SQL: Declarative Language

Command → [DBMS] → Always → Table

{ Set of Tables }
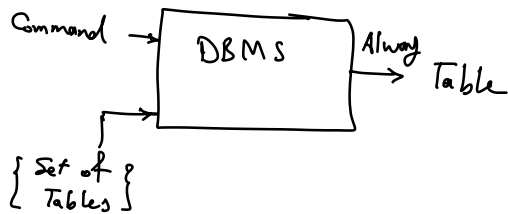
e.g. : Count the number of Staff

SQL Command
Staff → [DBMS] → Sum 13
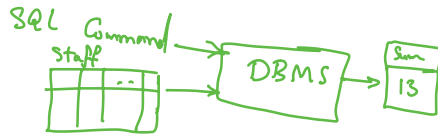
- A Major Diff b/w Relational Model & SQL:

In Relational Model: Entities are Sets

In SQL: The rows are "Multi-Sets" AKA "Bags"
└→ The rows can be none-Unique

e.g.,

T

A	B
1	2
1	2
2	1

✓

Create Table [Tname]
(
  [Cname1] [CType1] ... ,
  [~ 2]   [~ 2] ... ,
  [~ m]   [~ m] ...
);

Create Table Department
(
  ID   INT , AUTO_INCREMENT,
       └→ Automatically assigns the next
          number as the next ID
  name   VarChar (20)   NOT NULL,
       └→ Integrity Constraint
  PhoneNo char (10),
  Address VarChar (100) NOT Null,
  Primary Key (ID)
            (~~~~~~~~)
);

Create Table Department
(
  ID   INT   AUTO_INCREMENT
                  Primary Key,
  name   VarChar (20)   NOT NULL
                  Unique,
  PhoneNo char (10),
  Address VarChar (100) NOT Null,
  Unique (PhoneNo, Address)
);

Create Table Professor
(
 ID UNIQUEIDENTIFIER
      Default NewID()
        Primary Key,

 Fname Varchar(20) not null,
 Flname Varchar(30) not null,

 UIN Char(10) not null Unique,

 Email Varchar(30)
      check(
 Email Like '_%@_%._%'
                            ),

 Salary Int check(Salary >=0)
 ,
 Dep_ID Int not null,

 Foreign Key Dep_ID Refrences Department
                    ↑   ↑
                The Column name   name of the
);   of the foreign key Ref. Table

— Unique Identifier, the Hash
  data Type, used for
  auto gen. Primary Keys

— Check ([Constraint])
  Checks the validity of
  the [Constraint]

— The Keyword Like
  Specifies a Pattern-match
  a regular expression

— The reg. expression
  : Underscore '_' : a character
  : % : 0 to many ,

Alter: to Change a Table

Alter Table [Tname]
    [the change];

— Add a new Column:
  Alter Table [Tname]
      Add [Cname] [Ctype] ---;

  — e.g., Alter Table Department
          Add DeptHeadID
                UniqueIdentifier;

— Rename a Column
  Alter Table [Tname]
      Rename [X] to [Y];

- Add Constraint:
  Alter Table [Tname]
      Add [Constraint];

- e.g.,
  Alter Table [Department
      Add Foreign Key (DeptHead ID)
          Refrences (Professor);

- Drop : To delete a Table
      Drop Table [Tname]

- Delete a Column
      Alter Table [Tname]
          Drop Column [Cname]