

ASSIGNMENT - 1

A.

1. Which of the following is generally used for performing tasks like creating the structure of the relations, deleting relation?
- DDL (Data Definition Language)

2. What do you mean by one to many relationship?
One teacher can have many classes

3. A Database Management System is a type of software.

It is a type of system software
It is a kind of application software

4. Which one of the following refers to the copies of the same data (or information) occupying the memory space at multiple places.

Data Redundancy

5. Which of the following refers to the level of data abstraction that describes exactly how the data actually stored?

Physical Level

6. In general, a file is basically a collection of all related records

7. Which one of the following is a type of Data Manipulation Command?

Create, Alter, Delete

8. Which of the following command is a type of Data Definition language command ?
Create

9. Which of the following is a top-down approach in which the entity's higher level can be divided into two lower sub-entities ?
Specialization

10. The term "TCL" stands for _____ Transaction Control Language.

[B.]

1. What are the different type of languages that are available in the DBMS ?
These are mainly four types of languages available :

1. Data Definition Language (DDL) :
DDL is a language used to define the database schema, i.e., the structure of the database, include tables, columns, constraints, indexes, etc. DDL statements are used to create, modify, and delete database objects. Example of DDL statements are CREATE, ALTER and DROP.

2. Data Manipulation Language (DML) :

DML is a language used to manipulate the data stored in the database. It is used to

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Insert, update and delete data in the database. Examples of DML statements are INSERT, UPDATE and DELETE.

3. Data Control Language (DCL) :

DCL is a language used to control access to the database. It is used to grant or revoke priviled privileges to the users.

Example of DCL statements are GRANT and REVOKE.

4. Transaction Control Language (TCL) :

TCL is a language used to manage transaction in the database. It is used to control the changes made to the database by transactions.

Example of TCL statements are COMMIT and ROLLBACK.

2. What is network model ?

Network model represent data in graph or network structure consisting of nodes and links.

The main feature of network model is the concept of record type, which is similar to table in relational model. Each record type can have multiple owners and access through different paths in network structure.

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3. What is a Relation-Schema and a Relation?

In relation database model, relation schema refers to the structure or blueprint of table, while relation refers to the table itself.

Relation schema includes name of table, column (attribute), datatype and constraints apply to these columns. A relation is instance of relation schema. It stores the actual data in table.

4. Define DDL, DML and DCL ?

DDL : Data Definition Language.

Used to define database schema.

It is used to create, modify, delete table, indexes and other database objects.

DML : Data Manipulation Language

Used to manipulate data in database.

It can be used to insert, retrieve, update and delete data from tables.

DCL : Data Control Language.

It is used to control access to database and to grant and revoke permission to users and roles.

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[C.]

1. What is the use of DROP command and what are the differences between DROP, TRUNCATE and DELETE commands?

DROP command is used in SQL to delete a database object like a table, view, index or stored procedure. When DROP command is executed on table, it permanently removes tables and all data in it from the database.

- Difference between DROP, TRUNCATE, DELETE

DROP

- Removes entire database, including all its data.
- Syntax: `DROP [Database object] [Name]`
- Can't be rolled back if the data is permanently deleted.
- Removes the entire table structure.
- Delete all the rows in a table.

TRUNCATE

- Remove all data from table while keeping its structure.
- Syntax: `TRUNCATE TABLE [Table name]`
- Can't be rolled back if data is permanently deleted.
- Does not remove the table structure.
- Delete all rows in a table.

DELETE

- Remove one or more rows based on specific condition.
- Syntax: `DELETE FROM [Table name] WHERE [Condition]`
- Can be rolled back if database is in recovery model.
- does not remove the table structure.
- Delete only rows that match specified condition.

2. What are different level of abstraction in DBMS. Explain.

Three levels of abstraction in DBMS.

1. Physical Level - It deals with how data is actually stored on the storage device such as harddisk, solid state drives or cloud storage. Here data is organized into pages and records and DBMS manages the physical state of data.

2. Logical Level - deals with how data is organised and viewed by users. Data is organized into tables, views and relationships b/w them. Users interact with data through queries, expressed using SQL.

3. View Level - Provides customized view of data to different users. It allows to access only data they need and hides data not authorized to access. Users can create their own view of data using SQL.

These level of abstraction allows users to interact with database of different levels of details, making easier to manage large data.

D

1. Explain and draw architecture of DBMS.
DBMS Architecture.

- The DBMS design depends upon its architecture. The basic client/server architecture is used to deal with a large number of PCs, web servers, database

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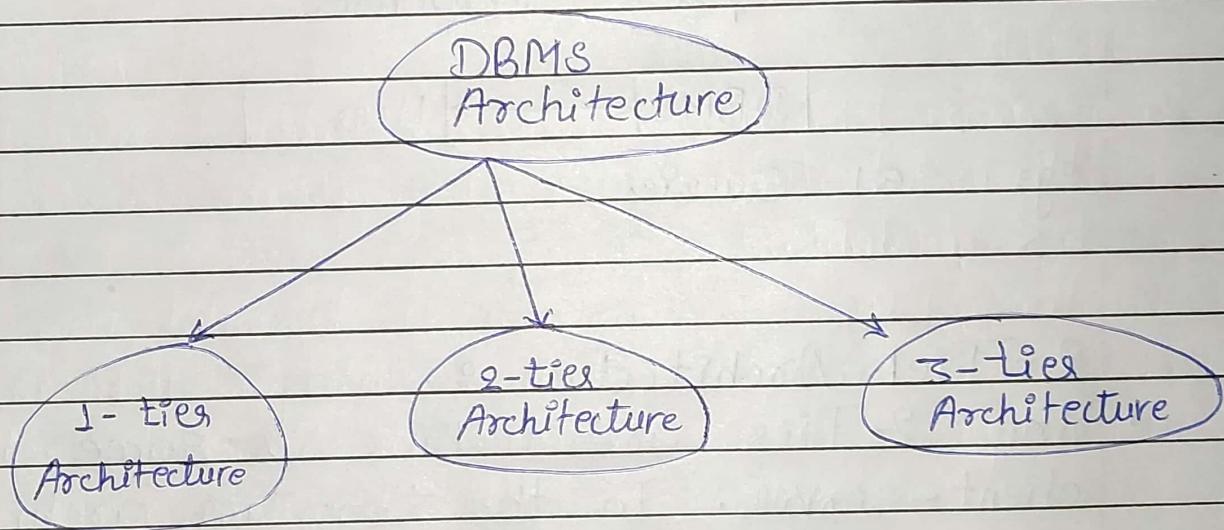
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Q.

servers and other components that are connected with networks.

- The client/server architecture consists of many PCs and a workstation which are connected via the network.
- DBMS architecture depends upon how users are connected to the database to get their request done.

Types of DBMS Architecture



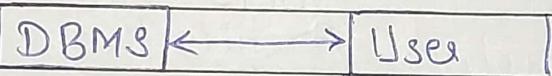
Database architecture can be seen as a single tier or multi-tier. But logically, database architecture is of two types like : 2-tiers architecture and 3-tiers architecture.

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1-Tier Architecture :

- In this architecture, the database is directly available to the user. It means the user can directly sit on the DBMS and use it.
- Any changes done here will directly be done on the database itself. It doesn't provide a handy tool for end users.
- The 1-Tier architecture is used for development of the local application, where programmers can directly communicate with the database for the quick response.



eg: SQL Queries

2-Tier Architecture :

- The 2-Tier architecture is same as basic client-server. In the two-tier architecture, applications on the client end can directly communicate with the database at the server side. For this interaction, API's like: ODBC, JDBC are used.
- The user interfaces and application programs are run on the client-side.
- The server side is responsible to provide the functionalities like: query processing and transaction management.
- To communicate with the DBMS, client-side application establishes a connection with the server side.

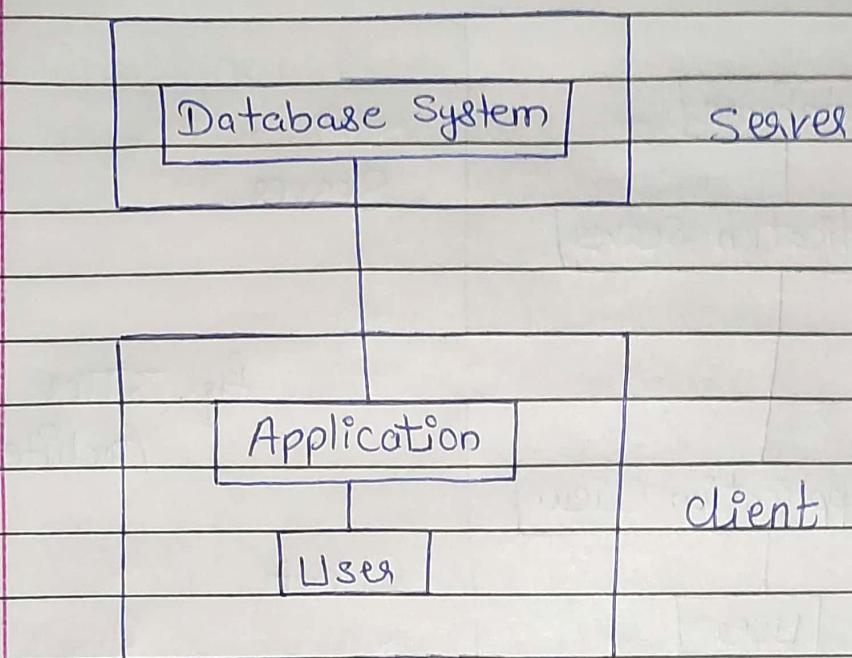
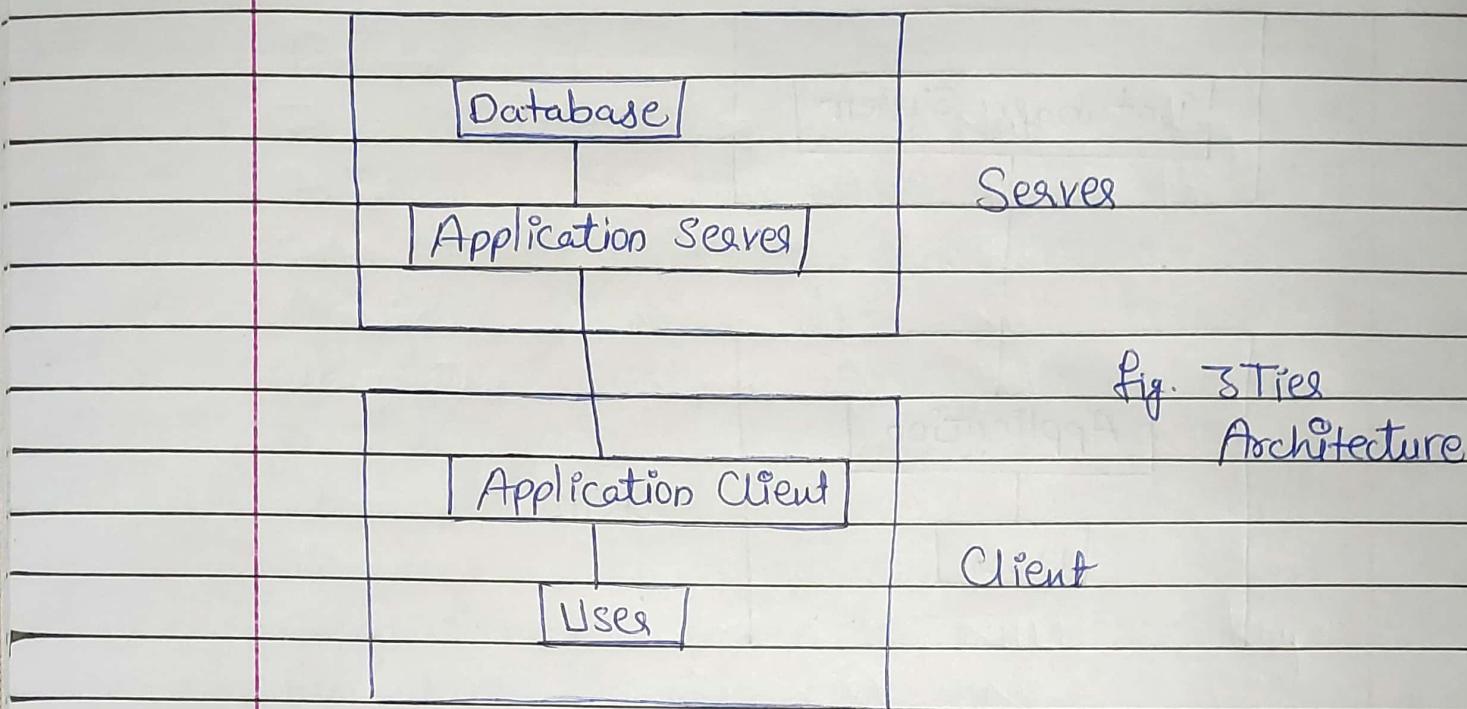


Fig 2-Tier Architecture

3-Tier Architecture :

- The 3-tier architecture contains another layer between the client and server. In this architecture, client can't directly communicate with the server.
- The application on the client-end interacts with an application server which further communicates with the database system.
- End user has no idea about the existence of the database beyond the application server. The database also has no idea about any other user beyond the application.
- The 3-tier architecture is used in case of large web application.

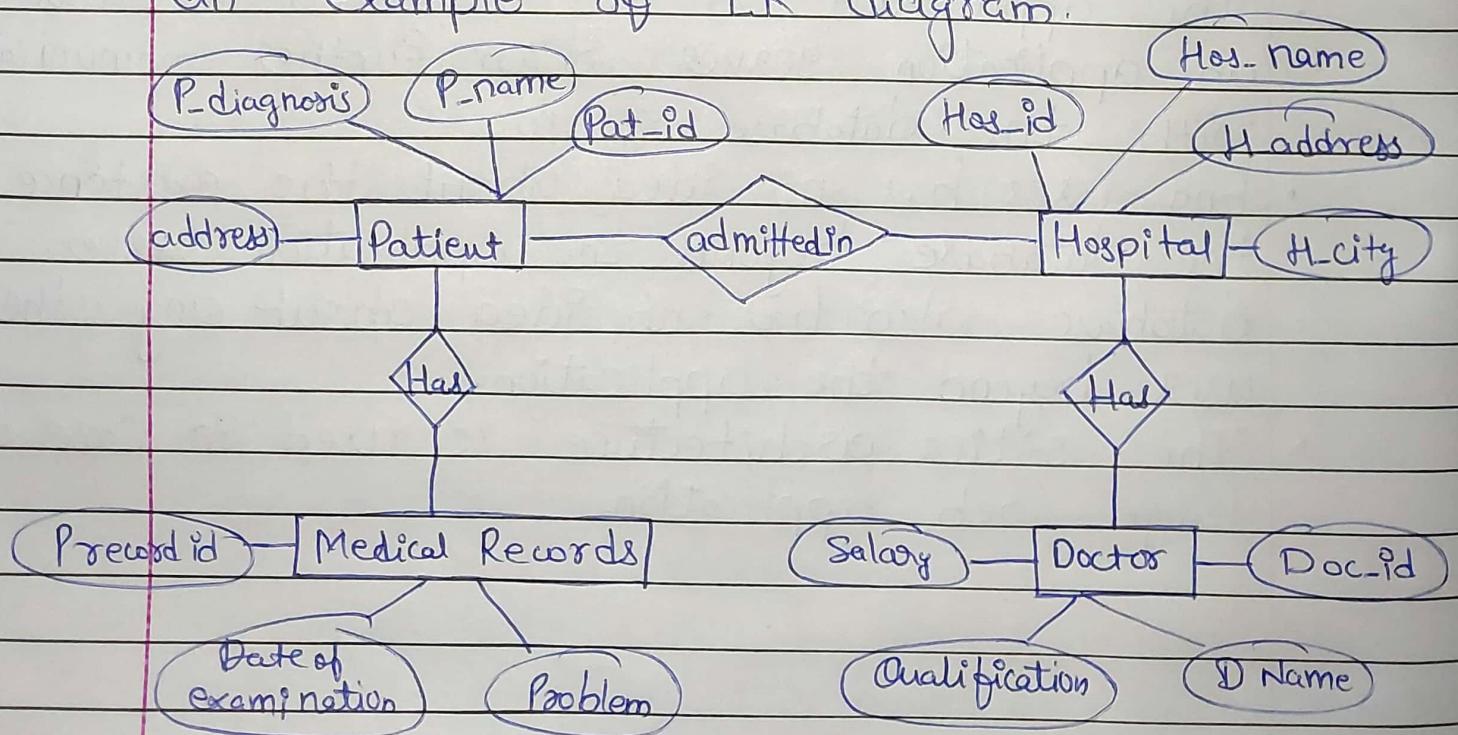
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2. Draw ER model and Relational model of Hospital management system.

ER model -

The ER diagram for a hospital management system may include entity such as patient, hospital, doctor, ~~and~~ medical records. Here is an example of ER diagram.



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Relational Model -

create table patient (P_address varchar(20), P_diagnosis
varchar(10), P_name varchar(15) NOT NULL
pat_id int primary key)

create table hospital (Hos_id int primary key, Hos_name
varchar(10) NOT NULL, H_address varchar(12)
H_city varchar(6))

create table doctor (Doc_id varchar(15) primary key,
slary int, D_name varchar(10) NOT NULL,
Qualification varchar(10))

create table medical records (Precord_id varchar(15)
primary key, DOE int, problem varchar(20)
NOT NULL)

Patient -

Field	Type	NULL	Key
P_address	varchar(20)	yes	
P_diagnosis	varchar(10)	yes	
P_name	varchar(15)	No	
Pat_id	int	No	Pr

Hospital -

Field	Type	NULL	Key
Hos_id	int	No	Pr
Hos_name	varchar(10)	No	
H_address	varchar(12)	yes	
H_city	varchar(6)	yes	

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Doctor

Field	Type	Null	key
Docid	varchar(15)	No	Pri
Salary	int	yes	
D_name	varchar(10)	No	
Qualification	varchar(20)	yes	

RecordsRecords

Field	Type	NULL	key
Record_id	varchar(15)	NO	Pri
DOE	int	yes	
Problem	varchar(20)	No	