

# MIS 301 RELATIONAL DATABASE MANAGEMENT SYSTEM

DATABASE MANAGEMENT SYSTEM  
DBMS AND THREE TIER ARCHITECTURE  
LECTURE 1

# DATA AND INFORMATION

- Data is a number, picture, statement, etc. that is raw and unprocessed.
- Data may be structured data (numbers), and unstructured data (images, audio, writing, conversations).
- Data in its raw form isn't particularly useful.
- Data are recorded values.
- Information informs about needed particulars.
- Information is processed data. It has meaning and context.
- When data are grouped together, collected, organized, analysed and managed, information is obtained.
- From information, we get business intelligence.

# WHAT IS DBMS?

- A database is a repository of organized, related, integrated and shared data.
- It is specially organized for rapid search and retrieval by a computer.
- Database management system is a software which is used to manage the database.
- DBMS provides an interface to perform various operations like database creation, data storage, data updation, table creation and modification, etc.
- It provides protection and security to the database.
- It ensures data consistency.
- DBMS stands for ***database management system***

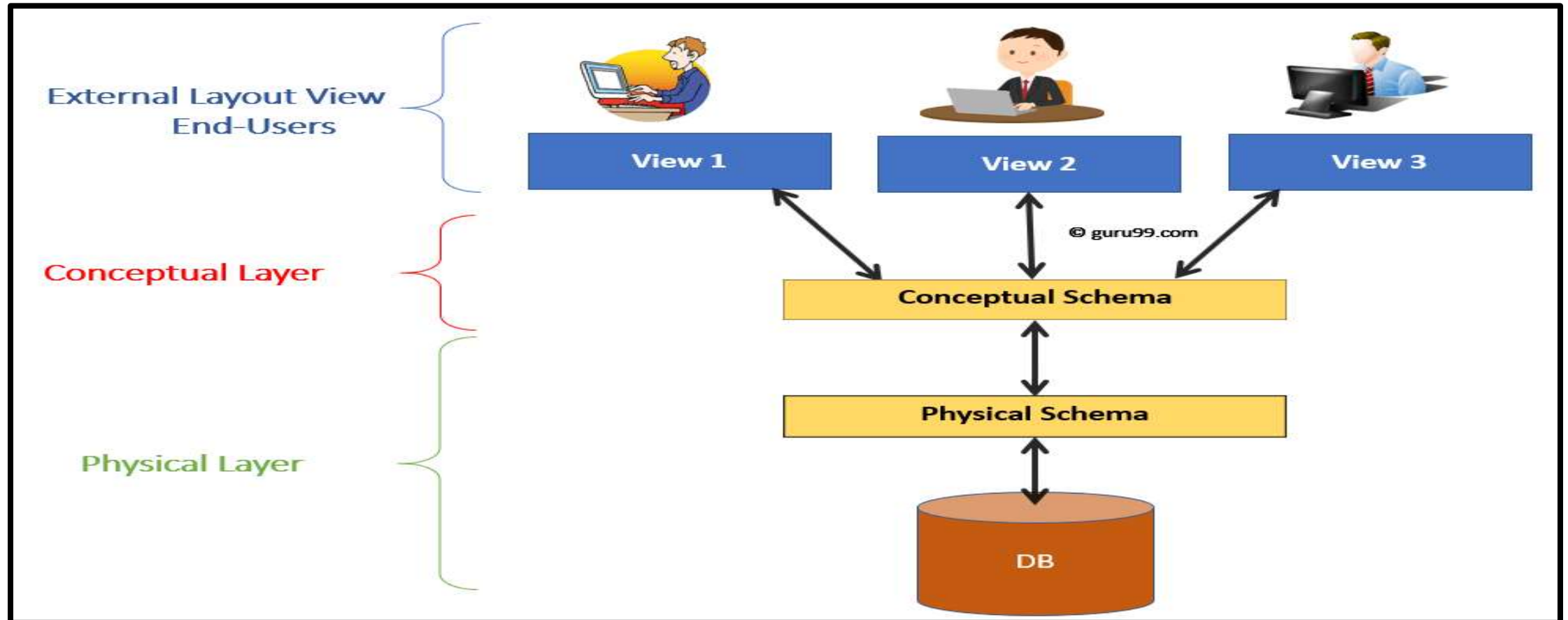
# BENEFITS OF DBMS....

- Controls database redundancy avoiding multiplicity of same data.
- Eliminates inconsistency as duplication is minimised.
- In DBMS, the authorized users of an organization can share the data among multiple users.
- Since database systems keep the backup of data, it is easier to do a full recovery of data in case of a failure.
- Database systems are more flexible than file processing systems.
- Data definition is placed along with the data
- Privacy is ensured through different types of permission for different types of users on different type of resources
- Database systems manages data in such a way so that the data is easily accessible with fast response times.

# SHORTFALLS OF DBMS

- DBMS implementation cost is high compared to the traditional file systems
- Increased cost of staff due to higher level of expertise needed
- DBMS is an extremely complex software having to handle multifarious jobs
- The whole system shuts down due to the failure of a single component as system is centralized
- Frequent upgrade/replacement cycles required

# THREE TIER ARCHITECTURE OF A DBMS



# THREE TIER ARCHITECTURE OF A DBMS

## External level

- It is also known as **view level**.
- This is the **highest level** architecture and closest to the user.
- The user doesn't need to know the database schema details such as data structure, table definition etc.
- External level is related to the data which is viewed by individual end users.

# THREE TIER ARCHITECTURE OF A DBMS

## Conceptual level

- It is also known as **logical level**.
- The conceptual level is a higher level than the physical level.
- This level is maintained by DBA(database administrator).
- The whole design of the database such as relationship among data ,schema of data etc. are described in this level.
- It is the **middle level** between external or internal levels.



# THREE TIER ARCHITECTURE OF A DBMS

## Internal level

- It is also known as **physical level**.
- This is the **lowest level** of the architecture.
- This data is stored in the external hard drives in the form of bits.
- This level describes how the data is actually stored in the storage device.
- This physical level also discusses different encryption techniques.
- This level is also responsible for allocating space for the data.

- TILL WE MEET AGAIN IN THE NEXT CLASS.....

