



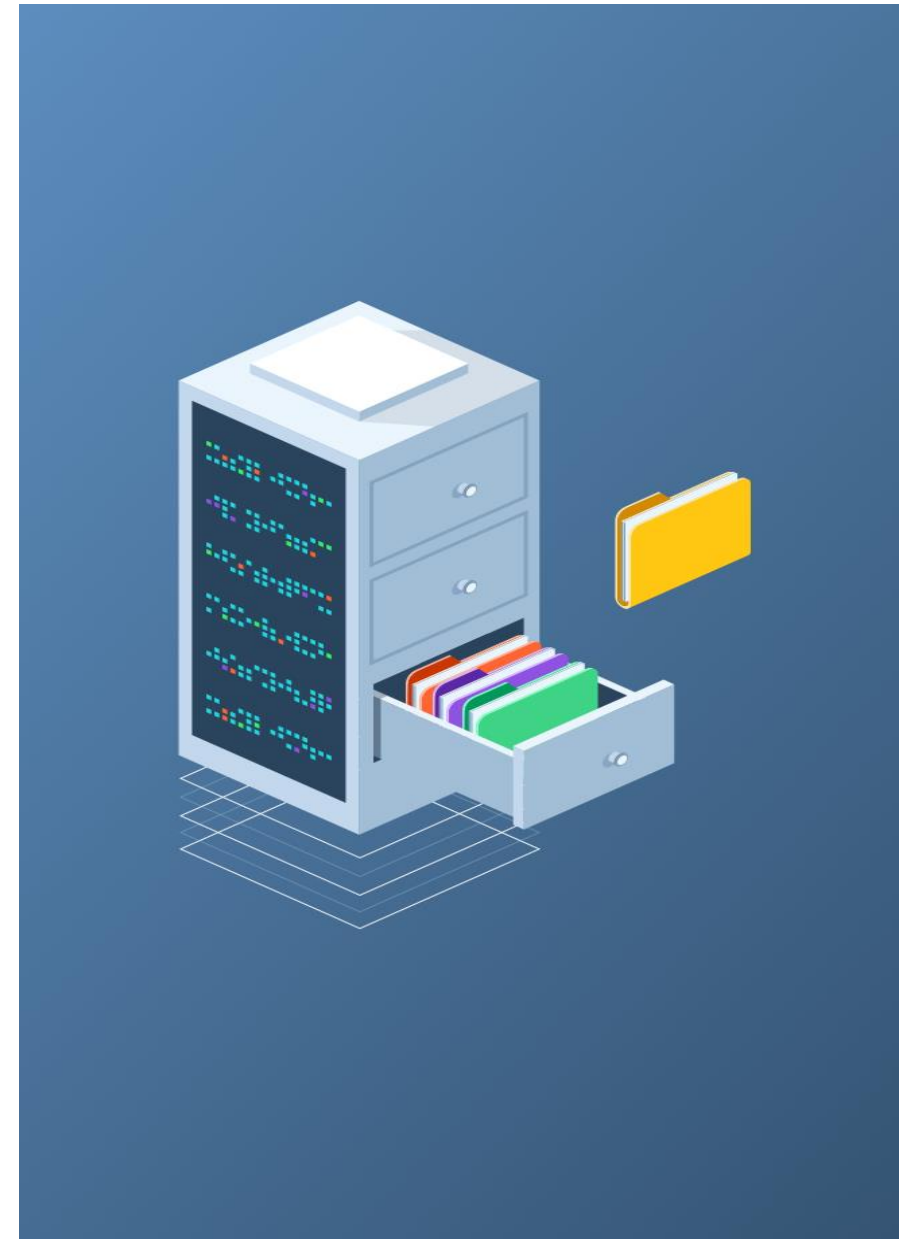


# CSE3103 : Database

Nazmus Sakib  
Assistant Professor  
Department of Computer Science and Engineering  
Ahsanullah University of Science and Technology

# What is a Database ?

- To Know about the Database first think about the types of Data.
- Make them a relation or interrelate each data items.
- Now think how much data are you maintaining each day in Social Network.
- DB is basically huge amount of interrelated data collection which is ease to retrieve and having very good speed for access and search.



# Database Applications?

- Banking
- Airlines
- Universities
- Sales
- Purchases
- Order Tracking
- Customized Recommendations
- Supply Chain
- Human Resources
- Tax Deduction



# Database Management System (DBMS)

- DBMS contains information about a particular enterprise .
- DBMS is a software package to store and manage database.
  - Set of programs to access the data
  - An environment that is both *convenient* and *efficient* to use
- Database system allow users to store, update, retrieve ,organize, protect their data by providing an environment.





# Drawbacks of using file systems to store data

- Data redundancy and inconsistency
- Difficulty in accessing data
- Data Isolation
- Integrity problems
  - Integrity constraints
  - Hard to add new constraints
- Atomicity of updates
- Concurrent access by multiple users
  - Concurrent access needed for performance
  - Uncontrolled concurrent accesses can lead to inconsistencies
- Security problems
  - Hard to provide user access to some, but not all, data

# Levels of Abstraction

- **Physical level:** describes how a record (e.g., instructor) is stored.
- **Logical level:** describes data stored in database, and the relationships among the data.

```
type instructor = record
```

```
    ID : string;
```

```
    name : string;
```

```
    dept_name : string;
```

```
    salary : integer;
```

```
end;
```

- **View level:** application programs hide details of data types. Views can also hide information (such as an employee's salary) for security purposes.

# View of Data

