

## Introduction to SQL- Structured query Language

To create database

Create schema schema\_Name;

Create Schema Part\_Supplier;

To Create a table: Syntax

Create Table Table\_Name(

Att1\_name Data\_Type [Constraint],

Att2\_name Data\_Type [Constraint],

.....

Attn\_name Data\_Type [Constraint]);

Data Types:

Number[(n[,m])]: Numeric information

Varchar2(n): Alphabetic/alphanumeric information

Date: Date/time information

BLOB: Binary large objects

Constraints:

Not Null: ensure that the attribute cannot contain null value.

Check(Attribute\_Name condition): Domain limitation

Primary key

Referential integrity constraint/ foreign key constraint

Create Table Part(

Part\_NO Number(5) Constraint Part\_PK PRIMARY KEY,

Description Varchar2(40) Not Null);

Create Table Vendor(

Vendor\_Name Varchar2(45) Primary key,

Vendor\_address varchar2(50) Not Null);

Create Table Part\_supplier(

Part\_NO Number(50) Constraint PS\_FK Foreign key references  
Part(Part\_NO),

Vendor\_Name Varchar2(45) Foreign key references

Vendor(Vendor\_Name),

Unit\_Price Number(8,2) check(Unit\_Price>0),

Constraint PS\_PK Primary key(Part\_NO, Vendor\_Name)); entity  
constraint (obligatory composite PK)

DBMS Create, Manipulate db

Catalog: Description Structure DD Data of Data /Meta data

```
Create Table Vendor(  
Vendor_Name Varchar2(45)  
NOT NULL,  
Vendor_address varchar2(50)  
Not Null,  
Primary key(Vendor_Name));  
Attribute constraint/ entity  
constraint
```

DDL: Create, Alter +attributes/constraints, DROP: delete structure

DML: INSERT, DELETE: rows, UPDATE: data, Select to extract data from DB

Alter Table Table\_Name

ADD +Column/Constraint

DROP –Column/constraint

Modify- modify existing column : field size, data type

To add column(s) to a table

Add one column Add the attribute phone number to vendor table

Alter table Vendor

Add PhoneNumber Varchar2(15) not Null;

To add more than one attribute to a table

Alter table table\_name

Add(Att1\_name data type [Constraint],

Att2\_name Data type [Constaint],

....,

Attn\_name Data type [Constaint]);

Write the SQL Statement to Add the attributes Weight and category to table Part.

Alter table Part

Add(Weight number Not null,

Category varchar2(25) not null);

To Visualize the structure of table vendor (Design view)

SQL> Describe Vendor;

Attribute_name	Data Type	Not Null
Vendor Name	Varchar2(45)	not null
Vendor Address	Varchar2(50)	
Phone Number	varchar2(15)	Not Null

To modify the field size:

Alter table vendor

Modify Phone Number Varchar2(40);

To delete the constraint not null from attribute phone number

Alter table Vendor

Drop Constraint Not Null(phone number);

To drop column Phone number from vendor table

Alter table Vendor

Drop Column Phone number;

To delete a table:

Drop Table Table\_name [Cascade Constraints];

Drop Table vendor cascade constraints; -- Remove the table vendor and the constraint referential integrity with the table part\_supplier

Create a table from existing table(s)

Syntax:

Create table table\_name

AS

Select statement;

Data Manipulation Language commands

Insert : to insert rows to a table

Syntax:

Insert into Table\_name[(att1\_name, att2\_name,..., attn\_name)]

Values(Va1, Val2,...,valn);

To insert a new vendor:

Insert into vendor

Values('Fadi', 'Nabatieh');

DELETE: to delete data from tables (one/more rows)

Syntax:

Delete

From table\_name

[where condition];

Delete

From part

Where part No= 5;

Delete

From part;

Update: to modify existing data

Syntax:

Update table\_name

Set column\_name= Value|expression

[Where condition|subquery];

Increase the unit price of all parts by 10%

Update part\_vendor

Set price=price\*1.1;

Decrease the price of parts supplied by the vendor fadi 5%

Update part\_vendor

Set price=price\*.95

Where vendor\_name='Fadi';

SELECT Data interrogation language

Syntax:

SELECT select\_list – attributes returned by the query

From Table(s)

[Where Condition | subquery]

[Group by regroupment\_attribute(s)]

[Having condition]

[Order by order\_by\_attribute(s) Asc | Desc];

List of vendors living in Nabatieh. The list must be sorted in descending order.

Select Vendor\_name

From Vendor

Where Vendor\_address='Nabatieh'

Order by vendor\_name Desc;

List of parts supplied by vendors

Select Part\_name

From Part P, Part\_vendor PV

Where P.Part\_number=PV.Part\_number;

The number of parts supplied by each vendor.

Select Vendor\_name, count(Part\_ID) "NbParts"

From Part\_vendor

Group by Vendor\_name;

Vendor Name	NBParts
Nour	10
Ahmad	1
Hadi	5

List of vendors supplied more than 2 parts.

Select Vendor\_name

From Vendor\_supplier

Group by vendor\_name

Having count(\*)>2;

List of parts supplied by Nour

Select P.Description

From Part p, Part\_supplier PS

Where P.Part\_id= ps.Part\_Id

And PS.Vendor\_Name='Nour';

Using subquery

Select P.Description

From Part

Where part\_id IN(Select part\_id

From Part\_supplier

Where Vendor\_Name='Nour');

