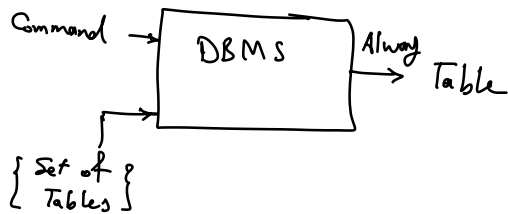
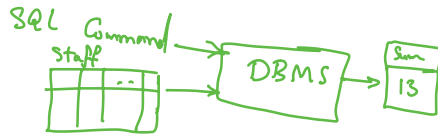


SQL: Declarative Language



e.g.: Count the number of Staff



- 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 non-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)
  (PK PK PK);
  
```

- Adding the other Candidate Keys

```

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 References Department  
);  
The Column name of the foreign key  
name of the Ref. Table

- UniqueIdentifier, 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 "

Alter2: 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 (DeptHeadID)  
References (Professor);
```

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

- Delete a Column

```
Alter Table [Tname]  
Drop Column [Cname]
```