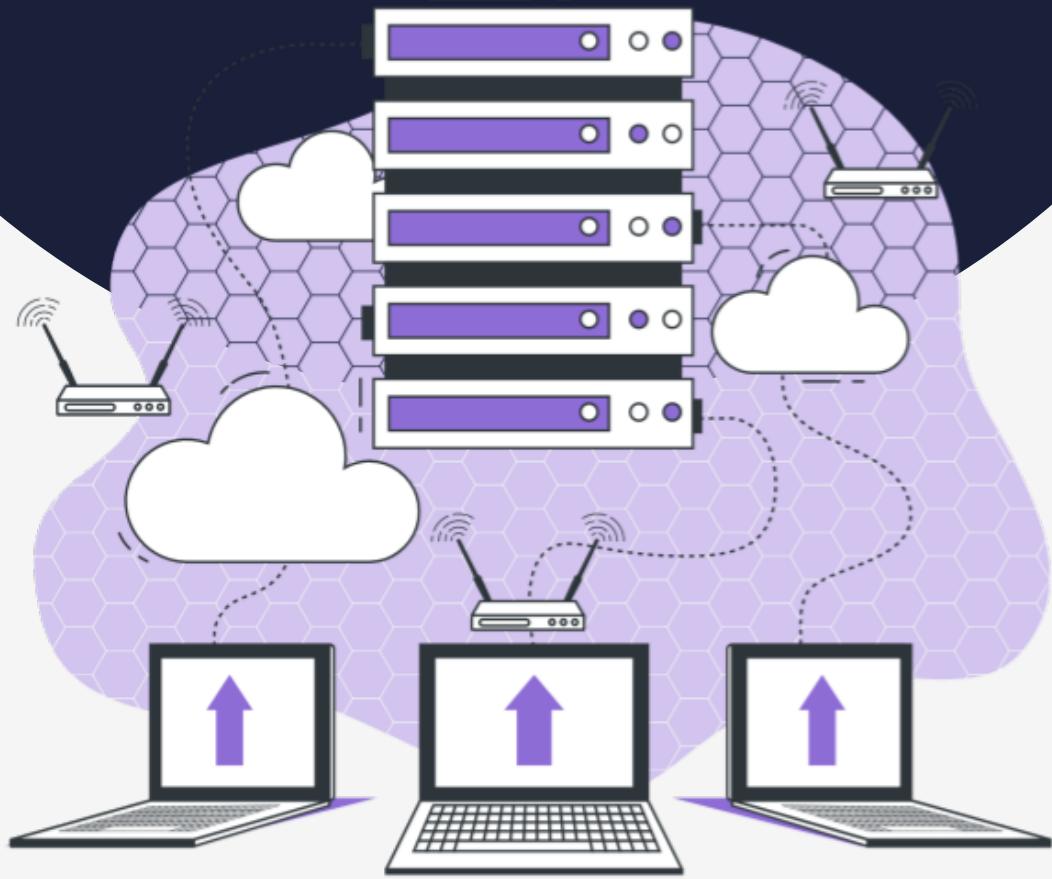


# Lesson:

# RDBMS intro



# Lecture Checklist

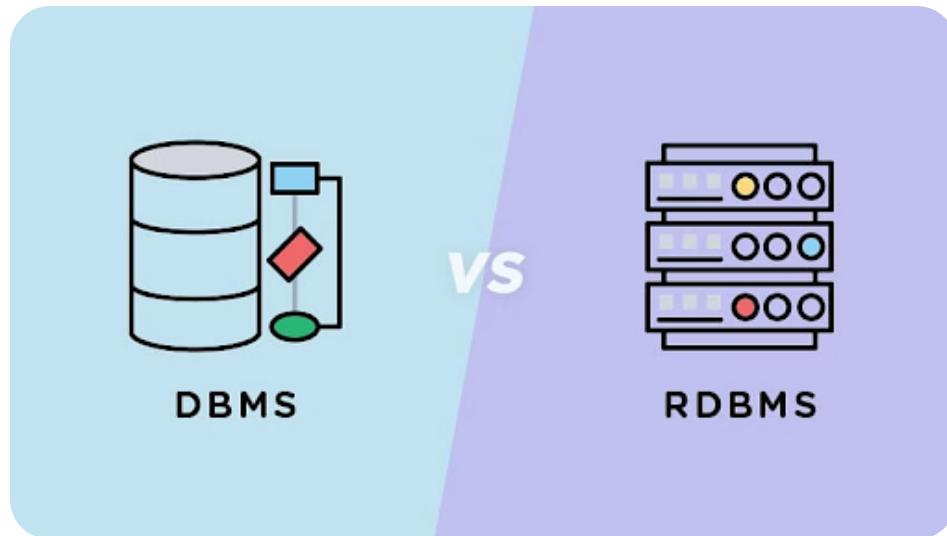
1. Need of RDBMS.
2. Introduction to RDBMS.
3. Important Terminologies.
4. Why Industries use RDBMS.

RDBMS stands for Relational Database Management System, in the previous module we discussed DBMS. We understood what was the need for DBMS, what advantages it provides us, and the features of DBMS.

In this module let's explore RDBMS a term that is closely related to DBMS. Let's look into the need for RDBMS, its definitions, and some important terminologies related to it and at the end let's look into why RDBMS is the favorite choice of industries.



## Need of RDBMS.



To understand the need for RDBMS let's first have a look at the internet revolution that happened in the 2000s. The 2000s witnessed a revolution in the World Wide Web (WWW), as the Internet became more widespread and accessible globally.



During this time people were more interested in solving real-world problems programmatically over the Internet. Some of the very well-known examples are:

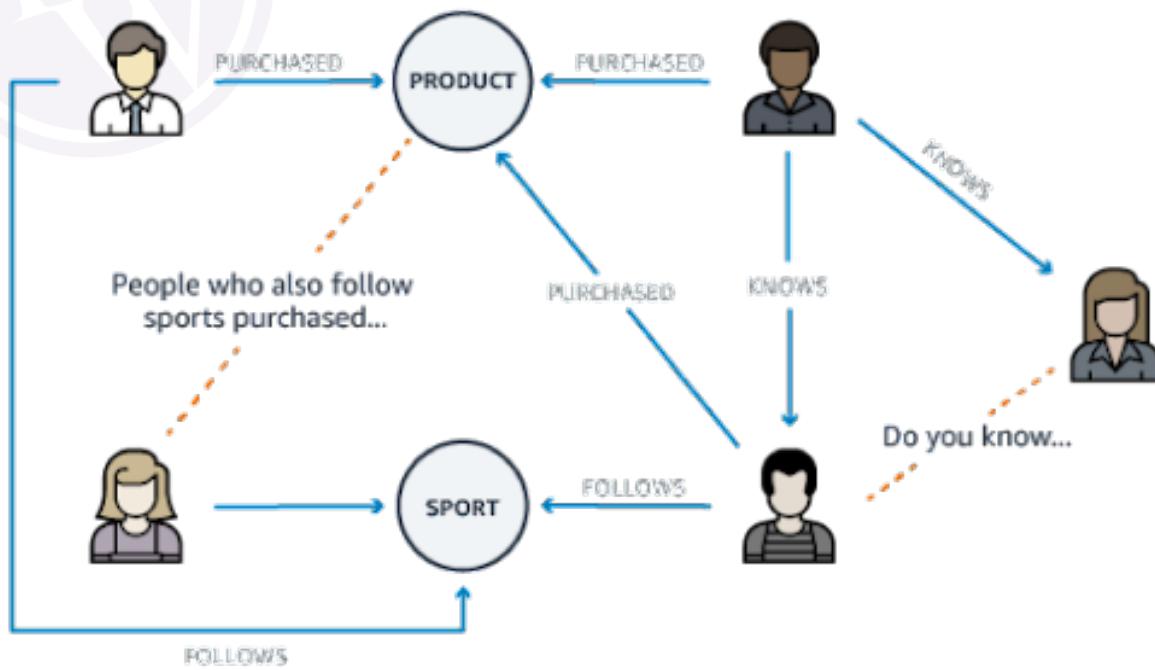
1. Amazon revolutionized how people shop, offering a wide range of products and services online.
2. Facebook changed the way people make friends. Through Facebook one can connect and share information online, creating a global platform for friends.
3. Not only shopping or making new friends but even getting into a relationship was solved programmatically through Tinder.
4. Shaadi.com transformed the traditional matchmaking process by providing an online platform for people seeking matrimonial matches.

These examples are just a few among many other innovations during the internet revolution in the 2000s. Each and every domain's problems were trying to solve programmatically.

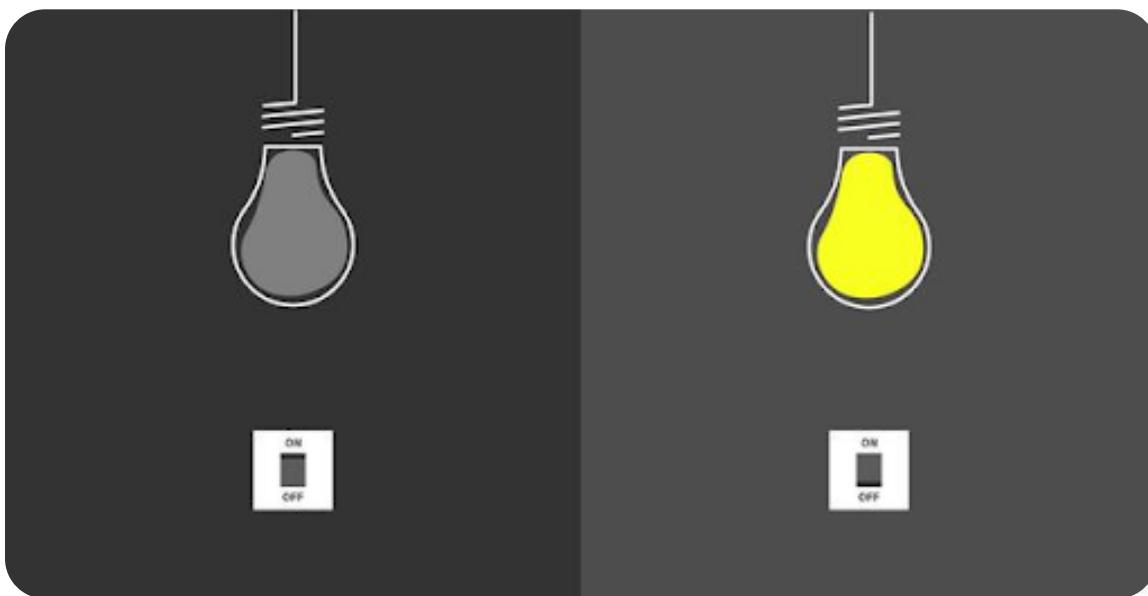
In order to solve any problem irrespective of its domain the basic requirements were a reliable programming language and data storage. At that time many programming languages had already entered the market and developers were trying to take the best advantage of it. The data storage problem was still there as developers were not able to figure out which one was the best fit for their product.



Along with these, there was a unique problem that was yet needed to be solved. The challenge was to represent living and non-living entities programmatically. There were many approaches to like the concepts of OOPs which were supported by major programming languages like JAVA, but this was not just enough to be seen within a programming language and it was incomplete until we store these entities in a database. There was a need for a similar kind of representation in the database layer too.



Another important feature of real-world entities is relationships. Each and every entity will be related to other. Be it any case like simply turning on the bulb, to do this we need to switch on the button which has a direct relation with the bulb. This was another challenge that was yet to be solved.



If we look closely the problem of storing entities was already solved with DBMS. DBMS had the ability to store the entities but it missed the flavor of storing or representing relationships between entities. In order to help store entities along with relationships RDBMS was introduced.

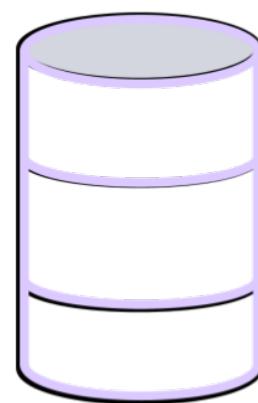
## Introduction to RDBMS.

Looking at the need for RDBMS in the above section we can now tell RDBMS was simply a DBMS that supported RDBMS.

To look at a formal definition of RDBMS. RDBMS stands for Relational Database Management System. It refers to a type of software system that is used to manage relational databases.

The above definition is still not clear to us as we still have no proper knowledge of what is a relational database. In order to understand the definition of RDBMS it is very important to understand the terminologies associated with it.

**R**E  
**E**LATIONAL  
**D**A  
**T**ABASE  
**M**ANAGEMENT  
**S**YSTEM



# Important Terminologies.

Understanding some of the important terminologies associated with RDBMS is crucial for understanding and effectively using the RDBMS. Here are some of the important terminologies one must understand to learn or start working with RDBMS.

1. Data.
2. Database.
3. DBMS.
4. Relational Data.
5. Relational Database.
6. RDBMS.

## Data

Data is simply the information we wish to store or retrieve. Data is stored and processed in different data formats. An example of data is simply your name. Your name is also data that provides some information about you.

## Database.

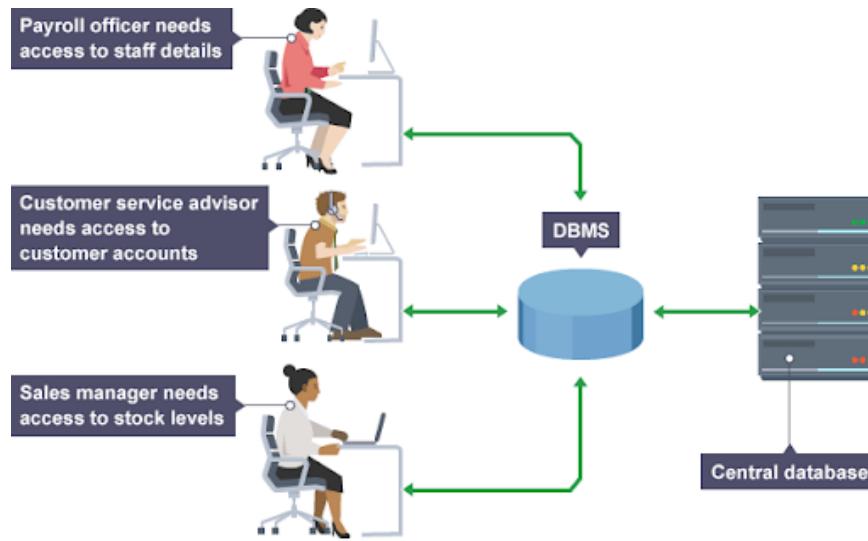
A database is a physical location where data is stored. We can assume the database is a container that is storing all the data.



## DBMS.

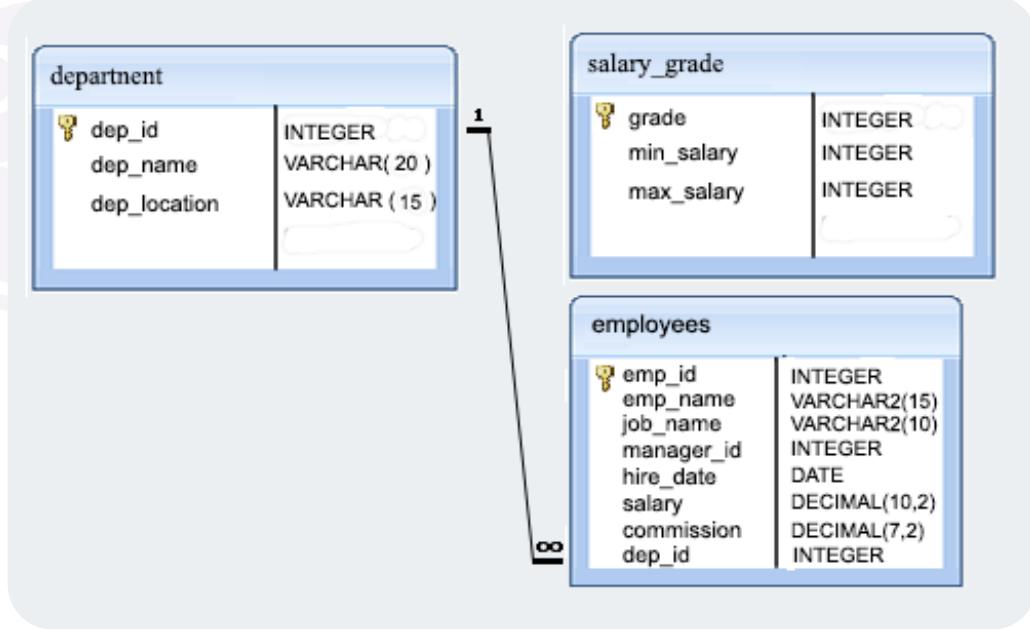
DBMS stands for Database management system. It comprises two parts: DB which is the database and MS which is the Management system.

It is a complete software that enables users to interact with databases. It provides tools and features for creating, storing, retrieving, and managing data in a structured manner. DBMS acts as an intermediary between users and the database, facilitating seamless data operations.



## Relational Data.

Relational data is simply data with relationships. Let's understand this with an example. Imagine a company database it has two important entities that are departments and employees. These within themselves have some relation like each employee must be a part of at least one department and each department must have at least one employee. These entities are interrelated. This type of data that has a relationship between them is called relational data.



## RDBMS.

Now it's time we understand the proper definition of RDBMS. RDBMS or Relational Database Management System is simply Relational Database and a Management system. As DBMS it is a complete software that allows us to store and manipulate some relational data.

## RDBMS Examples



Relational Database Management System

# Why do Industries use RDBMS?

Let's now look at a basic outline of why industries use RDBMS. Let's consider a banking application and understand this better.

### 1. Supports transactions.

In RDBMS, a transaction is simply a set of operations that are done on the data in the database. These transactions are done completely only if all the conditions are met, if any condition is not satisfied the transaction would not be completed.

Imagine you transfer \$10 to your friend, either your friend received all the \$10 dollars or he receives none. In the same way, either \$10 dollars is deducted from your account or there won't be any deduction. It's not like the \$10 dollars is missed somewhere in between, either the money is in your friend's account or in your account.



Supporting transactions is one of the biggest unique selling points (USPs) of a Relational Database Management System (RDBMS). This is also one of the reasons why RDBMS has fewer competitors.

## 2. Relationships.

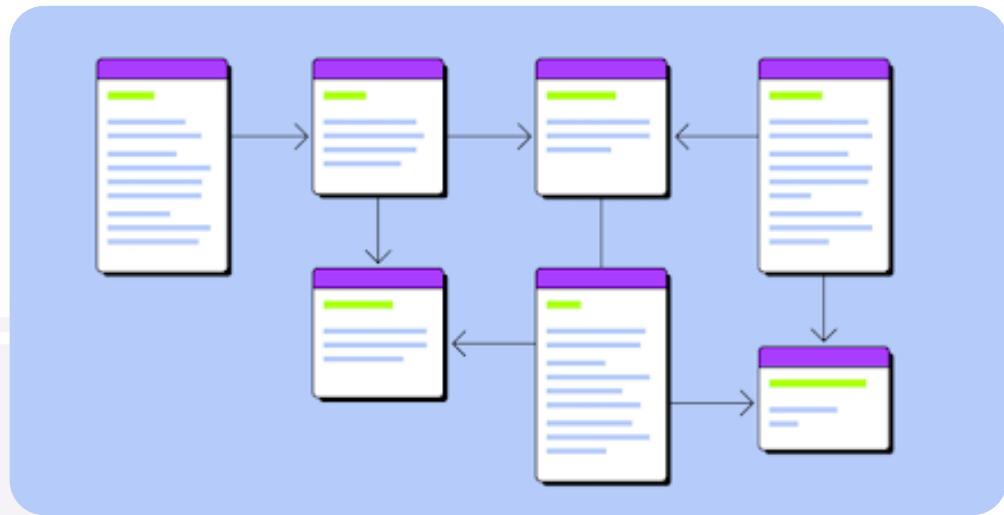
Industrial applications the majority of the time work with data that has relationships. Since there is a need of managing this relational data, industries go for RDBMS.

## 3. Proper Schema.

Schema is the blueprint of the database. In most industrial applications the schema almost remains unchanged over time.

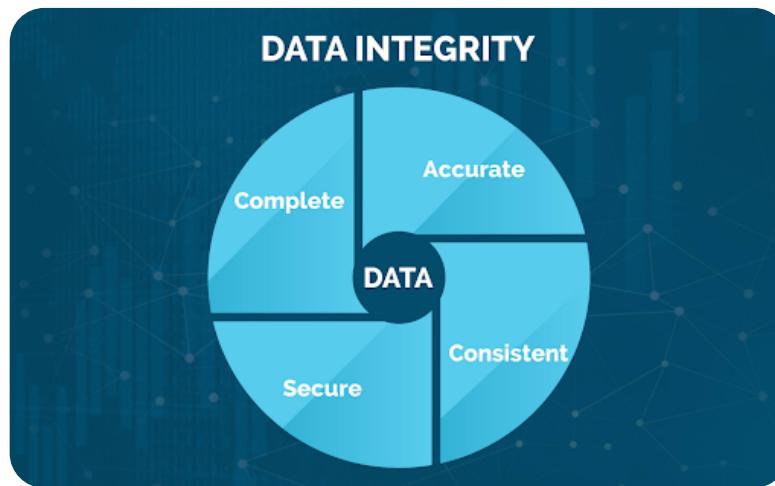
Let's consider a banking application, in the KYC process same information would be collected by all the users and stored in the database.

Doing this the RDBMS Schema remains unchanged the majority of the time which makes data management easier and provides consistency in data storage.



## 4. Ensures Data Integrity during read and write.

One of the important features of RDBMS is data integrity. RDBMS ensures data integrity during both read and write operations. As we know that data integrity refers to the accuracy, consistency, and reliability of data stored in a database.



These are some of the important features of why industries choose RDBMS. In the upcoming lectures, let's discuss more on the features and advantages RDBMS provides to its users.