



SNS COLLEGE OF ENGINEERING

Kurumbapalayam (Po), Coimbatore – 641 107

An Autonomous Institution

Accredited by NBA – AICTE and Accredited by NAAC – UGC with ‘A’ Grade
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING-IOT Including CS&BCT

COURSE NAME : 19SB502 DATABASE MANAGEMENT SYSTEMS

III YEAR / V SEMESTER

Unit I- INTRODUCTION TO DATA BASE SYSTEM

Topic : Introduction to Database System

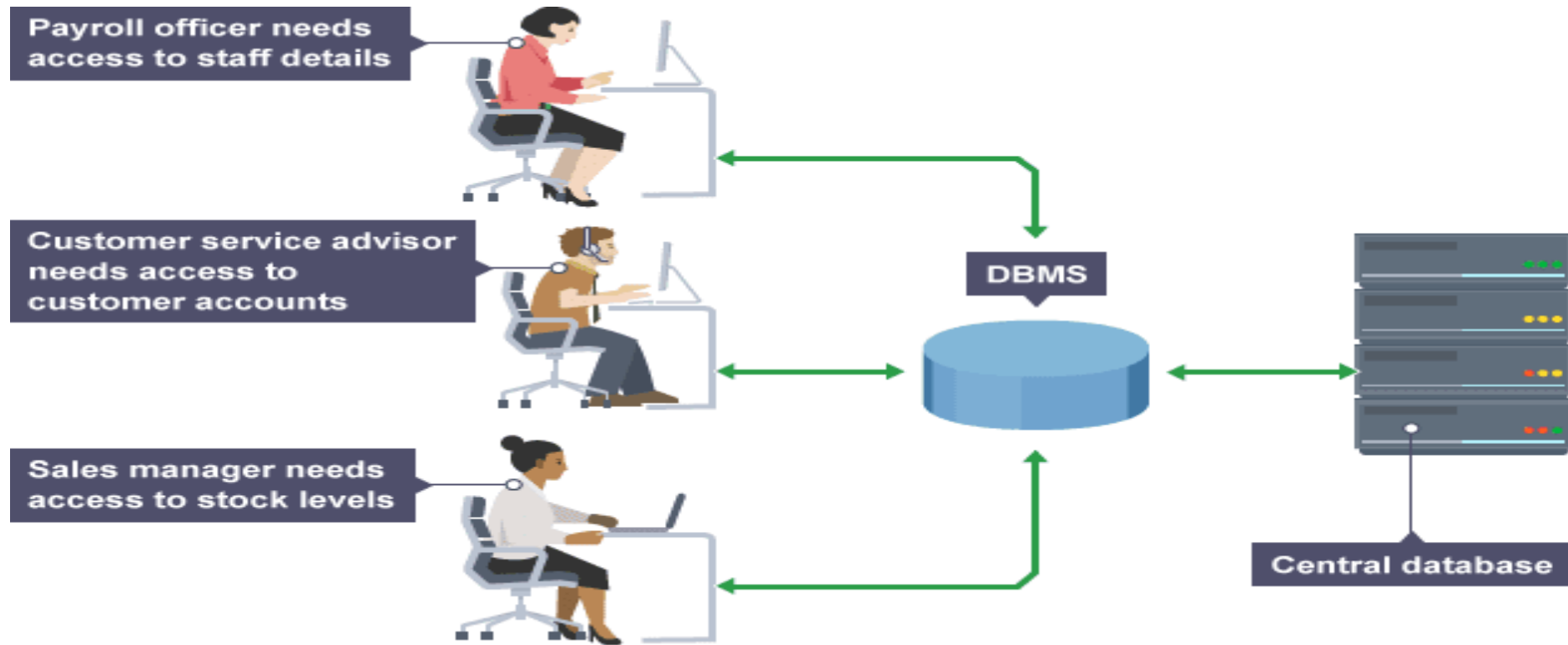


A database system is a **structured collection of data** that is organized, **stored, and managed** in a way that allows for **efficient retrieval, modification, and analysis of information.**

It is a crucial component of modern information technology, serving as a foundation for various applications and systems used in businesses, organizations, and everyday life.

The primary **purpose of a database system** is to provide a **reliable and convenient** way to **store and manage large volumes of data** while ensuring data integrity, security, and availability.

Rather than storing data in separate files or spreadsheets, a database system consolidates all the data into a centralized repository, making it easier to manage and access.





Key Components of a Database System



- **Data:** The information stored in the database, such as text, numbers, images, and more. It represents the real-world entities and relationships that the database system is designed to model.
- **Database Management System (DBMS):** The software responsible for creating, maintaining, and managing the database.
- It acts as an intermediary between the users and the database, providing an interface for users to interact with the data without directly dealing with its underlying complexities.
- **Schema:** The blueprint or structure of the database that defines the organization of data, including tables, fields, relationships, and constraints.



Tables: The basic building blocks of a database, where data is organized in rows and columns. Each row represents a record, while each column corresponds to a specific attribute or field of the data.

Queries: Commands or statements used to retrieve, update, or manipulate data within the database. Users can use query languages like SQL (Structured Query Language) to interact with the database and perform various operations.

Indexes: Data structures that optimize the speed of data retrieval by providing quick access paths to specific data within the database.

Constraints: Rules and conditions imposed on the data to maintain its integrity and consistency. Examples include primary keys, foreign keys, and unique constraints.



Advantages of Database Systems

1.Data Centralization: All data is stored in a centralized location, making it easier to manage and maintain data consistency.

2.Data Integrity: Database systems enforce constraints to ensure that data remains accurate and reliable.

3.Data Security: Access controls and encryption can be implemented to protect sensitive data from unauthorized access.

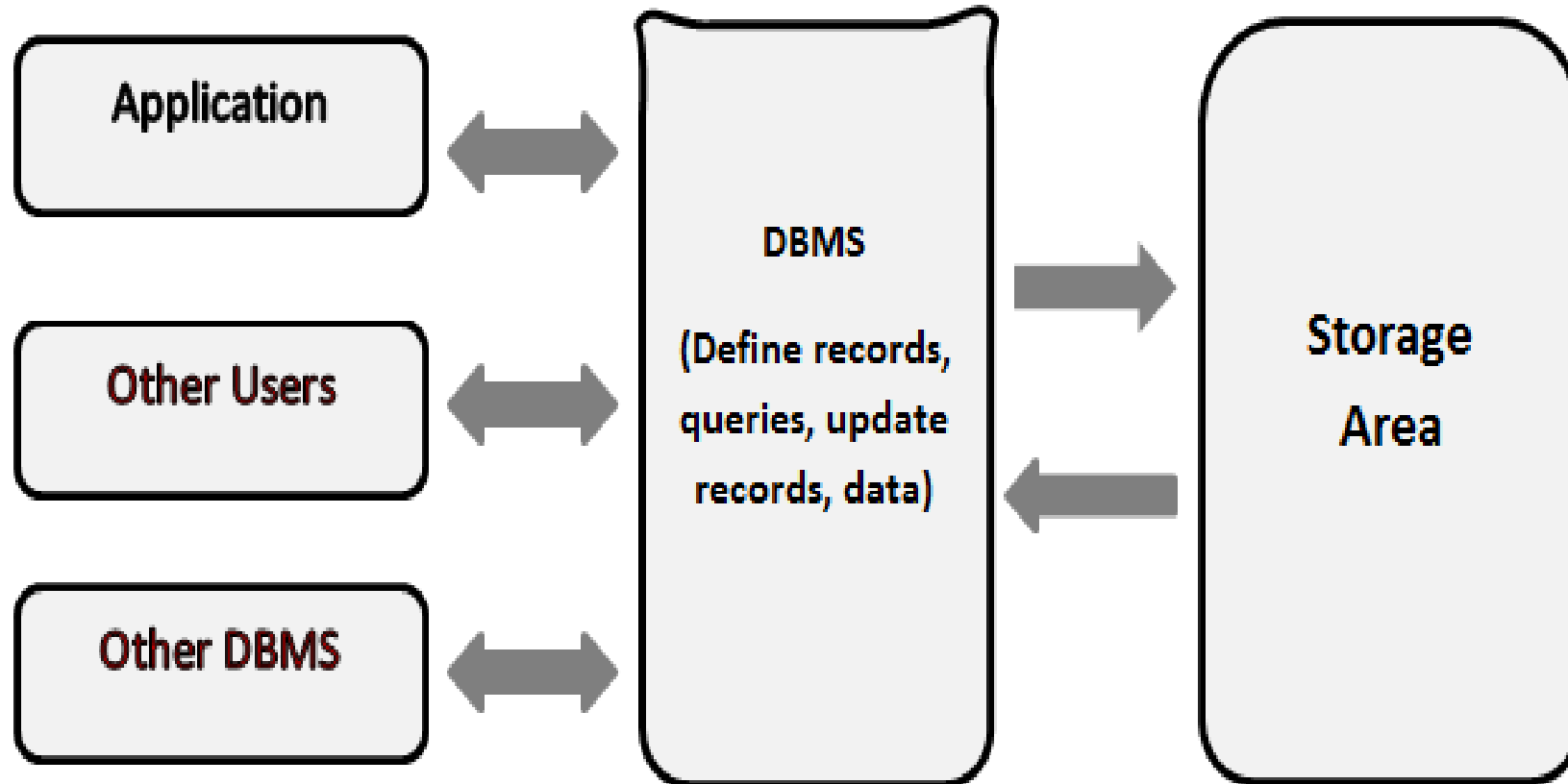


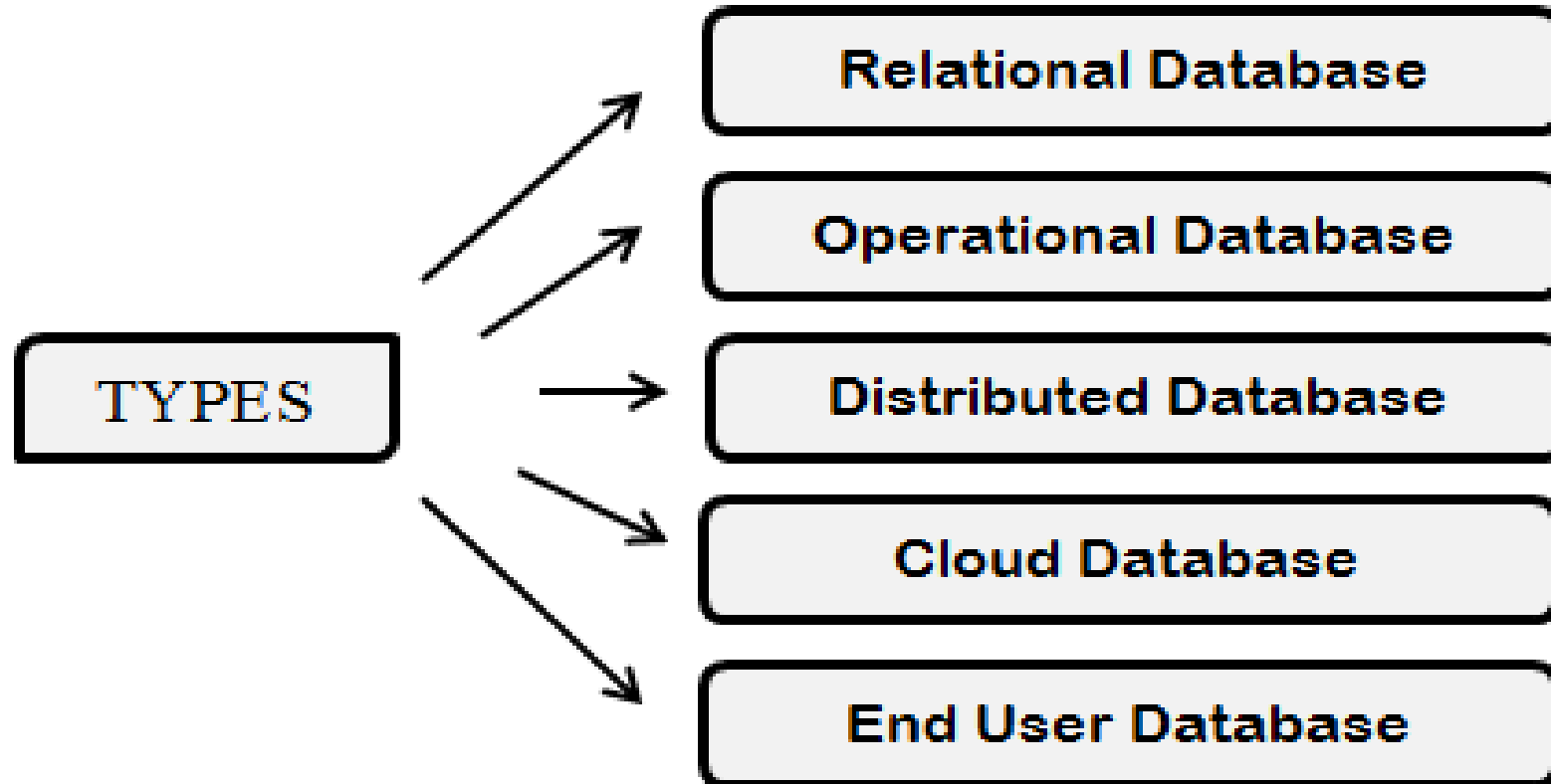
4.Data Scalability: Database systems can handle large volumes of data and support the growth of applications and businesses over time.

5.Data Concurrency: Multiple users can access and modify the data simultaneously without conflicts, ensuring data consistency.

6.Data Recovery: Database systems provide mechanisms for data backup and recovery in case of system failures or errors.

Database systems play a critical role in various domains, including business operations, scientific research, healthcare, finance, e-commerce, and many others.







Any Query????

Thank you.....