

# ***Module 1***

## ***Introduction:*** ***Database Concepts***

### **Topics to be covered today:**

- **Discussion of Syllabus**
- **Introduction of Databases**
- **File system V/s Database system**

### **Learning Outcomes:**

- **Differentiate between data and information.**
- **Define the following key terms: database, Database Management System (DBMS), data inconsistency, data integrity, Atomicity, Concurrent – access anomalies**
- **Familiar with basic concepts and appreciate the applications of database systems.**
- **Explain the importance of database design.**
- **Define the term data redundancy and explain its effects on the quality of information produced.**
- **Explain how a database system differs from a file system.**

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- **Storage media** is needed to record data (papers, magnetic tapes, Hard drive, disks, CDs etc.)
- On electronic media, data is saved as **files**.

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## □ *Data vs. Information*

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## □ *Data Processing*



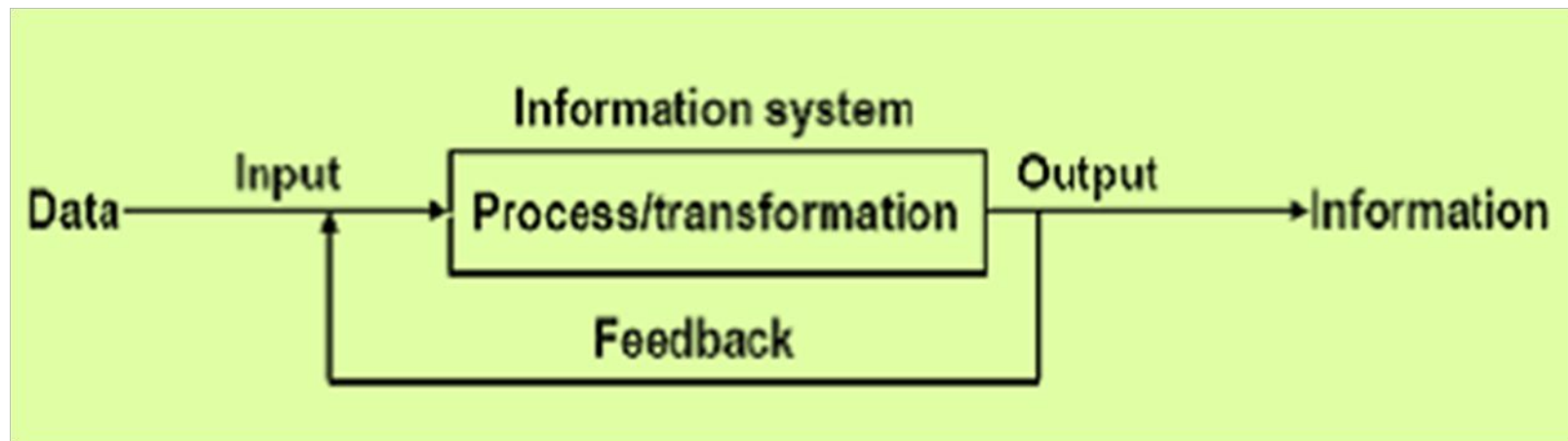
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***Problem:***

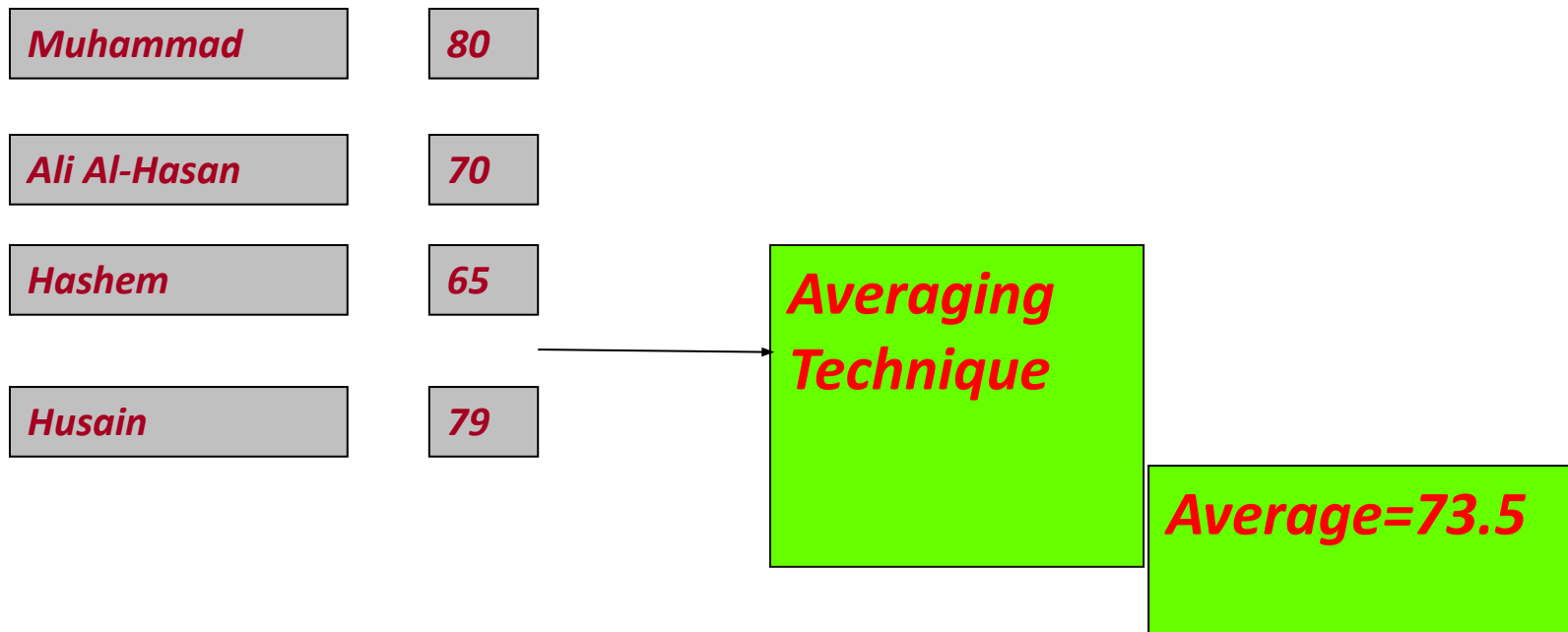
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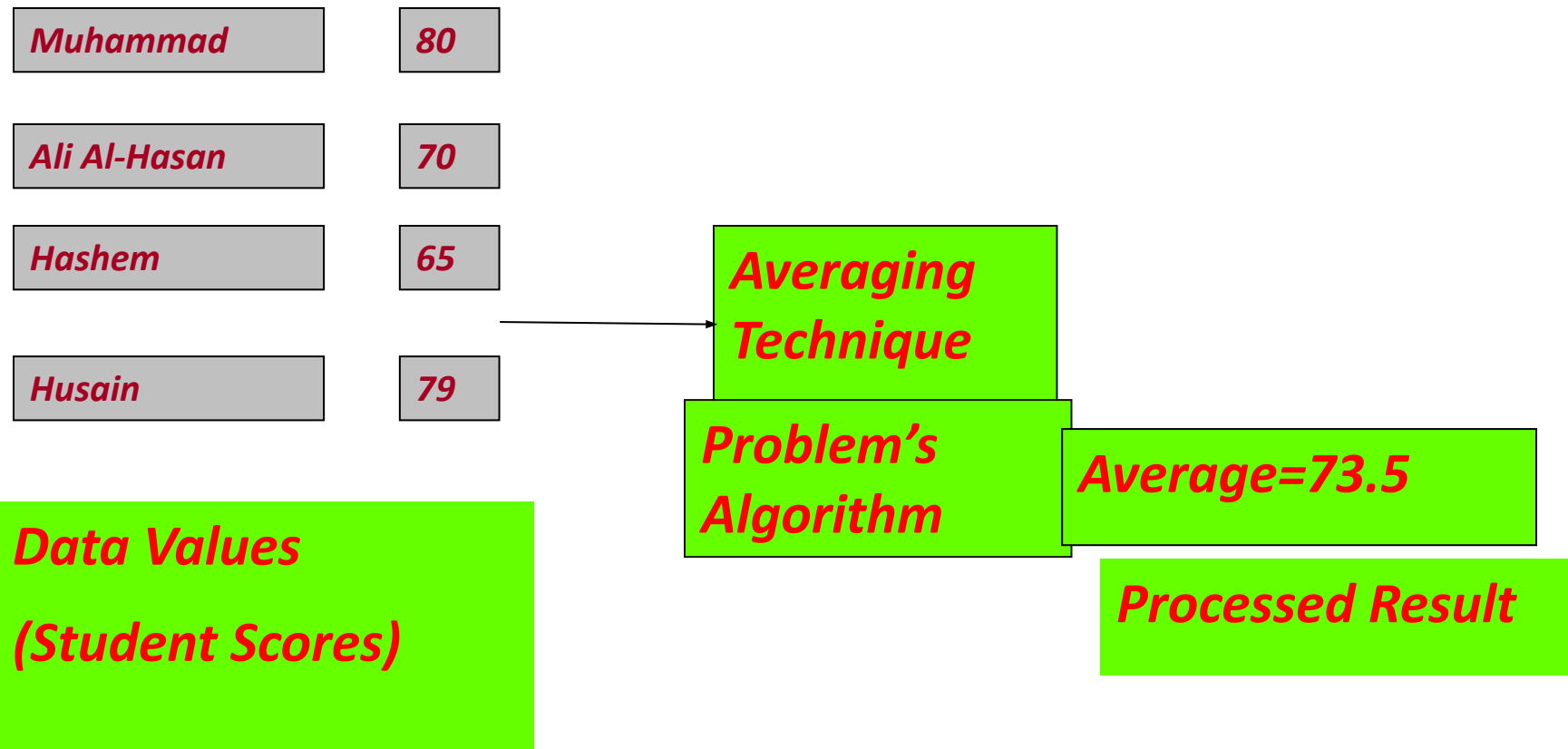
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## ***TYPES OF INFORMATION***

***STRATEGIC :***

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***OPERATIONAL :***

***STATUTORY :***

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### **STATUTORY :**

- *Needed by law to sent to government authorities.*

# ***File based System Approach***

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***Once organization grew – keeping track of data in a manual file system become more difficult.***



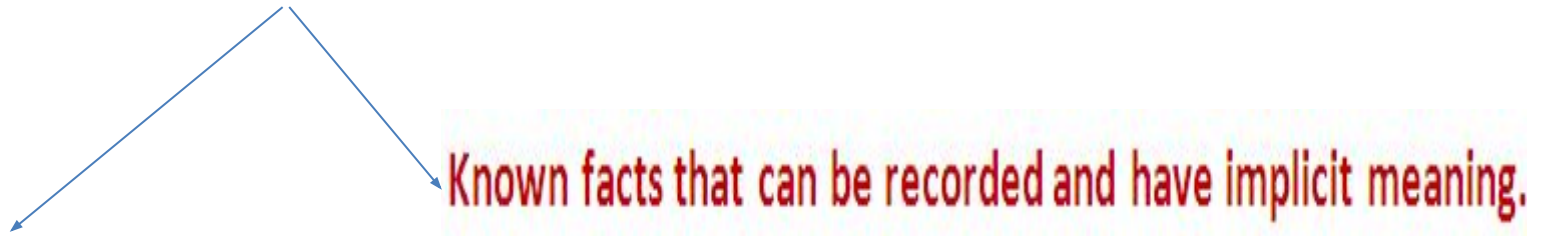
# Data Storing in File System

- **Four common file types are**
  - **Document files** – mainly alpha-numeric data
  - **Worksheet files** – mainly mathematical sheets
  - **Database files** – environment data in an structured/ organized way
  - **Presentation files** – mainly pictures/ effects.

The image displays four overlapping windows from different software applications, each labeled with a file type:

- Presentation:** A window titled "Anim Found" showing a dark background with a large, vibrant firework explosion in the center.
- Database:** A window showing a table with columns: ID, Last Name, First Name, Street Address, City, State, Zip Code, Phone Number, and Photo. It contains several rows of data, including names like Roman Anita, Matsumoto Tyrus, and Pato Jan.
- Worksheet:** A spreadsheet window titled "Downtown Internet Cafe First Quarter Forecast". It contains financial data organized in rows and columns, with a summary section for "First Quarter Profit Margin".
- Document:** A window showing a document titled "Announcing New Adventure Travel Tours". It features a picture of two elephants in a savanna and text describing new travel opportunities.

# ***Data***

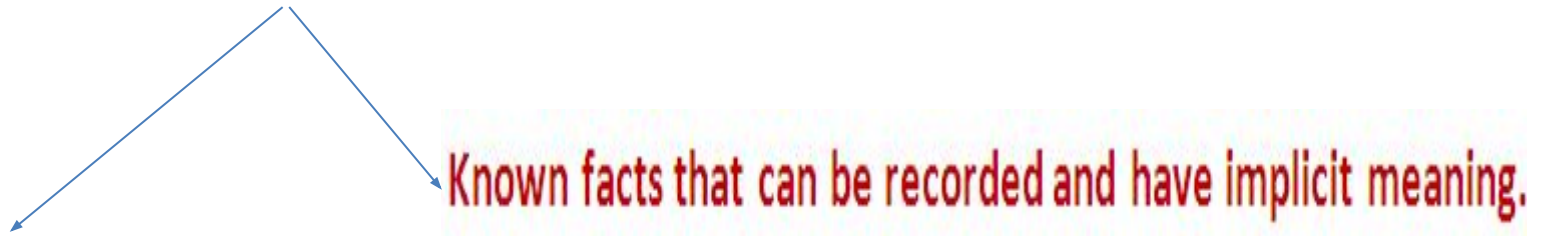


Example ->

Consider Names, Tel numbers & address of people you know

## **Database**

# ***Data***



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## **Database**

- *It is a collection of related data*
- *represents some aspects of real world*
- *Db is designed, built & populated for a specific purpose*

# **Database System Application**

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***□ Banking:***

***□ Airlines:***

***□ Universities:***

***□ Sales:***

***□ Online retailers:***

***□ Manufacturing:***

***□ Human resources:***



# Database System Application

□ **Banking:** *all transactions*

□ **Airlines:** *reservations, schedules*

□ **Universities:** *registration, grades*

□ **Sales:** *customers, products, purchases*

□ **Online retailers:** *order tracking, customized recommendations*

□ **Manufacturing:** *production, inventory, orders, supply chain*

□ **Human resources:** *employee records, salaries, tax deductions*