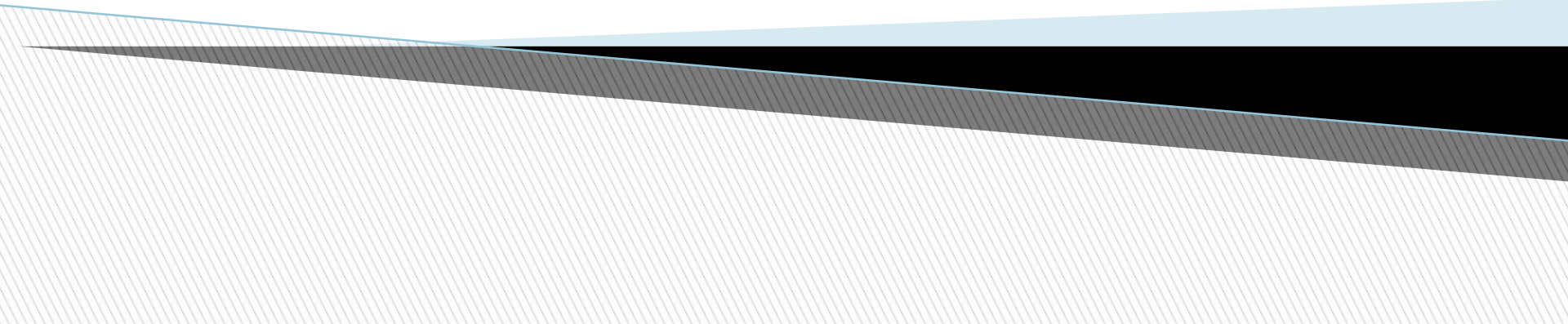
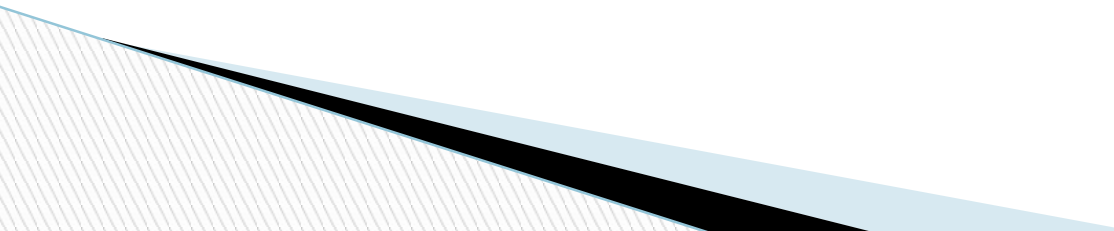


Unit III

Relational Model



Basic Concepts

- A rational model is defined as a database that allows you to group its data items into one or more independent tables that can be related to one another by using fields common to each related table.
 - The relational data model was introduced by C. F. Codd in 1970. Currently, it is the most widely used data model
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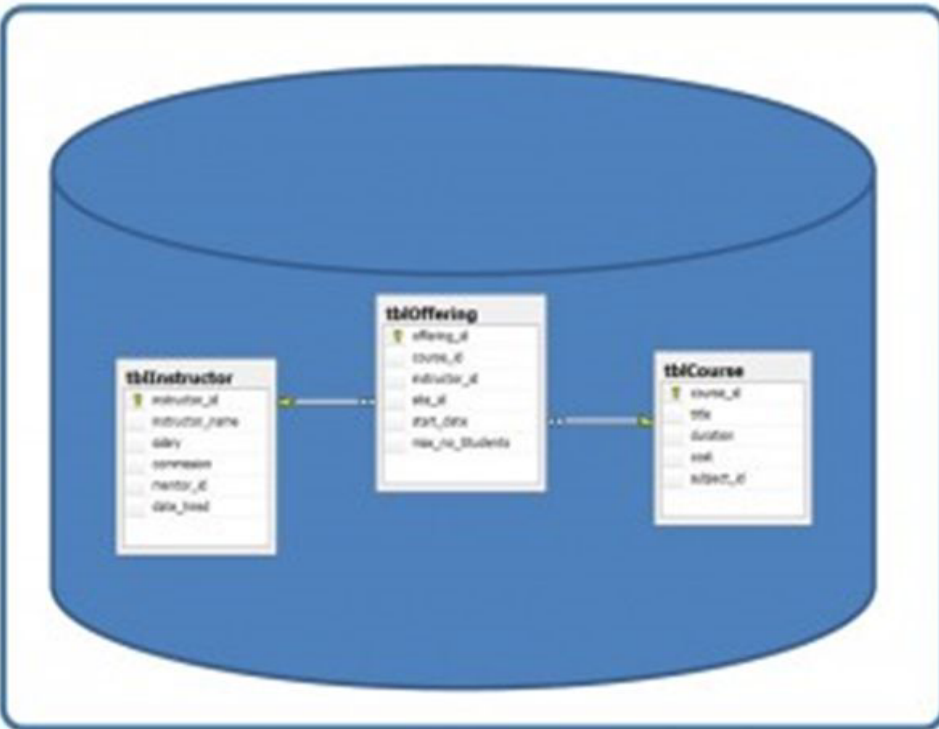
Attributes		Emp_Code	Name	Year
Tuples	→	21130	Amar Jain	1
	→	30745	Kuldeep	3
	→	41894	Manoj	2
	→	51207	Rita bajaj	6

□ **Relation**

- A *relation*, also known as a *table* or *file*, is a subset of the Cartesian product of a list of domains characterized by a name.

□ **Table**

- A database is composed of multiple tables and each table holds the data.



Field Name	Data
First Name	Isabelle
Family Name	Whelan
Nationality	British
Salary	109,900
Date of Birth	15 September 1983
Marital Status	Single
Shift	Mon, Wed
Place of issue	Addis Ababa
Valid until	17 December 2003

Database with three tables.

□ Column

The principal storage units are called columns or fields or attributes.

□ Domain

A *domain* is the original sets of atomic values used to model data. By *atomic value*, we mean that each value in the domain is indivisible as far as the relational model is concerned.

For example:

The domain of Marital Status has a set of possibilities: Married, Single, Divorced.

The domain of Shift has the set of all possible days: {Mon, Tue, Wed...}.

The domain of Salary is the set of all floating-point numbers greater than 0 and less than 200,000.

The domain of First Name is the set of character strings that represents names of people.

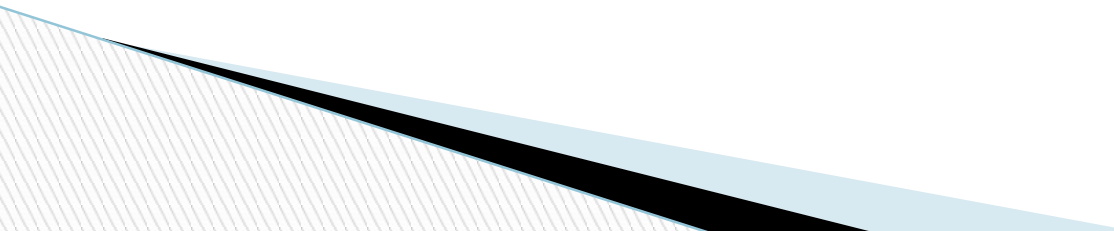


Tuples of a Relation

Each row of data is a tuple. Actually, each row is an n-tuple, but the "n-" is usually dropped.

Cardinality of a relation: The number of tuples in a relation determines its cardinality. In this case, the relation has a cardinality of 4.

Degree of a relation: Each column in the tuple is called an attribute. The number of attributes in a relation determines its degree.



Attribute Name

Record ID	PubDate	Author	Title
1	26/07/1968	B. Pitt	Rights and Wrongs online
2	3/5/2000	A. Jolie	Networking for Change
3	27/02/1971	J. Carter	The Myth of Cyber Crimes
4	15/09/1983	I. Wheaton	Connecting the disconnected

Rows (tuples)

Attribute Values

The diagram shows a table with four columns: Record ID, PubDate, Author, and Title. The first row is highlighted in blue. Arrows point from the text 'Attribute Name' to the header row. Arrows point from the text 'Rows (tuples)' to the four data rows. Arrows point from the text 'Attribute Values' to the four columns of the last row.

The relation in figure has a degree of 3.