

# Lecture 2



## Introduction to RDBMS and Relational Model - 1

Wednesday, August 29, 2001

# Relational Database Management System (RDBMS)

## Recall: Database Management System (DBMS)

- DBMS is an application, which holds user data permanently and then provide different operations on this data e.g., retrieval of data, insertion of data, updation of data etc.
- It is a computerized system whose overall purpose is to maintain information and to make that information available on demand.

### ■ **RDBMS is an enhancement to DBMS. It is a system in which:**

- 📁 **The data is perceived by the user as tables; and**
- 📄 **The operators (or operations) at the user's disposal include atleast RESTRICT (SELECT), PROJECT and JOIN.**

### ❖ **Relational Database:**

A database in which data is perceived as tables

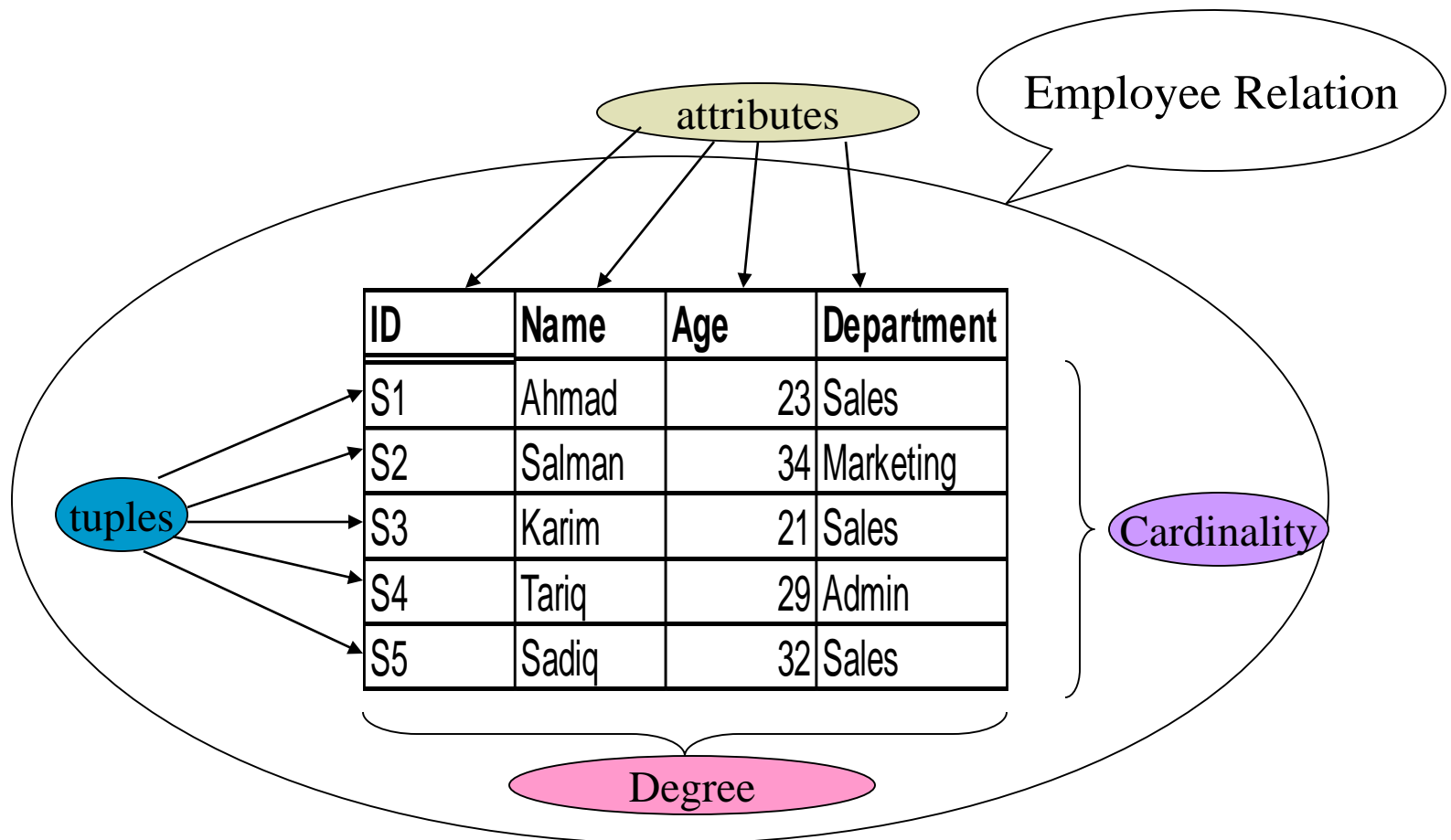


# The Relational Model

- It is a prescription for a way of representing data by means of tables and a prescription for a way of manipulating such a representation using some operators.
- It is an abstract theory of data that is based on certain aspects of mathematics like set theory and predicate logic.
- The principles of relational model were originally laid down in 1969-70 by Dr. E.F.Codd.

# Terms in Relational Model

- Relation
- Tuple, Attribute
- Cardianlity, Degree
- Domain



## Important terms and definitions

- Scalar values (Atomic)
  - at every row and column position in every table there is always exactly one data value
- Repeating Group

A repeating group is a column, or combination of columns that contain several data values in each row

ID	Name	Age		
			Max.Marks	Marks

- RDBMS does not allow repeating groups
- Optimazation
  - a system component that determine how to implement user requests
- Catalog
  - set of system tables



# Part and Types of Relation

- Parts of Relation
  - heading  
fixed set of attributes
  - body  
set of tuples
- Named Relation
  - defined in dbms
- Base Relation
  - an autonomous named relation
- Derived Relation
  - a relation consists of part of named relations or base relations
- View
  - a named derived relation with no physical existence
- Snapshot
  - a named derived relation with physical existence



## Properties of Relations

- There are no duplicate Tuples
- Tuples are unordered
- Attributes are unordered
- All attributes have atomic values



## Assignment # 1

- Explain the following terms:

Concurrent Access, data administration, database, database system, DBA, integration, integrity, persistent data, redundancy, security, sharing, data dictionary, distributed database, DDL, DML