

Question Bank IT(402)

Unit – Database

1. What is database ?

Ans: A database is a collection of information that is organized so that it can be easily accessed, managed and updated. Data is organized into rows, columns and tables, and it is indexed to make it easier to find relevant information. Data gets updated, expanded and deleted as new information is added. Databases process workloads to create and update themselves, querying the data they contain and running applications against it. Computer databases typically contain aggregations of data records or files, such as sales transactions, product catalogs and inventories, and customer profiles.

2. What is DBMS(Database Management System)? Examples of DBMS?

Ans: A database management system is a software package with computer programs that controls the creation, maintenance, and use of a database. It allows organizations to conveniently develop databases for various applications. A database is an integrated collection of data records, files, and other objects. A DBMS allows different user application programs to concurrently access the same database.

Well known DBMSs include Oracle, IBM DB2, Microsoft SQL Server, Microsoft Access, PostgreSQL, MySQL, FoxPro, and SQLite, Microsoft Access, OpenOffice.org Base.

3. How many type we can organized data ?

Ans: **Data can be organized into two types:**

• **Flat File:** Data is stored in a single table. Usually suitable for less amount of data.

• **Relational:** Data is stored in multiple tables and the tables are linked using a common field.

Relational is suitable for medium to large amount of data.

4. What is Database Server ?

Ans: Database servers are dedicated computers that hold the actual databases and run only the DBMS and related software. Typically databases available on the database servers are accessed through command line or graphic user interface tools referred to as Frontends; database servers are referred to as Back-ends.

5. What is RDBMS?

Ans: A relational database management system (RDBMS) is a database management system that is based on the relational model as introduced by E. F. Codd, of IBM's San Jose Research Laboratory in 1969. In the relational model of a database, all data is represented in terms of tuples, grouped into relations.

6. What is table in RDBMS?

Ans: A table is a set of data elements (values) that is organized using a model of

vertical columns (which are identified by their name) and horizontal rows. A table has a defined number of columns, but can have any number of rows. Each row is identified by the values appearing in a particular column identified as a unique key index or the key field.

7. RDBs Table also known as Relation.
8. Table's column known as field and attribute.
9. Table's row known as tuple and record.
10. What is Datatypes used in RDBMS ?

Ans: Datatypes are used to identify which type of data (value) we are going to store in the database.

- Numeric Types
- Alphanumeric Types
- Binary Types
- Date time
- Other Variable types

11. What are the Numeric types ?

Ans: Numeric data types are used for describing numeric values for the field used in the table of a database.

Name	Data type	Description
BOOLEAN	Yes / No	Values as 0 or 1. Example: True or False, Yes or No.
TINYINT	Tiny Integer	Store integer range between 0 to 255
SMALLINT	Small Integer	Store integer range between -2^{15} to $+2^{15}-1$
INTEGER	Integer	Store integer range between -2^{31} to $+2^{31}-1$
BIGINT	Big Integer	Range between -2^{63} to $+2^{63}-1$
NUMERIC	Number	Maximum precision of $e^{(+/-)231}$
DECIMAL	Decimal	Maximum precision of $e^{(+/-)231}$
REAL	Real	2^{-1074} to $(2-2^{-52}) * 2^{1023}$
FLOAT	Float	2^{-1074} to $(2-2^{-52}) * 2^{1023}$
DOUBLE	Double	2^{-1074} to $(2-2^{-52}) * 2^{1023}$

12. What are the Alphanumeric types ?

Ans:

Name	Data type	Description
LONGVARCHAR	Memo	Stores up to the max length or number indicated by user. It accepts any UTF 8 Character.
CHAR	Text (fix)	Stores exactly the length specified by user. Pads with trailing spaces for shorter strings. Accepts any UTF 8 Character.
VARCHAR	Text	Stores up to the specified length. No padding (Same as long var char)
VARCHAR_IGNORE CASE	Text	Stores up the specified length. Comparisons are not case sensitive but stores capitals as you type them.

13. What are the Binary Types ?

Ans: Binary data types are used for storing data in binary formats. Binary data types in a database can be using for storing photos, music files, etc.

Name	Data type	Description
LONGVARBINARY	Image	Stores any array of bytes (images, sounds, etc.). No validation required.
BINARY	Binary (fix)	Stores any array of bytes. No validation required.
VARBINARY	Binary	Stores any array of bytes. No validation required.

14. What is Primary Key of RDBMS?

Ans. A primary key is a special relational database table column (or combination of columns) designated to uniquely identify all table records. A primary key's main features are:

- It must contain a unique value for each row of data.
- It cannot contain null values.

A primary key is either an existing table column or a column that is specifically generated by

the database according to a defined sequence.

15. What is foreign Key?

Ans. A foreign key is a column or group of columns in a relational database table that provides a link between data in two tables. It acts as a cross-reference between tables because it references the primary key of another table, thereby establishing a link between them.

16. Write Short Notes on (1) DDL and (2) DML

Ans: DDL = A data definition language or data description language (DDL) is a standard for commands that define the different structures in a database. DDL

statements create, modify, and remove database objects such as tables, indexes, and users. Common DDL statements are CREATE, ALTER, and DROP.

DML=A data manipulation language (DML) is a language that enables users to access and manipulate data in a database. The goal is to provide efficient human interaction with the system. Data manipulation involves:

- Retrieval of information from the database- SELECT statement
- Insertion of new information into the database - INSERT statement
- Deletion of information in the database - DELETE statement
- Modification of information in the database - UPDATE statement

17.How many type of DML? Explain.

Ans.**There are two types of DML:**

- **Procedural:** The user specifies what data is needed and how to get it
- **Nonprocedural:** The user only specifies what data is needed. This is easier for the user but

may not generate code as efficient as that produced by procedural languages.

18.List any three file formats that can be managed using OpenOffice.Org Base?

Ans:Three file formats that can be managed using

OpenOffice.org base are:

*.odt – This file format is used by OpenOffice.org Writer application for creating documents.

This is the counterpart of .doc extension of MS Word.

*.ods – This file format is used by OpenOffice.org Calc application for creating spreadsheets.

This is the counterpart of .xls extension of MS Excel.

*.odp – This file format is used by OpenOffice.org Presentation application for creating presentations. This is the counterpart of .ppt extension of MS Powerpoint.

19.What does SQL mean?

Ans:Structured Query Language (SQL) is a standard computer language for relational database management and data manipulation. SQL is used to query, insert, update and modify data.

20.What does SQL Select Statement mean ?

Ans:The SQL **SELECT** statement is used to fetch the data from a database table which returns this data in the form of a result table.

Syntax: SELECT column1, column2, columnN FROM table_name;

Here, column1, column2... are the fields of a table whose values you want to fetch. If you want to fetch all the fields available in the field, then you can use the following syntax.

SELECT * FROM table_name;

21. Write about Where and Order By Clause With SELECT Statement?

Ans:The SELECT statement has many optional clauses:

- WHERE specifies which rows to retrieve.

select * from SDetails where Color='Blue';

- ORDER BY specifies an order in which to return the rows.(ASC= Ascending and DSC= Descending)

select * from SDetails order by "Rollno" ASC;

22. What does SQL Insert Statement mean ?

Ans:INSERT statement is used to add one or more records to a database.

Syntax: **INSERT INTO <table_name><column1, column2, column3...> VALUES <value1, value2,value3 ...>;**

Ex: insert into SDetails ("ID", "Name", "Rollno", "DOB", "Class", "Phone", "Email", "Color", "Location") values ('8', 'Ranjith Singh', '67', '12-03-99','X', '435363', 'ranjth99@gmail.com', 'White', 'Bihar');

23.What does SQL UPDATE Statement mean ?

Ans. Update statement is used for modifying records in a database.

Syntax:**UPDATE <table_name> SET <column_name> = value [, column_name = value ...] [WHERE <condition>]**

Ex: update SDetails set Location = 'Bhubaneswar' where Rollno = 14;

24.What does SQL DELETE Statement mean ?

Ans:Delete Statement is used to remove one or more records in a database. The general syntax of the

delete statement is as follows:

DELETE FROM <table_name> [WHERE] <condition>;

Ex: delete from SDetails where ID=8;

25.What does SQL Create Statement mean ?

Ans:Create statement is used for creating a database or a table in any RDBMS Software.

A commonly

used CREATE command is the CREATE TABLE command.

Syntax:

CREATE TABLE <TABLENAME> ([column definitions]) [table parameters] Column

definitions: A comma-separated list consisting of any of the following Column

definition: [column name] [data type] {NULL | NOT NULL} {column options} Primary

key definition: PRIMARY KEY ([comma separated column list]);

Ex:CREATE TABLE Employee (ID INTEGER, Name VARCHAR (50),Department VARCHAR (50),

Address VARCHAR (120),Contact_Number INTEGER);

26.Write the answers based on the following table :

1. Suggest a suitable data type for the field Empid and Name in the table Employee.

2. Write a query to display all the records of the table for deptid = 101.
3. Add a new record with the following details :
(‘7’, ‘Chandan Makhija’, 102, ‘MCA’, ‘M’)

Table : Employee

Empid	Name	Deptid	Qualification	Sex
1	Deepali Gupta	101	MCA	F
2	Rajat Tyagi	101	BCA	M
3	Hari Mohan	102	B.A	M
4	Harry	102	M.A	M
5	Sumit Mittal	103	B.Tech	M
6	Jyoti	101	M.Tech	F

27. Consider the following table and answer the following :

1. Identify suitable Primary Key from the above table.
2. Add a new record with the following data :
(‘H608’, ‘Cardiology’, ‘TTS’, ‘Vinita Wahi’)
3. Write a select query to display records of those Doctors whose OPD_DAYS are ‘MWF’.

ID	Department	OPD_DAYS	Doctor_Name
H201	ENT	MWF	Akaash Arora
H308	Oncology	TTS	Dharma Sharma
H907	Paediatrics	MWF	Sanjay Singh

28. Write the answers based on the following table:

Table: Manger

Deptno	Deptname	Name	City
S101	Sales	Pranjal Sharma	Delhi
HR404	HR	Preeti Arora	Chennai
P204	Purchase	Sukhmeen Singh	Bangalore
AD990	Admin	Sukanya Kumar	Mumbai

- a. Suggest a suitable data type for the Deptname field.
- b. Write a query to display all the records of the table.
- c. Add a new record with the following details:
(‘S106’, ‘Sales’, “Kritika Tuteja”, “Delhi”).

Note: Any problem just mail me at Kapcho1@gmail.com.