COMMPONENT OF RELATIONAL DATABASE STRUCTURAL TERMINOLOGY

01	**RELATION (table)**	A relation is a **table** with column and rows
02	**RECORD (tuple)**	A tuple is a **row of a relation** and sequence of attributes i.e. *a row in the relation table.*
03	**CARDINALITY**	The cardinality of a relation is the **number of tuples it contains/in relation**
04	**ATTRIBUTE (field)**	An attribute is a named **column** in the relation table.
05	**DEGREE**	The degree of a relation refers to the **number of attributes in each tuple**
06	**PRIMARY KEY (PK)**	Primary Key (PK) is an attribute (or a combination of attributes) that **uniquely identifies** any given entity (row)
07	**DOMAIN**	A domain is the set of allowable values for one or more attributes

Each attribute in the model should be assigned domain information which includes:

01 **Data Type** - Basic data types are integer, decimal, or character. Most data bases support variants of these plus special data types for date and time.

02 **Length** - This is the number of digits or characters in the value. For example, a value of 5 digits or 40 characters.

03 **Date Format** - The format for date values such as **dd/mm/yy** or **mm/dd/yyyy** or yy/mm/dd.

04 **Range** - The range specifies the lower and upper boundaries of the values the attribute may legally have.

05 **Constraints** - Are special restrictions on allowable values. For example, the **LeavingDate** for an Employee must always be greater than the **HireDate** for that Employee.

06 **Null support** - Indicates whether the attribute can have null values.

07 **Default value** (if any) - The value an attribute instance will have if a value is not entered.

DOMAIN relational database

a) A domain is the set of allowable values for one or more attributes.

b) It is Pool of value of specific attribute of relation.

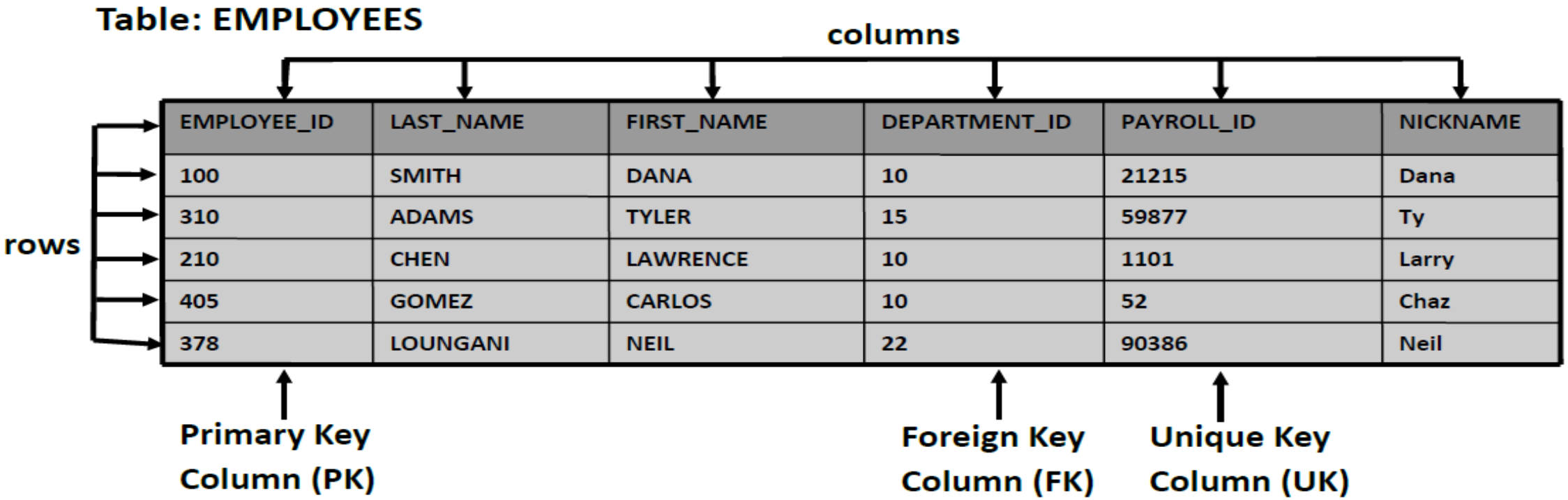
c) A domain is a named set of scalar values, all of the same type.

Example DOMAIN :

- Example 1: Domain of P# is the set of character strings of length 6.
- Example 2: Domain of WEIGHT is the set of small integers less than 10,000.
- Example 3: Domain of QTY is the set of integers less than one billion.
- Example 4: Domain of GENDER is the set of character string MALE or FEMALE.

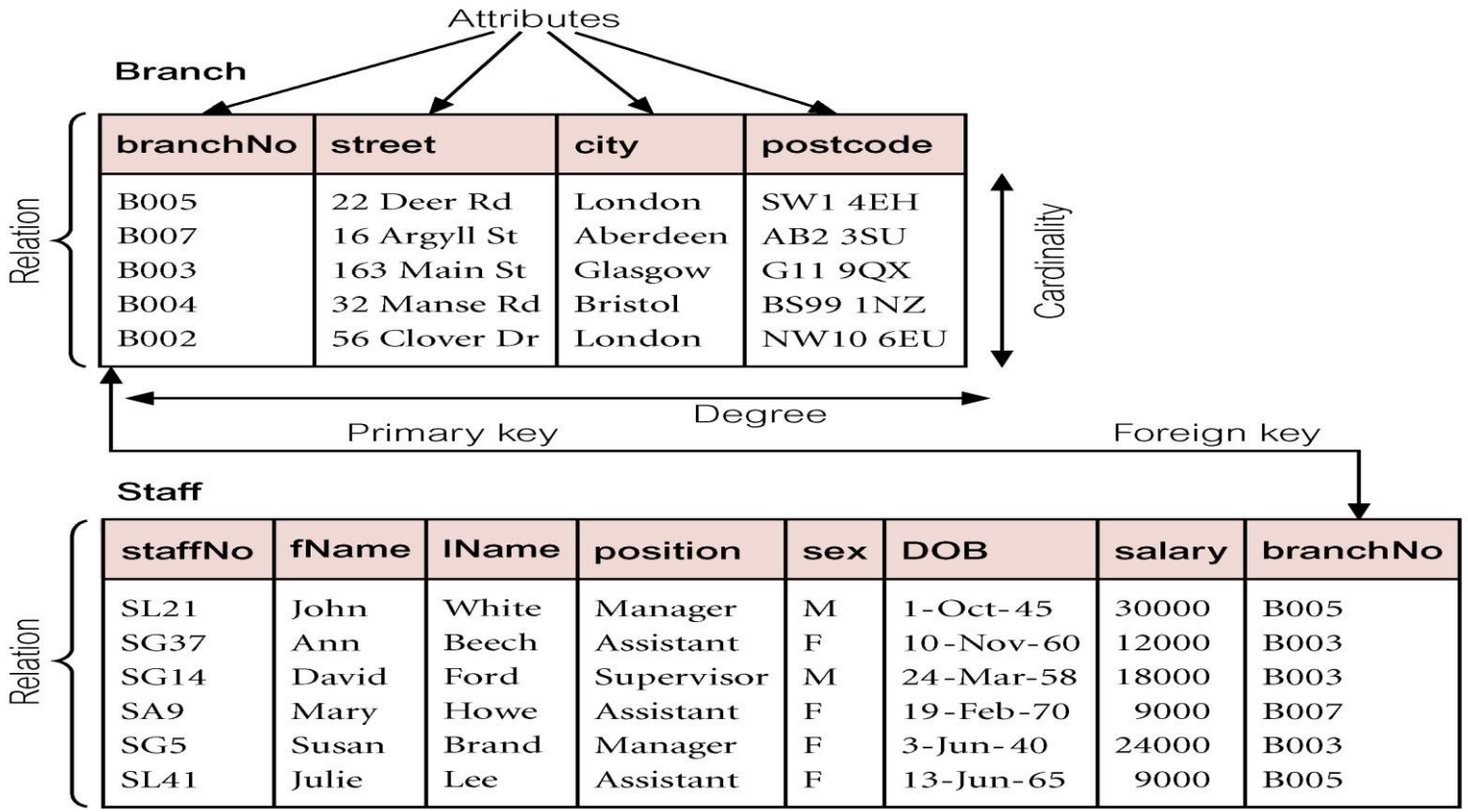
Example Attribute DOMAIN

Attribute	Domain Name	Meaning	Domain Definition
branchNo	BranchNumbers	The set of all possible branch numbers	character: size 4, range B001–B999
street	StreetNames	The set of all street names in Britain	character: size 25
city	CityNames	The set of all city names in Britain	character: size 15
postcode	Postcodes	The set of all postcodes in Britain	character: size 8
sex	Sex	The sex of a person	character: size 1, value M or F
DOB	DatesOfBirth	Possible values of staff birth dates	date, range from 1-Jan-20, format dd-mmm-yy
salary	Salaries	Possible values of staff salaries	monetary: 7 digits, range 6000.00–40000.00



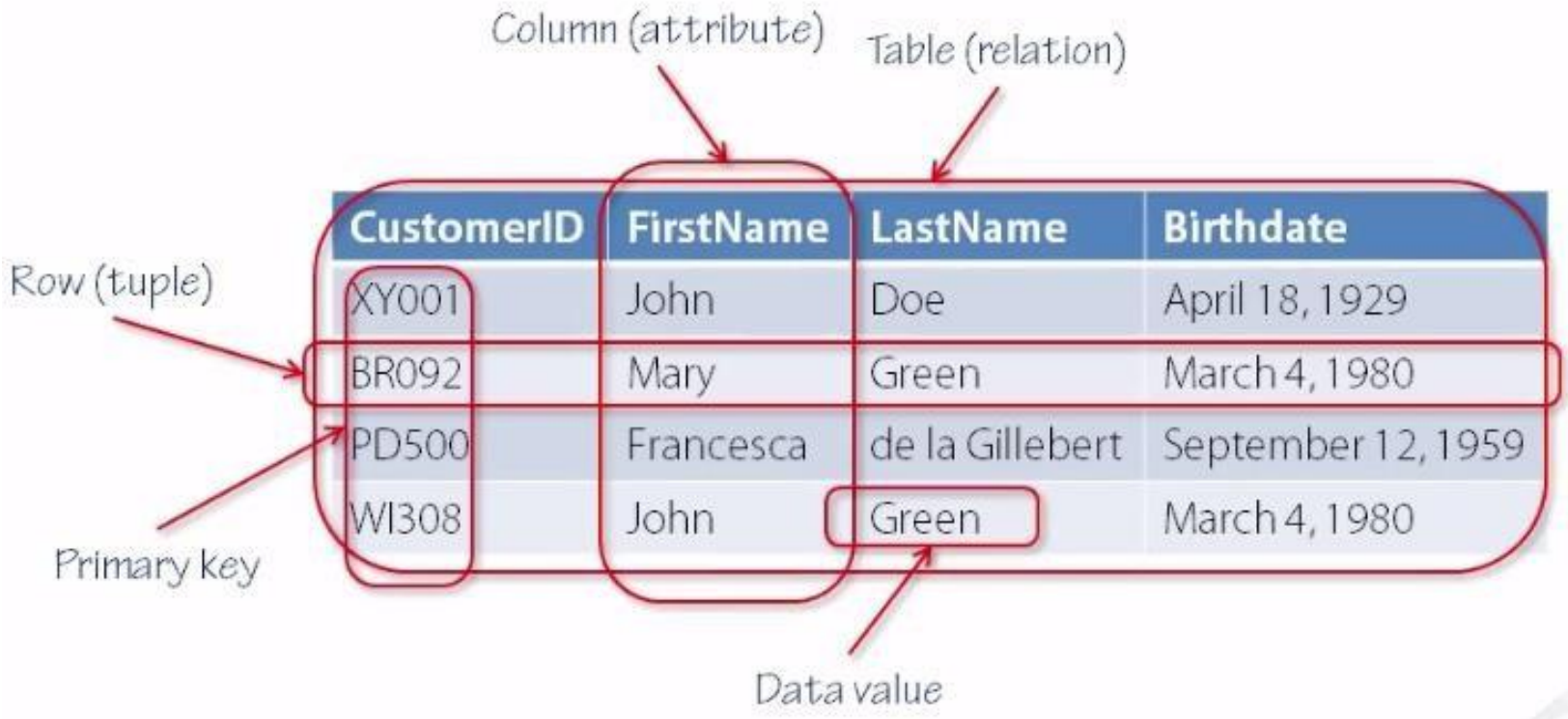
Relational Database Model Terminology

Relational Database



Example 1

Relational Database



Example 2

Alternative Terminology Relational Model

Formal terms	Alternative 1	Alternative 2
Relation	Table	File
Tuple	Row	Record
Attribute	Column	Field

PROPERTISE OF RELATIONAL DATABASE

A relational database has **SIX TABLE PROPERTIES**:

1. Values are atomic
2. Each row is unique
3. All of the values in a column have the same data type
   Column values are of the same kind
4. Each column has a unique name
5. The sequence/order of columns is insignificant.
6. The sequence/order of rows is insignificant.