

**DATA BASE
MANAGEMENT
SYSTEM(DBMS)**

**COMPUTER
AWARENESS**

EPIISODE-12



Computer Awareness

Part 12

- Funsta Team





Computer Awareness



- Part 1 Intro/Generation/ Classification of Computers
- Part 2 Computer Architecture & Memory
- Part 3 Computer Hardware
- Part 4 Computer Software and System Utilities
- Part 5 Number System
- Part 6 Computer Codes & Logic Gates





Computer Awareness



Part 7 Introduction to Operating System

Part 8 Operating System

Part 9 Data Communication

Part 10 Computer Networks & Network Topology

Part 11 OSI Layers & Network

Lets move on to
Next Part



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Database



A **database** is a collection of information that is organized so that it can be easily accessed, managed and updated.



Computer **databases** typically contain aggregations of data records or files, containing information about sales transactions or interactions with specific customers.



Fundamentals of Database



The functions of a DBMS include concurrency, **security**, backup and recovery, integrity and data descriptions.



Database management systems provide a number of key benefits but can be costly and time-consuming to implement.



The fundamentals of Database are as follows

- Data
- Information





Data



Data as a general concept refers to the fact that some existing information or knowledge is represented or coded in some form suitable for better usage or processing.



Raw **data** ("unprocessed data") is a collection of numbers or characters before it has been "cleaned" and corrected by researchers



The main **examples of data** are weights, prices, costs, numbers of items sold, employee names, product names, addresses, tax codes, registration marks etc

College Enrollment 2018-2019				
Student ID	Last Name	Initial	Age	Program
ST348-245	Walton	L.	21	Drafting
ST348-246	Wilson	R.	19	Science
ST348-247	Thompson	G.	18	Business
ST348-248	James	L.	23	Nursing
ST348-249	Peterson	M.	37	Science
ST348-250	Graham	J.	20	Arts
ST348-251	Smith	F.	26	Business
ST348-252	Nash	S.	22	Arts
ST348-253	Russell	W.	19	Nursing
ST348-254	Robitaille	L.	20	Drafting



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Database



Information



Information refers to data that has been organized, interpreted, and contextualized by a human or machine so that it possess relevance and purpose.



Example of information is what's given to someone who asks for background about something.

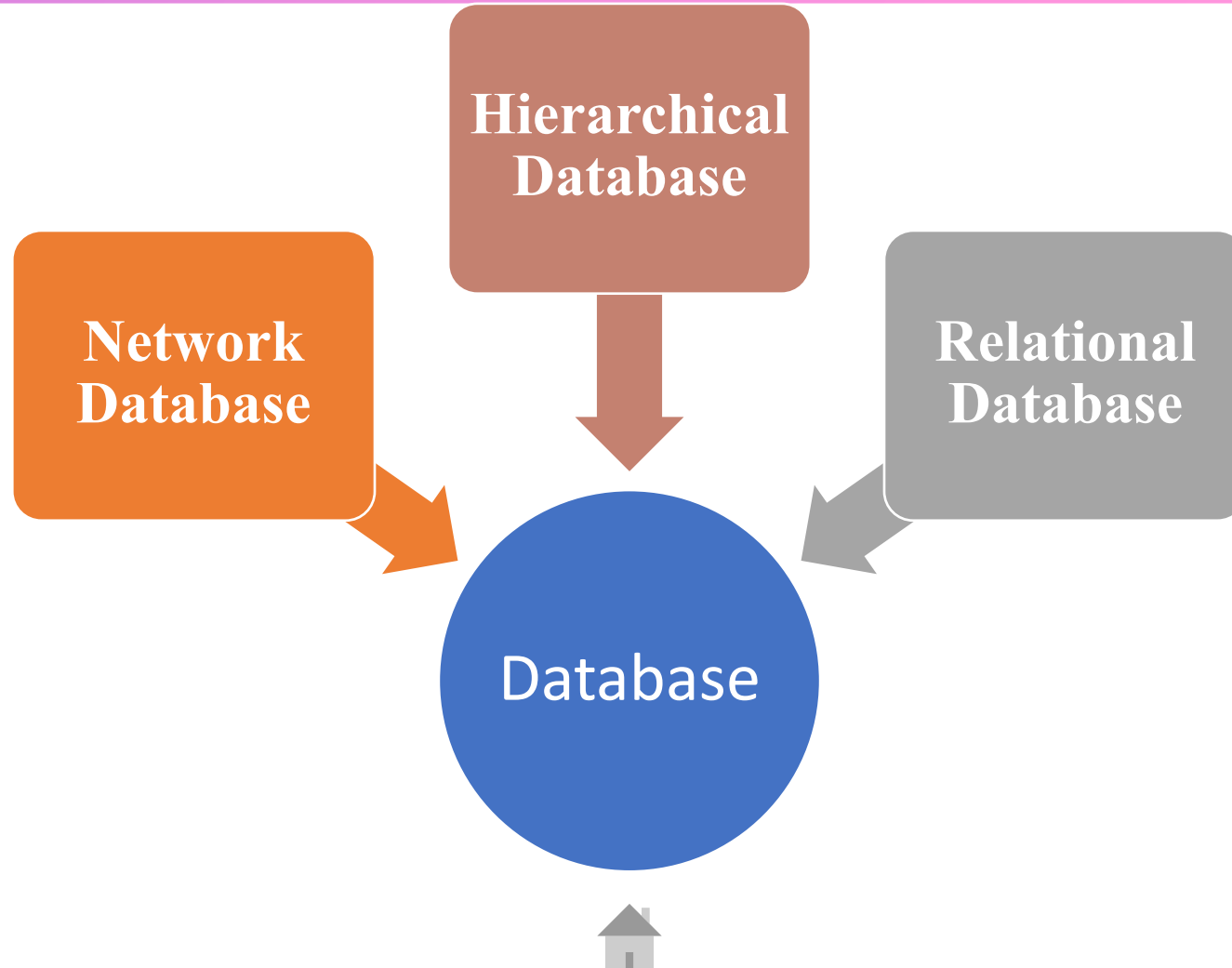
College Enrollment 2018-2019					
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Database



Types of Database



Network Database



A **network database** is a type of **database** model wherein multiple member records or files can be linked to multiple owner files and vice versa.



The model can be viewed as an upside-down tree where each member information is the branch linked to the owner, which is the bottom of the tree.



Some of the popular **network databases** are, Integrated Data Store (IDS) IDMS (Integrated **Database** Management System) Raima **Database** Manager.

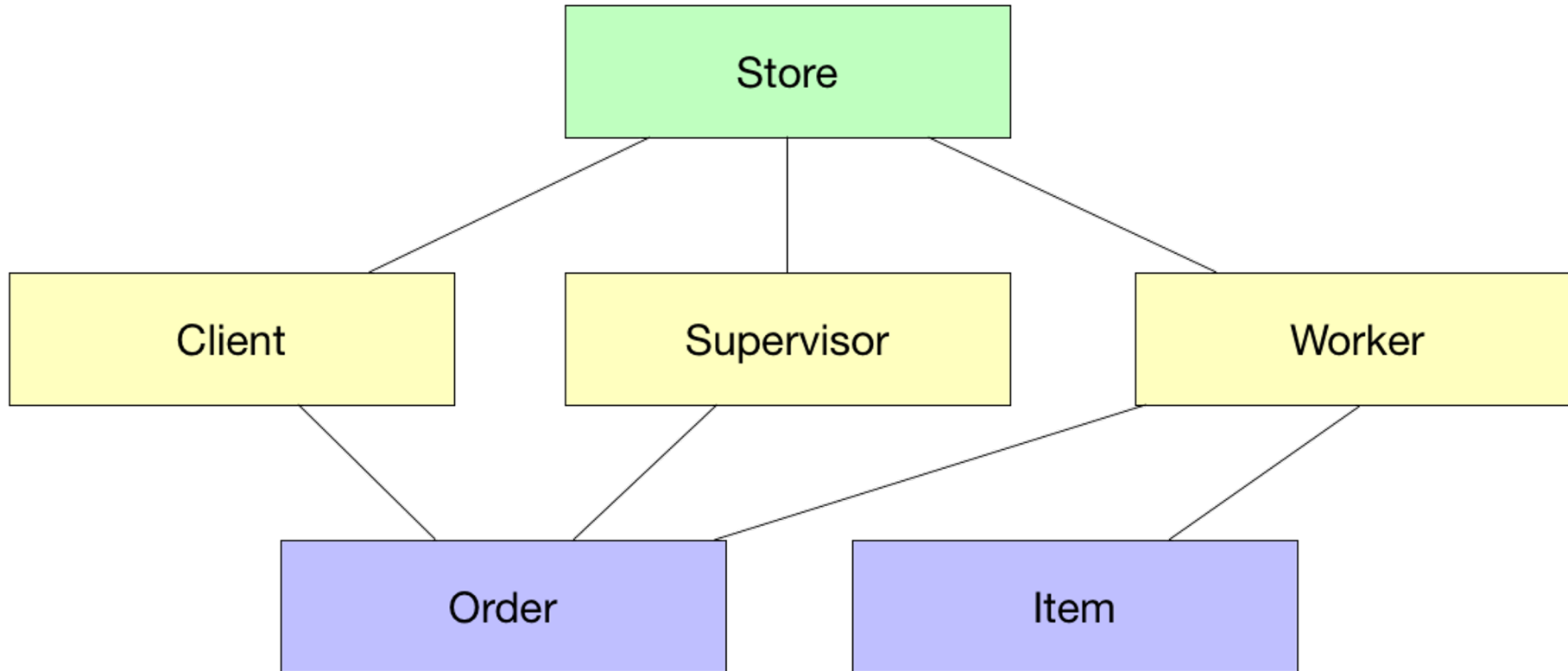
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Network Database

The Network Database Model



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Hierarchical Database



A **Hierarchical Database Model** is a data model in which the data are organized into a tree-like structure.



The data are stored as records which are connected to one another through links.



A record is a collection of fields, with each field containing only one value.

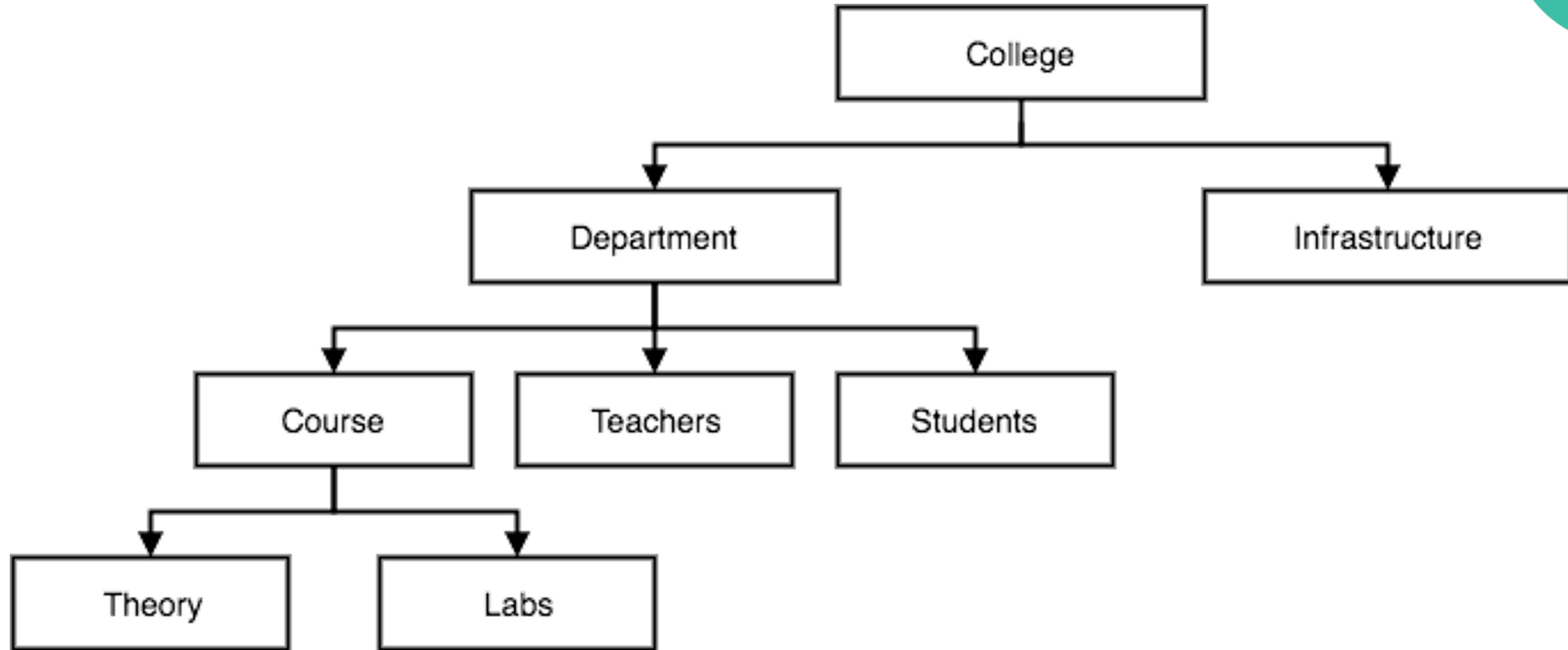
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Hierarchical Database



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Relational Database



A **Relational Database** is a collection of **data** items with pre-defined relationships between them. These items are organized as a set of tables with columns and rows.



Tables are used to hold information about the objects to be represented in the **database**.



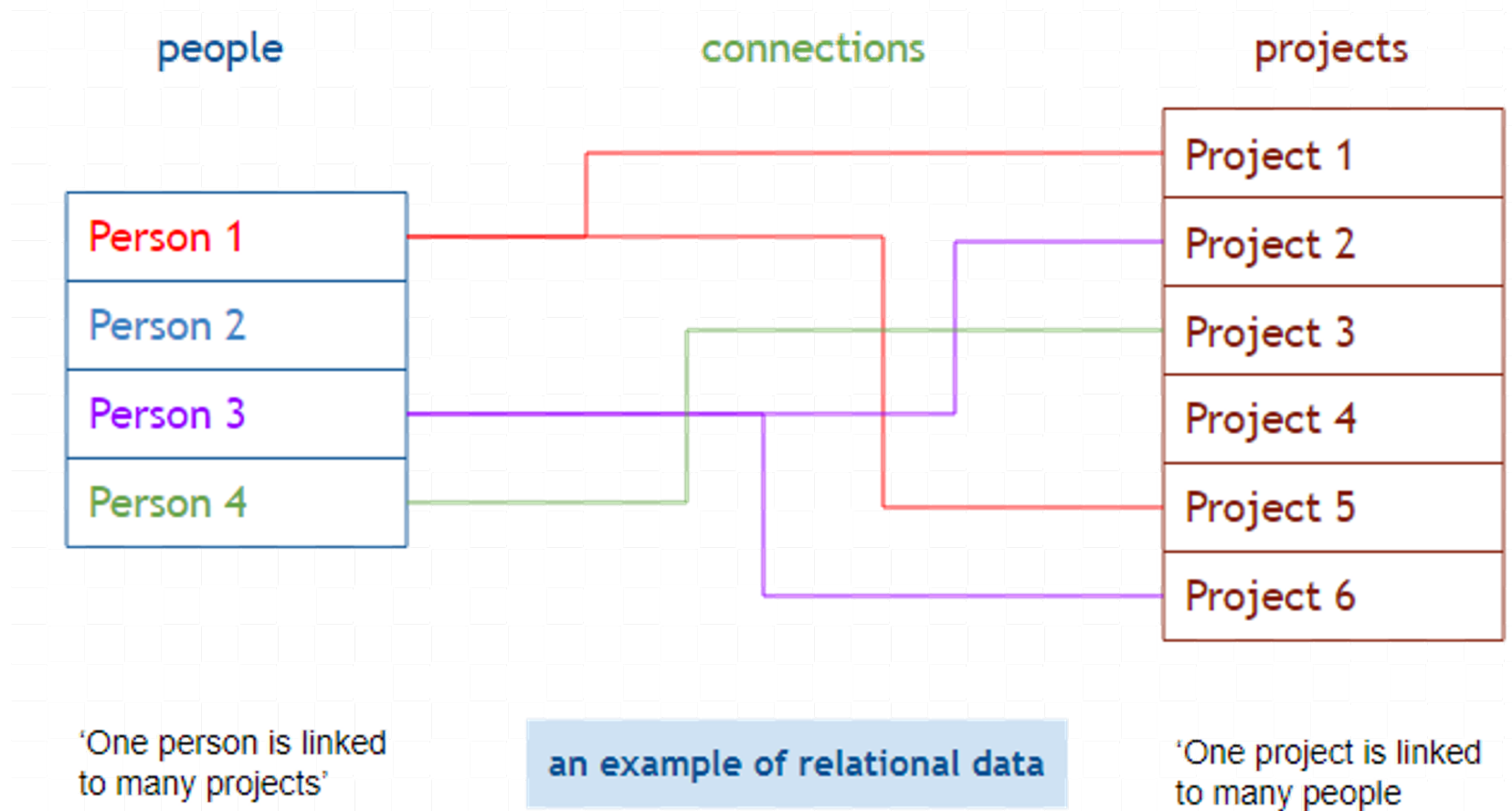
Popular **examples** of standard **relational databases** include Microsoft SQL Server, Oracle **Database**, MySQL and IBM DB2.

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Relational Database

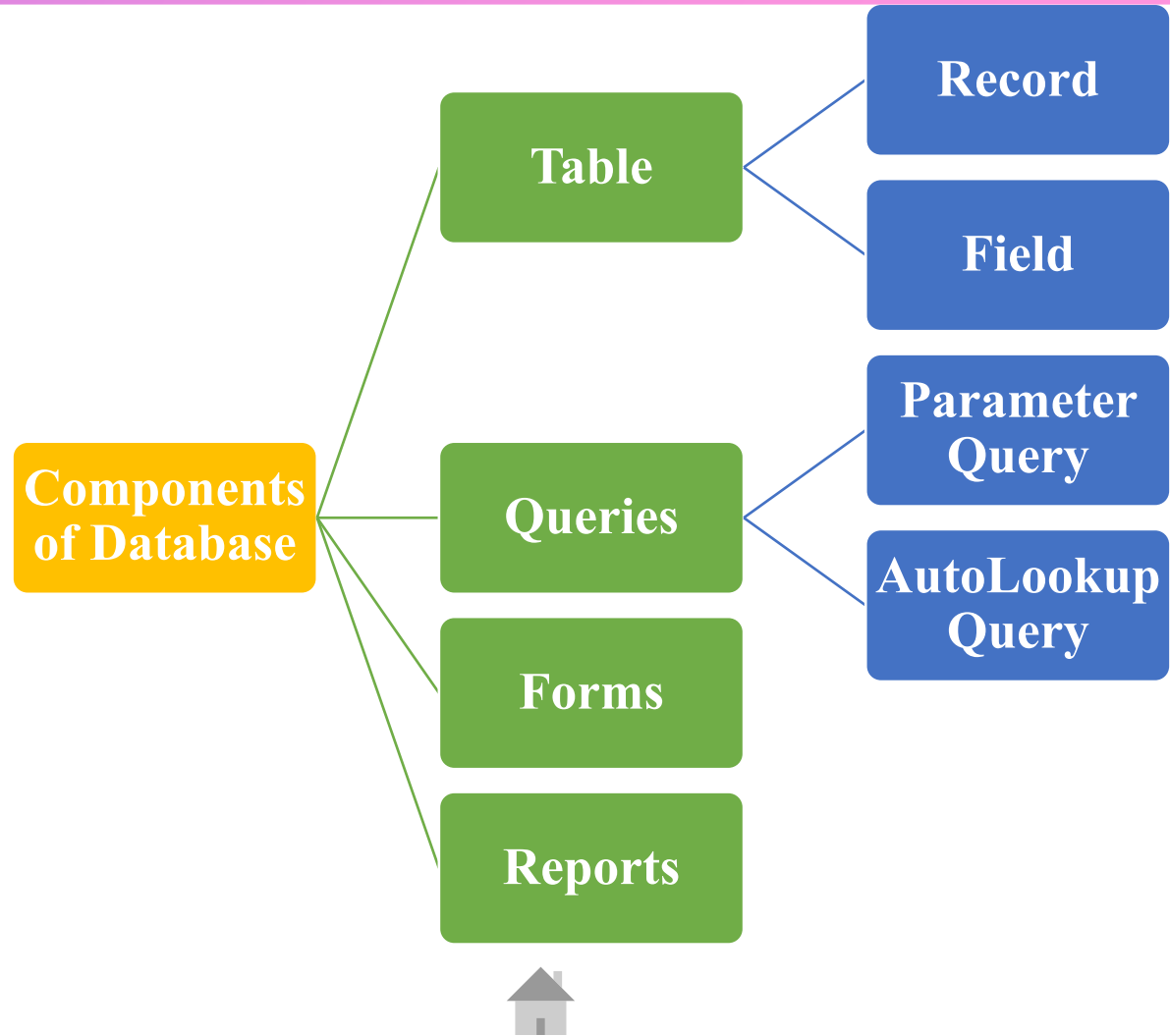


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Explanation of
Relational Database



Components of Database



Table



A **Database Table** is composed of records and fields that hold data.



Tables are also called **datasheets**.



Each **table** in a **database** holds data about a different, but related, subject.



Tables are uniquely identified by their names and are comprised of **columns** and **rows**.



Columns contain the column name, data type, and any other attributes for the **column**.



Rows contain the records or data for the **columns**.



There are 2 types of Table

- Record
- Field



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Record



A **Record** is composed of fields and contains all the data about one particular person, company, or item in a **database**.



In this **database**, a **record** contains the data for one customer support incident report.



Records appear as rows in the **database** table.

<i>ID No.</i>	<i>Name</i>	<i>D.o.B.</i>	<i>Phone</i>	<i>Class</i>	<i>Tutor</i>	<i>Room</i>
356	Jess	3 Mar 1995	7564356	5B	Mr Noggin	56
412	Hamad	12 Nov 1994	7465846	5B	Mr Noggin	56
459	Sita	9 Jan 1994	8565634	6Y	Ms Take	18
502	Hamad	3 Mar 1995	6554546	5B	Mr Noggin	56

One Record



Explanation of Table

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Field

Fields

First Name	Surname	Address 1	Address 2	Post Code	Date of birth	Christmas Card
Donald	Duck	12 Quack Street	Ducktown	DT1 3DD	21/04/1934	<input type="checkbox"/>
Bugs	Bunny	3 Rabbit Road	Hareville	HV3 9BB	12/01/1938	<input checked="" type="checkbox"/>
Road	Runner	4 Meep Lane	Meeptown	MT2 1RR	19/10/1948	<input checked="" type="checkbox"/>
Micky	Mouse	51 Squeak Street	Mousington	MT2 3MM	12/11/1928	<input type="checkbox"/>
Minnie	Mouse	51 Squeak Street	Mousington	MT2 3MM	12/11/1928	<input type="checkbox"/>
Marvin	Martian	1 Moon Street	Marsville	MV3 5MM	12/12/1952	<input checked="" type="checkbox"/>
Daffy	Duck	32 Crazy Close	Quacksville	QV4 6DD	02/02/1937	<input checked="" type="checkbox"/>

Explanation of Table



Back to Component of DB

Queries



Queries are simply questions against a set of data.



A database query is a request for data from a database.



Usually the request is to retrieve data; however, data can also be manipulated using queries.



It has two types

- Parameter Query
- AutoLookup Query

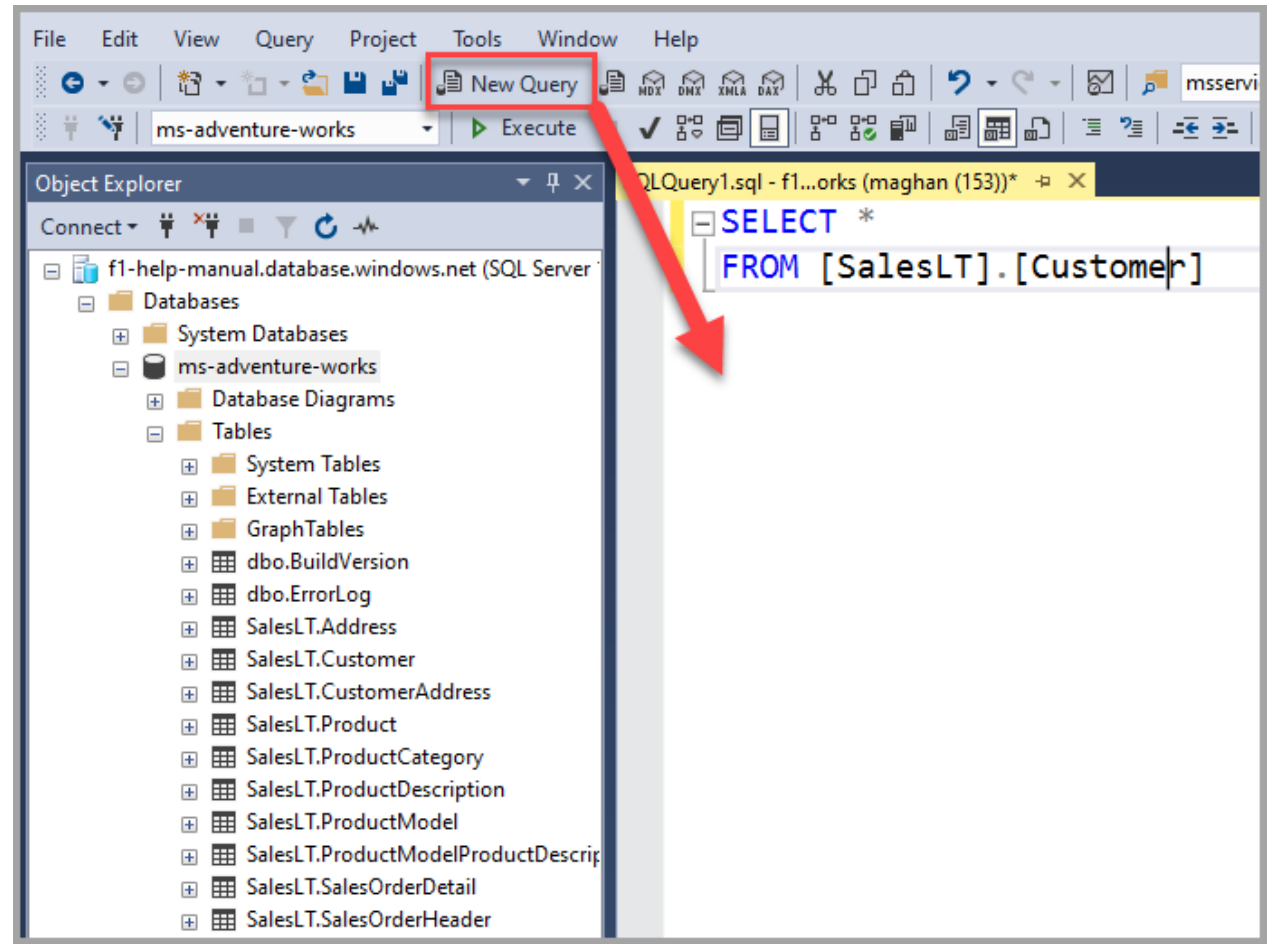
Screenshot of
A Query



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Queries



Explanation of
A Query

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Forms



A **form** is a window or screen that contains numerous fields, or spaces to enter data.



Each field holds a field label so that any user who views the **form** gets an idea of its contents.



A **form** is more user friendly than generating queries to create tables and insert data into fields.



It has two types

College Enrollment 2018-2019					
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2					
3					
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Types of Forms



Simple **forms**, each representing a subset of the application's data.



Composite **forms**, composed of several simple **forms**

Screenshot of
A Form



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Component of DB



Types of Forms

Insert FormToDatabase and Mail

DATABASE

Host: localhost
Database: mydatabase
Username: user
Password: pass

ADMIN PASSWORD: mypass

Table Name: contact_form
Upload Folder: myfolder
Return URL (OK, sent): ok.html
Email(required): info@domain.com
Return URL (Error, Not sent): error.html

ALLOWED FILE EXTENSIONS

File Extension list:
pps
xls

Explanation of
A Form

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Reports



A **Database Report** is a **report** created from a culmination of queried data visualized for the purposes of analysis, data discovery, and decision-making.



Database reports can be created through traditional BI platforms and embedded BI platforms through front-end calls to a backend **database**.

Screenshot of
A Report



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Component of DB



Reports

The screenshot shows the Microsoft Access interface in Report Layout View. The report is titled 'qryCurrentProjects' and is dated Saturday, July 2, 2016, at 1:09:20 AM. The report contains a table with the following data:

Project Name	Project Status	ProjectStart	ProjectEnd	Number of Late Tasks	OnTime
Never Too Late: Reconnecting with Your Adult Children	In Progress	1/26/2013			On Time
The Potion, the Scroll, and the Cauldron	In Progress	1/26/2013		20	Late
The Great American Frostier	Waiting on Approval				On Time
Great American Beaches	Waiting on Approval				On Time
Cash is King: How to Cut Your Spending by Carrying Cash	In Progress	6/10/2013		2	Late
Greatest Blanders of the 20th Century	On Hold	6/25/2012			On Time
The Snake in the Shores	Waiting on Approval				On Time
The Light of Heat	Not Started				On Time
Hoster of Someone	On Hold	2/25/2013			On Time
Growing Up Nobody	In Progress	3/29/2013			On Time
Willow of Dream	In Progress	2/26/2013			On Time
Visions of Danger	On Hold	4/29/2013			On Time
The River in the Thorns	On Hold	5/2/2013			On Time
The Soul in the Crying	Not Started				On Time
The Memory as the Man	Not Started				On Time

Explanation of A Report

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Database Management System



A **database management system (DBMS)** is a software package designed to define, manipulate, retrieve and manage **data** in a **database**. A **DBMS** generally manipulates the **data** itself, the **data** format, field names, record structure and file structure



Ex. MySQL, PostgreSQL, Microsoft Access, SQL Server, FileMaker, Oracle, **RDBMS**, dBASE, Clipper, and FoxPro.



Architecture of DBMS



It has three levels

- Internal Level
- Conceptual Level
- External Level



Ex. MySQL, PostgreSQL, Microsoft Access, SQL Server, FileMaker, Oracle, **RDBMS**, dBASE, Clipper, and FoxPro.





Internal Level



This **level** is also known as **physical level**.



This **level** describes how the data is actually stored in the storage devices.



This **level** is also responsible for allocating space to the data.



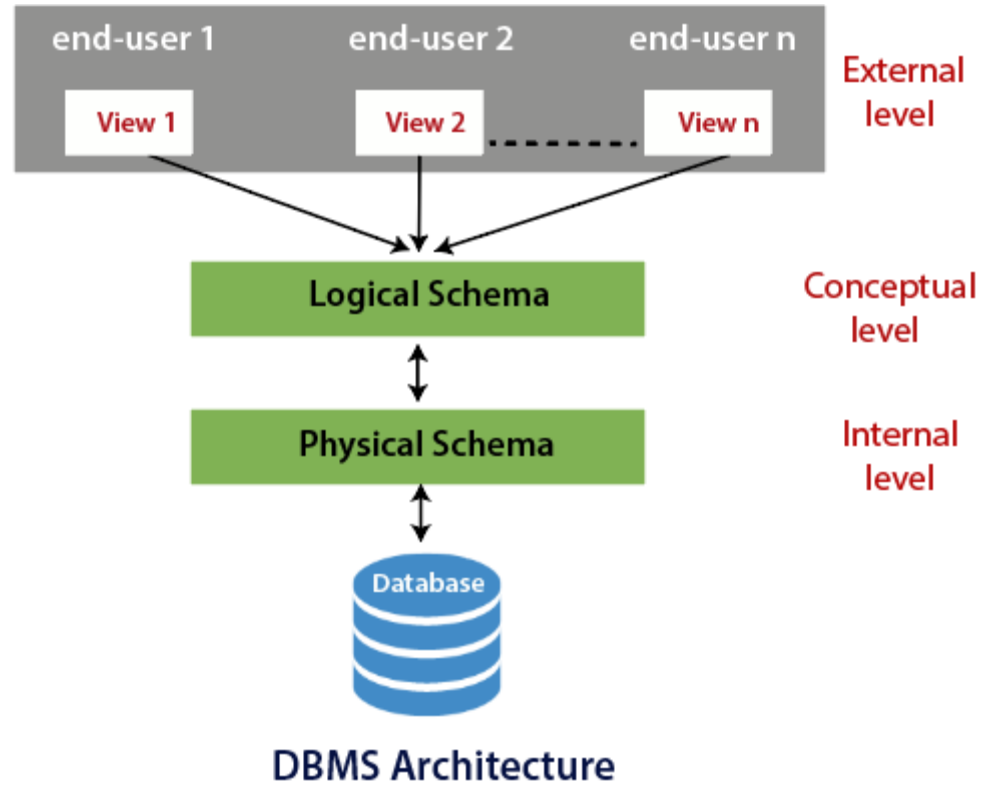
This is the lowest **level** of the **architecture**.

Pictorial Representation
of Internal Level

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Architecture of DBMS



Internal Level



Explanation of Internal Level

Back to Architecture of DBMS

Conceptual Level



The **conceptual level** is at a higher **level** than the **physical level**.



It is also known as the **logical level**.



It describes how the database appears to the users conceptually and the relationships between various data tables.



The **conceptual level** does not care for how the data in the database is actually stored

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Architecture of DBMS

External Level



At the **external level**, a database contains several schemas that sometimes called as subschema.



The subschema is used to describe the different view of the database.



An **external** schema is also known as **view schema**.

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Architecture of DBMS



Advantages of DBMS



Reducing Data Redundancy.



More information from the same amount of data



Sharing of data



Improved data integrity



Improved security



Enforcement of standards



Economy of Scale



Disadvantages of DBMS

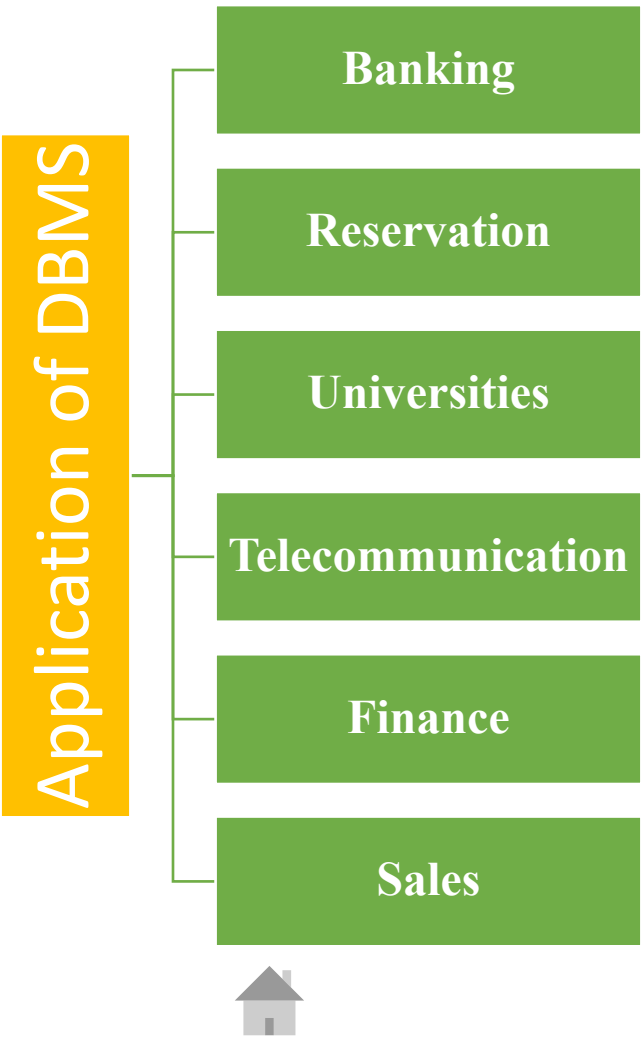


- ⏪⋯⏩ Increased costs. one of the **disadvantages of dbms** is Database systems require sophisticated hardware and software and highly skilled personnel.
- ⏪⋯⏩ Management complexity.
- ⏪⋯⏩ Maintaining currency.
- ⏪⋯⏩ Frequent upgrade/replacement cycles.





Applications of DBMS



Banking



For storing customer info, tracking day to day credit and debit transactions, generating **bank** statements etc.



All this work has been done with the help of Database management systems

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Applications of DBMS

Reservation



In the railway **reservation** system, the database is required to store the record or data of ticket **bookings**, status about train's arrival, and departure.



Also if trains get late, people get to know it through database update.

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Universities



For student information, course registrations, colleges and grades.

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Telecommunication



It helps to keep call records, monthly bills, maintaining balances, etc.

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Finance



For storing information about stock, sales, and purchases of financial instruments like stocks and bonds.

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Sales



Use for storing customer, product & sales information

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'Hurrah!'

We completed this section.



Next Section

Coming
Soon...

