue handler for 1062 select “error” ;

1. Structured, semi Structured, unstructured
2. CAP – consistency receive most recent write, availability reads data but not recent, partition tolerance systems continues to operate despite network failures
3. BASE – basically available, soft state does not lack immediate consistency values changes overtime , eventually consistent
4. ACID – atomicity, consistency, isolation, durability
5. Key-value, document, column oriented
6. JSON BSON
7. insertOne(), find(), updateOne(), replaceOne(), deleteOne(), deleteMany(), upset – findAndModify(), update(), find(), creteIndex()
8. Sort, Collections – tables, relations , tuples – rows, records, document
9. BIG DATA –

5 Vs – volume, veracity – inconsistencies, uncertainty, variety - different formats of data, value – useful , velocity- high speed

1. Components – Data sources, data storage, batch processing, real time message, stream processing, analytic data store, analysis and reporting, orchestration

Column 🡺 projection

Surrogate key 🡺 artificial key

String diff 🡺 soundex

Natural join 🡺 projection and Cartesian

NOLOCK 🡺 read uncommitted

Routines and triggers 🡺 both consist of procedural code

Wildcard - no exact match

* Codds rule
  + Foundation - database req
  + Information - row contains info
  + Guranteeed access - primary key, table name, column name
  + Treatment of null values - null and inappropriate
  + Active catalog - logic of data
  + Comprehensive data rule- DDL, DML, view
  + View updating rule- -
  + Relational operation level -
  + Physical data independence rule - access the database is a req of db
  + Logical data independence rule - doesnot make diff what user sees
  + Integrity independence rule - use same queries for same oper
  + Distribution independence rule
  + Non subversion rule
* Triggers - after delete, update, insert , not old and new, DML
* Procedure - 4
* Functions - cannot be used for insert, 3
* Cursor - lifecycle 5, types 4, FORWARD\_ONLY\_STATIC, keyset cursor - sensitive to changes, static cursor - read only

🡺MONGOBD

* Caped, document, no collation,