Unit - 1 Database System Architecture.

1 Explain the applications of DBMs along with the database users.

This are the Basic application of Database Management System.

1 Railway Reservation System:

In Railway Reservation System, database Managment System is use to store the record or information of ticket.

2 Library Management System:

In Library Management System, database Management System is use to store books information like issue date, books in a register date or accessibillity of the book and its writer.

3 Banking:

Database Management System is utilized to store the exchange data of the client in the information base.

4   Social Media Sites :

It is use to maintain users account
on different application like Facebook,
Twitter or Pinterest.

Database Management Framework
is collect all the users information.
~~and secur~~

5   Broadcast Communications :

Without DBMS any media transmission
organization can not think.

The Database Framework organization
to store the call subtleties.

6   Online Shopping :

The Database Framework is collect
the all the product information,
Receipt charges and installments
are finished by DBMS assistance.

7   Airline Reservation System :

database Administration Framework
to store the records of flight
takeoff, appearance and defer
status.

8 Universities :

Database Management System is use
to maintain the student information,
course registrations and all the
colleges information in Universities.

9 Human Resources :

Organizations are database for storing
information about their employess,
salaries and other information.

10 Manufacturing :

In Manufacturing, the database manage-
ment system is maintain the
production, inventory or supply
chain information.

2 Explain Types of DBMS Languages.

There are four types of DBMS
Languages.

1) DDL   2) DCL   3) DML   4) TCL

1 DDL : The full form of the DDL is
Data Definition Language.

DDL is used to define database structure or Pattern.

DDL is used to store the information of metadata like the number of tables or columns in each table etc.

DDL is perform the different - different Task like.

1) Create: Use to create Objects

2) Alter: Use to alter the structure of database.

3) Drop: Use to delete the Objects.

2 DCL : The Full form of the DCL is Data Control Language.

DCL is used to retrieve the stored or saved data.

DCL is perform the different - different Task like,

- Grant: Used to give User access

- Revoke: Used to take back permission from the Users.

3 DML : The full form of the DML is Data Manipulation Language.

DML is used to accessing and manipulating data in a database.

DML is perform the different-different Task like,

- Select - Used to ~~dat~~ Retrieve the data

- Insert - Used to insert data into table.

- Delete - Used to delete data in the table,

- Update - Used to update existing data in the table.

4 TCL : The full form of the TcL is Transaction Control Language.

TCL is used to run the changes made by the DML statement.

TCL is perform the different-different Task like,

- Commit : Used to save the transaction.

- Rollback : Used to restore the database.

3 Explain DBMS Architecture:

There are Three Tier of the DBMS Architecture.

   1) 1 - tier Architecture
   2) 2 - tier Architecture
   3) 3 - tier Architecture

(1) 1 - tier Architecture:

In this Architecture, the database is directly available to the user.

In 1 - tier Architecture, any change done here will directly be done on the database itself.

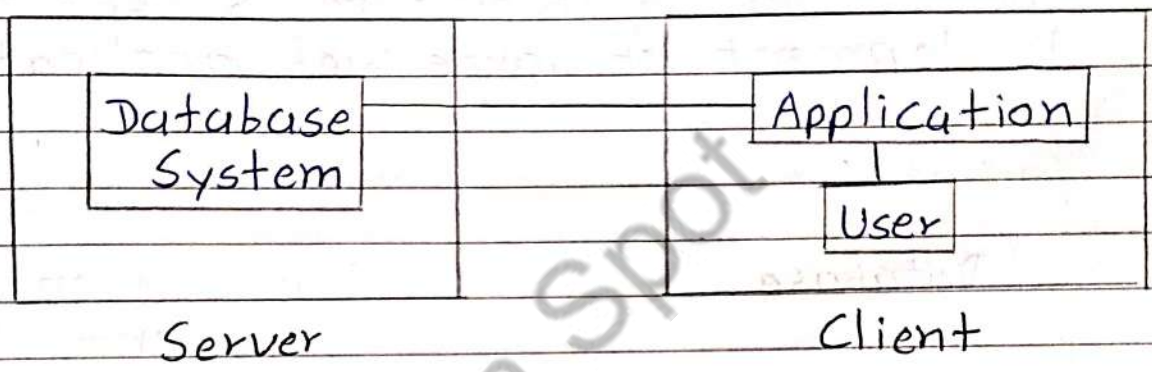The 1 - tier Architecture is used for development of the local application.

(2) 2 - tier Architecture:

The 2 - tier Architecture is same as basic client - server.

In the 2 - tier Architecture, application on the client and database communicate with the server side.

The user interfaces and application program are run on the client-side.

The server side is responsible for query processing and transaction management.

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┌─────────────────────┬──────────┬─────────────────────────┐
│  ┌───────────┐      │          │      ┌─────────────┐    │
│  │ Database  │──────┼──────────┼──────│ Application │    │
│  │ System    │      │          │      └─────────────┘    │
│  └───────────┘      │          │            │            │
│                     │          │        ┌──────┐         │
│                     │          │        │ User │         │
│                     │          │        └──────┘         │
└─────────────────────┴──────────┴─────────────────────────┘
```

Server   Client

2-tier Architecture

(3) 3-tier Architecture:

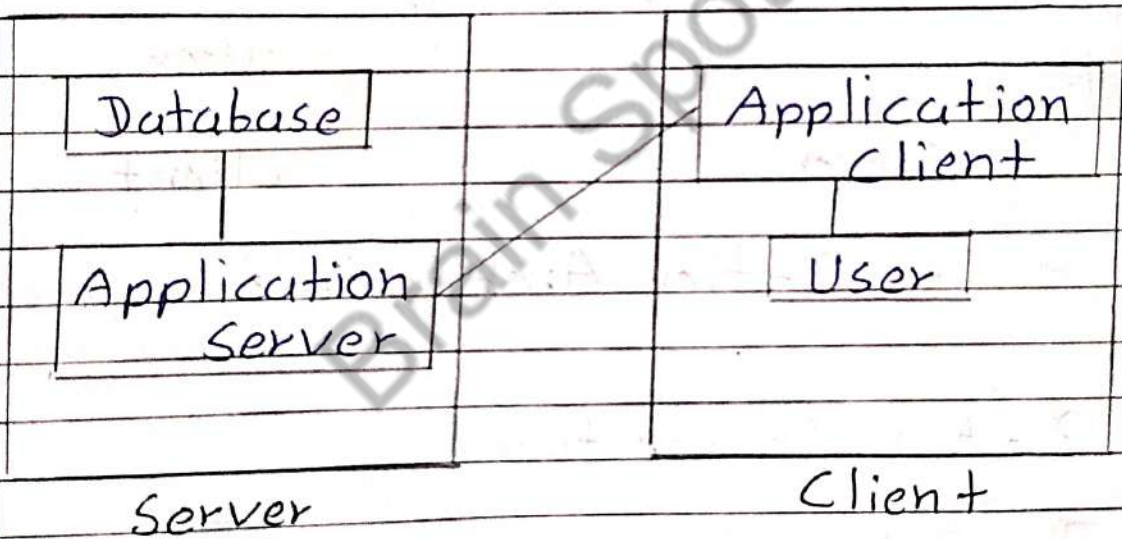The 3-tier Architecture contains another layer between the client and server.

In this Architecture, client can not directly communicate with the server.

Application Client is interacts with an application server.

Application Client has no idea about the database beyond the application server.

The Database also has no idea about any user beyond the application.

The 3-tier Architecture is used to development of large web application.

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┌──────────────────────┬──────────────────────┐
│  ┌──────────┐        │     ┌─────────────┐   │
│  │ Database │        │     │ Application │   │
│  └────┬─────┘        │     │   Client    │   │
│  ┌────┴──────────┐   │     ┌────────────┐    │
│  │ Application   │   │     │   User     │    │
│  │   Server      │   │     └────────────┘    │
│  └───────────────┘   │                       │
└──────────────────────┴───────────────────────┘
       Server                    Client
```

3 - tier Architecture

4 Explain 3 - Scheme Architecture.

3-scheme Architecture is also known as Data Abstraction or 3 level Architecture.

3-scheme Architecture is used to describe the structure of a specific database system.
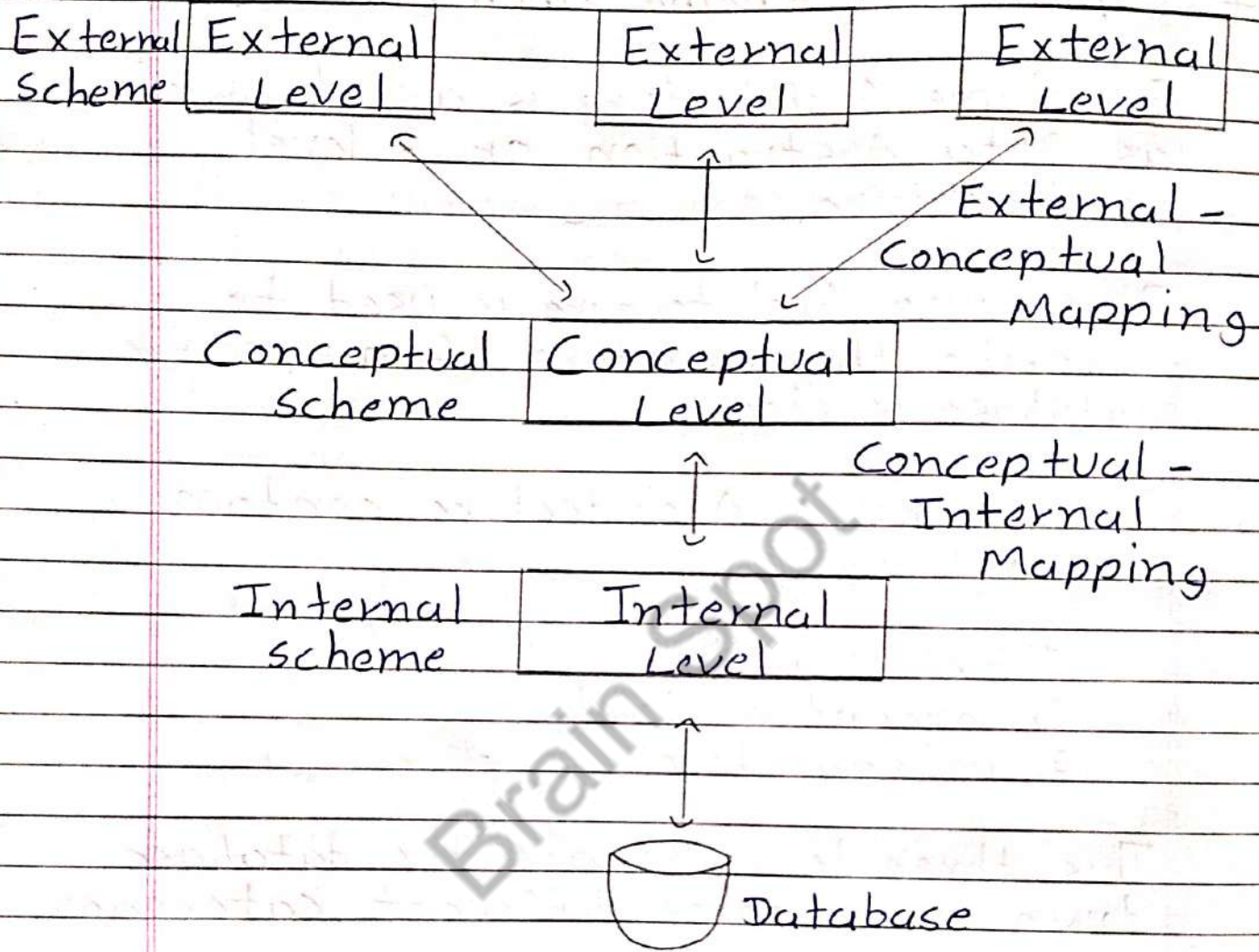
Three scheme Architecture contain Three levels.

1) External level
2) Conceptual level
3) Internal level

This three level breaks the database down into three different categories.

1 Internal Level:

This level has an internal schema which describes the physical storage structure of database.

Internal schema is also known as a physical schema.

External Scheme	External Level		External Level		External Level

External -
Conceptual
Mapping

Conceptual scheme	Conceptual Level	

Conceptual -
Internal
Mapping

Internal scheme	Internal Level	

Database

Interal level is used to define that how the data will be stored in a block.

2 Conceptual Level:

Conceptual Level is also known as logical level.

The conceptual schema describes what data are stored in the database and describes what relationship exists among those data.

3 External Level:

External Level is also known as view level.

This level is describes the database part that a particular user group.

4 External - Conceptual Le Mapping:

The External and Conceptual mapping lies between the external and conceptual level.

5 Conceptual - Internal Mapping:

The Conceptual and Internal mapping lies between the conceptual and Internal level.

This is a basic 3 - Schema Architecture of DBMS.

5 Explain ACID properties of DBMS.

This are the ACID Properties of DBMS.

1) Atomicity
2) Consistency
3) Isolation
4) Durability.

1 Atomicity :

Atomicity means data remains atomic.

If any operation is perfored on data it should be performed completely or not be executed at all.

It means the operation should not break in between.

2 Consistency :

Consistency means the value of data should preserved always.

In DBMS, if any operation are performed then change of data should remain preserved always.

3   Isolation:

Isolation means data separation.

IF two operation are being performed on two different database, they may not effect the value of one another.

In this property of a database where no data should effect to another database.

4   Durability:

Durability means data stored in database permanently.

IF any operation is ~~perfo~~ performed in database it is stored permanent in a database.

IF the system fails or crash, the database still survives.