

Project: নকল হইতে সাবধান

Name: Md Ulfat Tahsin.

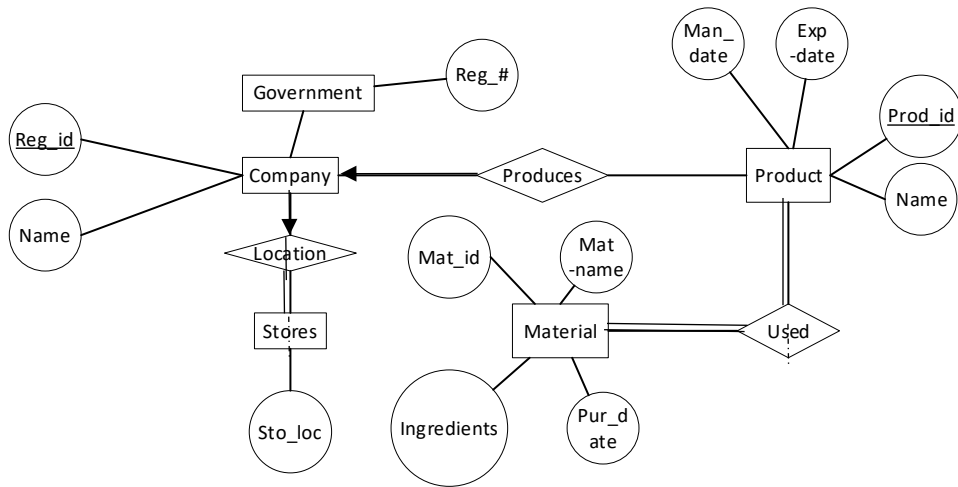
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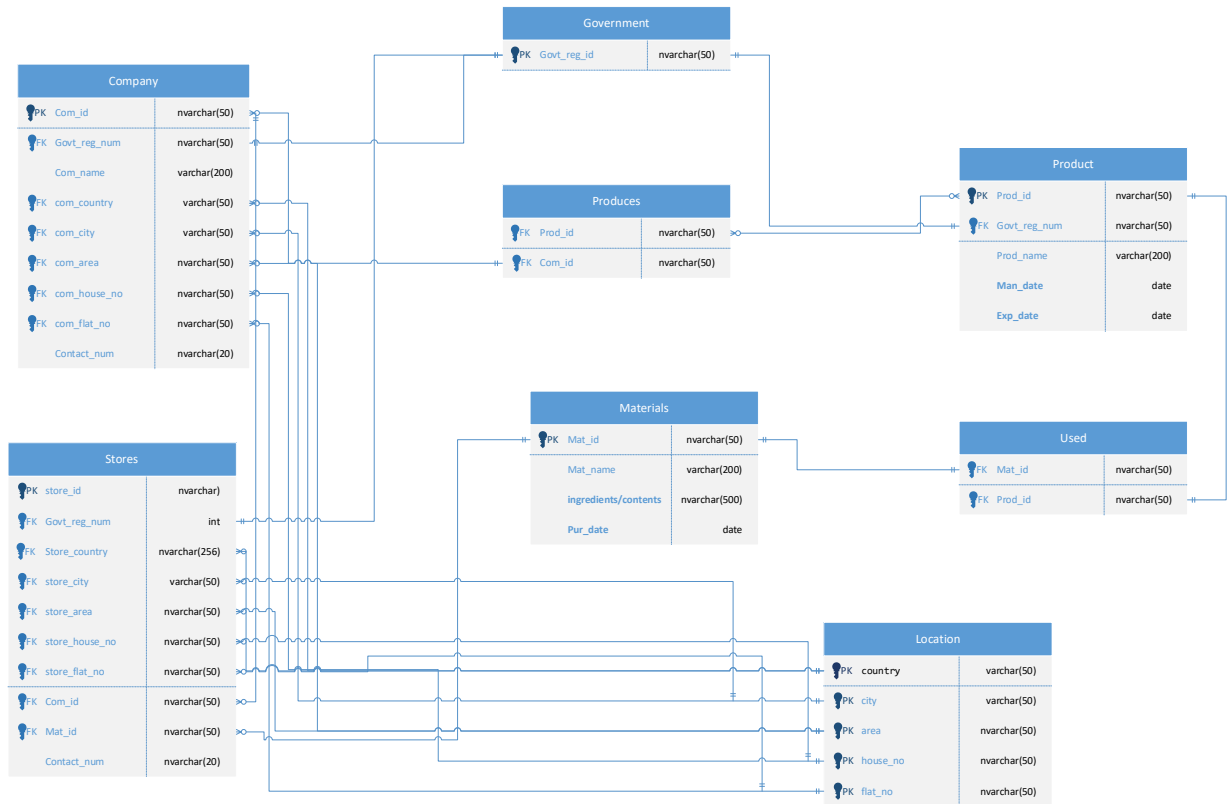
1. Project Description

Every company, store, material used and product produced will have a particular code of its own. Each and every company in the market must have an associated government registration number. Every company and store must have a location. Every company can use any material from any store to produce any product. The products produced can have the same or different name but with unique product id associated with a unique company and material id. The store that is used to store the material or product must also carry a unique store id.

2. ER Diagram



3. Schema Diagram



4. Database with Tables and Constraints

Database: Nokol_hoite_shabdhan

Tables:

1. Government:

➤ Constraints:

<i>Primary Key</i>	<i>Foreign Key</i>
Government Registration Number	None

2. Location:

➤ Constraints:

<i>Primary Key</i>	<i>Foreign Key</i>
Country	None
City	
Area	
House number	
Flat number	

3. Material:

➤ Constraints:

<i>Primary Key</i>	<i>Foreign Key</i>
Material Identification	None

4. Product:

➤ Constraints:

<i>Primary Key</i>	<i>Foreign Key</i>
Product Identification	Government Registration Number

5. Used:

➤ Constraints:

<i>Primary Key</i>	<i>Foreign Key</i>
None	Material Identification
	Product Identification

6. Company:

➤ Constraints:

<i>Primary Key</i>	<i>Foreign Key</i>
Company Identification	Government Registration Number
	Company Country
	Company City
	Company Area
	Company House Number
	Company Flat Number

7. Produces:

➤ Constraints:

<i>Primary Key</i>	<i>Foreign Key</i>
None	Company Identification
	Product Identification

8. Stores:

➤ Constraints:

<i>Primary Key</i>	<i>Foreign Key</i>
Store Identification	Government Registration Number
	Store Country
	Store City
	Store Area
	Store House Number
	Store Flat Number
	Company Identification
	Material Identification

5. Insertion of Dummy Data

insert into [dbo].[Government] values

('COMp.1010.C_abx'),

('COMp.1020.C_odx'),

('PROd.2011.P_gop'),

('PROd.2058.P_gcz'),

('PROd.3088.P_med'),

('STOr.5080.S_abc'),

('STOr.5059.S_txy')

/*Code starting with Comp means company code, prod is product code and stor is store code,
stating whether a compnay is fit to produce,

product is good to be consumed or store is hygienic enough to store */

insert into [dbo].[Location] values

('Bangladesh', 'Chattogram', 'Khatungonj', '342/Y-B', 'A01-10'),

('Singapore', 'Singapore', 'Redhill Forum', '418-78A', 'A1-A2'),

('Kuwait City', 'Kuwait', 'P.O.Box: 5092', '13051-B', 'B01-B10'),

('Italy', 'Baraggia', 'Varese', '112-X-A1', 'A11-A40'),

('Bangladesh', 'Dhaka', 'Narayangonj', '14/A-1', 'A11-D50'),

('Saudi Arabia', 'Jeddah', 'Jeddah Salama Dist.', '15/C-X', 'A31-A39')

insert into [dbo].[Material] values

('MAT_JEANS_A_34', 'JEANS', 'JEANS CLOTH X FABRIC', '2019-04-15'),

('MAT_APPLE_CIDER_A1', 'RAW LIQUID VINEGER', '5–8% acetic acid, ethanol. sugar',
'2020-01-12'),

('MAT_HYDROCARBON_BODY_B07', 'FLAVORLESS MOISTURIZING
HYDROCARBON', 'Petroleum jelly, petrolatum, white petrolatum, soft paraffin, or multi-
hydrocarbon', '2021-01-01'),

('MAT_PLASTIC_G09', 'LOW MELTED PLASTIC', 'Polystyrene', '2020-08-07'),

('MAT_MEDICINE_NAS_DROP', 'NASAL DROP', 'Oxymetazoline HCL USP 0.02%', '2020-
12-20')

insert into [dbo].[Product] values

('COM_1010_prod.C.514', 'PROd.2011.P_gop', 'Lip Ice', '2021-01-09', '2022-01-10'),

('COM_1020_prod.C.787', 'PROd.2058.P_gcz', 'Denim Jacket', '2019-05-01', '2023-05-02'),

('COM_1020_prod.F.001', 'PROd.3088.P_med', 'Afrin', '2020-12-25', '2022-12-24')

/*(Company with com 1010 id uses product. Every compnay can assign a product code of its
own,

but it must be government registerd*/

```
insert into [dbo].[Used] values
('MAT_HYDROCARBON_BODY_B07', 'COM_1010_prod.C.514'),
('MAT_JEANS_A_34', 'COM_1020_prod.C.787'),
('MAT_MEDICINE_NAS_DROP', 'COM_1020_prod.F.001')
```

```
insert into [dbo].[Company] values
('COM_1010', 'COMp.1010.C_abx', 'Mojumdar Group of Industries', '01A188X5545', 'Saudi Arabia', 'Jeddah', 'Jeddah Salama Dist.', '15/C-X', 'A31-A39'),
('COM_1020', 'COMp.1020.C_odx', 'Moina Limited', '01B188Z8577', 'Bangladesh', 'Chattogram', 'Khatungonj', '342/Y-B', 'A01-10')
```

```
insert into [dbo].[Produces] values
('COM_1010', 'COM_1010_prod.C.514'),
('COM_1020', 'COM_1020_prod.F.001'),
('COM_1020', 'COM_1020_prod.F.001')
```

```
insert into [dbo].[Stores] values
('STO_AB1', 'STOr.5059.S_txy', 'Majuma Apparel Store', '01D188Y8P77', 'Bangladesh', 'Dhaka', 'Narayangonj', '14/A-1', 'A11-D50', 'COM_1020', 'MAT_JEANS_A_34'),
('STO_MI6', 'STOr.5059.S_txy', 'Ibrahim Petroleum', '01Q188ZN877', 'Kuwait City', 'Kuwait', 'P.O.Box: 5092', '13051-B', 'B01-B10', 'COM_1010', 'MAT_HYDROCARBON_BODY_B07')
```

6. Questions and Queries

*/*1. Find the Company names of all companies and remove duplicates*/*

```
select distinct [com_name]from [dbo].[Company]
```

*/*2. Find the Company names of all companies*/*

```
select all [com_name] from [dbo].[Company]
```

*/*3. Display all attributes from Company*/*

```
select * from [dbo].[Company]
```

*/*4. Select all the Company contact numbers and show the list of Contact number along with company name and city*/*

```
select concat([com_name], ' ; Phone Number:', [con_num], ' in the city of ', [com_loc_city])
```

```
as 'Company eith Contact and Address' from [dbo].[Company]
```

*/*5. To find all stores located in Bangladesh*/*

```
select [sto_name]
```

```
from [dbo].[Stores]
```

```
where [sto_loc_country] like 'Bangladesh'
```

*/*6. Find names of all materials which were used to produce at least some products*/*

```
select * from [dbo].[Material], [dbo].[Used]
```

```
where [dbo].[Material].[mat_id]=[dbo].[Used].[mat_id]
```

/*7. Find all products name and id that have 'lip' in its name*/

```
select [prod_name] as 'Winter Cosmetics for lips'
from [dbo].[Product]
where [prod_name] like '%lip%'
```

/*8. List in alphabetical order names of all products*/

```
select [prod_name]
from [dbo].[Product]
order by [prod_name]
```

/*9. Find companies that are in the Arab countries along with the name of the city*/

```
select [com_name] from [dbo].[Company] where [com_loc_country] like '%Arab%'
union
select [city] from [dbo].[Location] where [country] like '%Arab%'
```

/*10. Find all cities in country having companies of 'Bangla' without any city name starting with 'Nara'*/

```
select [city] from [dbo].[Location] where [country] like 'Bangla%'
except
select [city] from [dbo].[Location] where [country] like 'Nara%'
```

/*11. Find the companies whose phone numbers are missing*/

```
select concat([com_name], ' ID:', [com_id], ' has a missing phone number') from
[dbo].[Company]

where [con_num] is null
```

/*12. Count the total number of companies, materials, stores and products*/

```
select count([com_id]) as 'Number of Companies' from [dbo].[Company]

select count([mat_id]) as 'Number of Materials' from [dbo].[Material]

select count([prod_id]) as 'Number of Products' from [dbo].[Product]

select count([store_id]) as 'Number of Stores' from [dbo].[Stores]
```

/*13. Find the number of companies per country*/

```
select distinct [country], count([com_id])

from [dbo].[Location], [dbo].[Company]

where [dbo].[Location].[country]=[dbo].[Company].[com_loc_country]

group by [country]
```

/*14. Find the average number of companies between Bangladesh, Saudi Arabia and Singapore*/

```
select avg(comps)

from (select count([com_id]) as comps from [dbo].[Location], [dbo].[Company]

where [dbo].[Location].[country]=[dbo].[Company].[com_loc_country]

group by [country]) as t
```

/*15. Find the number of location the govt brings product from outside of Bangladesh*/

```
select distinct [country] as 'Export Zones' from [dbo].[Location]
where [country] not in ('Bangladesh')
```

/*16. Find all the companies that produce more than 1 product*/

```
select [com_name] from [dbo].[Company]
where [dbo].[Company].[com_id] in
(select [dbo].[Company].[com_id] from [dbo].[Company], [dbo].[Produces]
where [dbo].[Company].[com_id]=[dbo].[Produces].[com_id]
group by [dbo].[Company].[com_id]
having count([prod_id])>1)
```

/*17. Provide a readable format including the company id, company name and the products it is producing currently*/

```
SELECT [dbo].[Company].[com_id], [com_name], [prod_name]
FROM [dbo].[Company], [dbo].[Product], [dbo].[Produces]
WHERE [dbo].[Company].[com_id]= [dbo].[Produces].[com_id]
and [dbo].[Product].[prod_id] = [dbo].[Produces].[prod_id]
ORDER BY [com_name], [prod_name]
```

7. Screenshots of the running queries

1.

	com_name
1	Moina Limited
2	Mojumdar Group of Industries

2.

	com_name
1	Mojumdar Group of Industries
2	Moina Limited
3	Mojumdar Group of Industries

3.

	com_id	govt_reg_num	com_name	con_num	com_loc_country	com_loc_city	com_loc_area	com_loc_house_no	com_loc_flat_no
1	COM_1010	COMp.1010.C_abx	Mojumdar Group of Industries	01A188X5545	Saudi Arabia	Jeddah	Jeddah Salama Dist.	15/C-X	A31-A39
2	COM_1020	COMp.1020.C_odb	Moina Limited	01B188Z8577	Bangladesh	Chattogram	Khatungonj	342/Y-B	A01-10
3	COM_1099	COMp.1099.C_czy	Mojumdar Group of Industries	NULL	Singapore	Singapore	Redhill Forum	418-78A	A1-A2

4.

	Company eith Contact and Address
1	Mojumdar Group of Industries ; Phone Number:01A188X5545 in the city ...
2	Moina Limited ; Phone Number:01B188Z8577 in the city of Chattogram
3	Mojumdar Group of Industries ; Phone Number. in the city of Singapore

5.

	sto_name
1	Majuma Apparel Store

6.

	mat_id	mat_name	ingredients	pur_date	mat_id	prod_id
1	MAT_HYDROCARBON_BODY_B07	FLAVORLESS MOISTURIZING HYDROCARBON	Petroleum jelly, petrolatum, white petrolatum, soft paraffin, or multi-hydrocarbon	2021-01-01	MAT_HYDROCARBON_BODY_B07	COM_1010_prod.C.514
2	MAT_JEANS_A_34	JEANS	JEANS CLOTH X FABRIC	2019-04-15	MAT_JEANS_A_34	COM_1020_prod.C.787
3	MAT_MEDICINE_NAS_DROP	NASAL DROP	Oxymetazoline HCL USP 0.02%	2020-12-20	MAT_MEDICINE_NAS_DROP	COM_1020_prod.F.001

7.

	Winter Cosmetics for lips
1	Lip Ice

8.

	prod_name
1	Afrin
2	Denim Jacket
3	Lip Ice

9.

	com_name
1	Jeddah
2	Mojumdar Group of Industries

10.

	city
1	Chattogram
2	Dhaka

11.

	(No column name)
1	Mojumdar Group of Industries ID:COM_1099 has a missing phone number

12.

	Number of Companies
1	3
	Number of Materials
1	5
	Number of Products
1	3
	Number of Stores
1	2

13.

	country	(No column name)
1	Bangladesh	2
2	Saudi Arabia	1
3	Singapore	1

14.

	(No column name)
1	1

15.

	Export Zones
1	Italy
2	Kuwait City
3	Saudi Arabia
4	Singapore

16.

	com_name
1	Moina Limited

17.

	com_id	com_name	prod_name
1	COM_1020	Moina Limited	Afrin
2	COM_1020	Moina Limited	Denim Jacket
3	COM_1010	Mojumdar G...	Lip Ice

8. Full Code as Appendix

```
create database Nokol_hoite_shabdhan
```

```
go
```

```
create table Government
```

```
(
```

```
    govt_reg_id nvarchar(50) not null primary key
```

```
    /*each company must have a govt_reg_id to operate in the market. */
```

```
)
```

```
create table Location
```

```
(
```

```
    country varchar(50) not null,
```

```
    city varchar(50) not null,
```

```
    area nvarchar(50) not null,
```

```
    house_no nvarchar(10) not null,
```

```
    flat_no nvarchar(10) not null,
```

```
    primary key (country, city, area, house_no, flat_no)
```

```
)
```

```
/*every company and store must have a location, and locations must be in particular places as set  
by the authority in this table*/
```

```
create table Material
```

```
(
```

```
    mat_id nvarchar(50) not null primary key,
```

```

mat_name varchar(200) null,

ingredients nvarchar(500) not null,

pur_date date not null

)

create table Product

(

prod_id nvarchar(50) not null primary key,

govt_reg_num nvarchar(50) not null foreign key references [dbo].[Government],

prod_name varchar(200) null,

man_date date not null,

exp_date date not null

)

create table Used

(

mat_id nvarchar(50) not null foreign key references [dbo].[Material],

prod_id nvarchar(50) not null foreign key references [dbo].[Product]

)

create table Company

(

com_id nvarchar(50) not null primary key,

govt_reg_num nvarchar(50) not null foreign key references [dbo].[Government],

com_name varchar(200) not null,

```

```
con_num nvarchar(20) unique,  
  
com_loc_country varchar(50) not null,  
  
com_loc_city varchar(50) not null,  
  
com_loc_area nvarchar(50) not null,  
  
com_loc_house_no nvarchar(10) not null,  
  
com_loc_flat_no nvarchar(10) not null,  
  
constraint company_fk1 foreign key (com_loc_country, com_loc_city, com_loc_area,  
com_loc_house_no, com_loc_flat_no) references [dbo].[Location],  
)
```

create table Produces

```
(  
  
com_id nvarchar(50) not null foreign key references [dbo].[Company],  
  
prod_id nvarchar(50) not null foreign key references [dbo].[Product]  
)
```

create table Stores

```
(  
  
store_id nvarchar(50) not null primary key,  
  
govt_reg_num nvarchar(50) not null foreign key references [dbo].[Government],  
  
sto_name varchar(200) not null,  
  
sto_con_num nvarchar(20) unique,  
  
sto_loc_country varchar(50) not null,
```

```

sto_loc_city varchar(50) not null,

sto_loc_area nvarchar(50) not null,

sto_loc_house_no nvarchar(10) not null,

sto_loc_flat_no nvarchar(10) not null,

constraint store_fk1 foreign key (sto_loc_country,sto_loc_city, sto_loc_area,
sto_loc_house_no, sto_loc_flat_no) references [dbo].[Location],

com_id nvarchar(50) foreign key references [dbo].[Company],

mat_id nvarchar(50) foreign key references [dbo].[Material]

)

```

```

insert into [dbo].[Government] values

```

```

('COMp.1010.C_abx'),

```

```

('COMp.1020.C_odx'),

```

```

('COMp.1099.C_czy'),

```

```

('PROd.2011.P_gop'),

```

```

('PROd.2058.P_gcz'),

```

```

('PROd.3088.P_med'),

```

```

('STOr.5080.S_abc'),

```

```

('STOr.5059.S_txy')

```

```

/*Code starting with Comp means company code, prod is product code and stor is store code,
stating whether a compnay is fit to produce,

product is good to be consumed or store is hygienic enough to store */

```

insert into [dbo].[Location] values

('Bangladesh', 'Chattogram', 'Khatungonj', '342/Y-B', 'A01-10'),
('Singapore', 'Singapore', 'Redhill Forum', '418-78A', 'A1-A2'),
('Kuwait City', 'Kuwait', 'P.O.Box: 5092', '13051-B', 'B01-B10'),
('Italy', 'Baraggia', 'Varese', '112-X-A1', 'A11-A40'),
('Bangladesh', 'Dhaka', 'Narayangonj', '14/A-1', 'A11-D50'),
('Saudi Arabia', 'Jeddah', 'Jeddah Salama Dist.', '15/C-X', 'A31-A39')

insert into [dbo].[Material] values

('MAT_JEANS_A_34', 'JEANS', 'JEANS CLOTH X FABRIC', '2019-04-15'),
('MAT_APPLE_CIDER_A1', 'RAW LIQUID VINEGER', '5–8% acetic acid, ethanol. sugar',
'2020-01-12'),
('MAT_HYDROCARBON_BODY_B07', 'FLAVORLESS MOISTURIZING
HYDROCARBON', 'Petroleum jelly, petrolatum, white petrolatum, soft paraffin, or multi-
hydrocarbon', '2021-01-01'),
('MAT_PLASTIC_G09', 'LOW MELTED PLASTIC', 'Polystyrene', '2020-08-07'),
('MAT_MEDICINE_NAS_DROP', 'NASAL DROP', 'Oxymetazoline HCL USP 0.02%', '2020-
12-20')

insert into [dbo].[Product] values

('COM_1010_prod.C.514', 'PROd.2011.P_gop', 'Lip Ice', '2021-01-09', '2022-01-10'),
('COM_1020_prod.C.787', 'PROd.2058.P_gcz', 'Denim Jacket', '2019-05-01', '2023-05-02'),
('COM_1020_prod.F.001', 'PROd.3088.P_med', 'Afrin', '2020-12-25', '2022-12-24')

/*(Company with com 1010 id uses product. Every compnay can assign a product code of its own,

but it must be government registerd*/

insert into [dbo].[Used] values

('MAT_HYDROCARBON_BODY_B07', 'COM_1010_prod.C.514'),

('MAT_JEANS_A_34', 'COM_1020_prod.C.787'),

('MAT_MEDICINE_NAS_DROP', 'COM_1020_prod.F.001')

insert into [dbo].[Company] values

('COM_1010', 'COMp.1010.C_abx', 'Mojumdar Group of Industries', '01A188X5545', 'Saudi Arabia', 'Jeddah', 'Jeddah Salama Dist.', '15/C-X', 'A31-A39'),

('COM_1020', 'COMp.1020.C_odx', 'Moina Limited', '01B188Z8577', 'Bangladesh', 'Chattogram', 'Khatungonj', '342/Y-B', 'A01-10'),

('COM_1099', 'COMp.1099.C_czy', 'Mojumdar Group of Industries', null, 'Singapore', 'Singapore', 'Redhill Forum', '418-78A', 'A1-A2')

insert into [dbo].[Produces] values

('COM_1010', 'COM_1010_prod.C.514'),

('COM_1020', 'COM_1020_prod.F.001'),

('COM_1020', 'COM_1020_prod.C.787')

insert into [dbo].[Stores] values

('STO_AB1', 'STOr.5059.S_txy', 'Majuma Apparel Store', '01D188Y8P77', 'Bangladesh',
'Dhaka', 'Narayangonj', '14/A-1', 'A11-D50', 'COM_1020', 'MAT_JEANS_A_34'),

('STO_MI6', 'STOr.5059.S_txy', 'Ibrahim Petroleum', '01Q188ZN877', 'Kuwait City', 'Kuwait',
'P.O.Box: 5092', '13051-B', 'B01-B10', 'COM_1010', 'MAT_HYDROCARBON_BODY_B07')

/*1. Find the Company names of all companies and remove duplicates*/

select distinct [com_name] from [dbo].[Company]

/*2. Find the Company names of all companies*/

select all [com_name] from [dbo].[Company]

/*3. Display all attributes from Company*/

select * from [dbo].[Company]

/*4. Select all the Company contact numbers and show the list of Contact number along with
company name and city*/

select concat([com_name], ' ; Phone Number:', [con_num], ' in the city of ', [com_loc_city])

as 'Company eith Contact and Address' from [dbo].[Company]

/*5. To find all stores located in Bangladesh*/

select [sto_name]

from [dbo].[Stores]

where [sto_loc_country] like 'Bangladesh'

/*6. Find names of all materials which were used to produce at least some products*/

select * from [dbo].[Material], [dbo].[Used]

where [dbo].[Material].[mat_id]=[dbo].[Used].[mat_id]

/*7. Find all products name and id that have 'lip' in its name*/

select [prod_name] as 'Winter Cosmetics for lips'

from [dbo].[Product]

where [prod_name] like '%lip%'

/*8. List in alphabetical order names of all products*/

select [prod_name]

from [dbo].[Product]

order by [prod_name]

/*9. Find companies that are in the Arab countries along with the name of the city*/

select [com_name] from [dbo].[Company] where [com_loc_country] like '%Arab%'

union

select [city] from [dbo].[Location] where [country] like '%Arab%'

/*10. Find all cities in country having companies of 'Bangla' without any city name starting with 'Nara'*/

```
select [city] from [dbo].[Location] where [country] like 'Bangla%'
```

```
except
```

```
select [city] from [dbo].[Location] where [country] like 'Nara%'
```

```
/*11. Find the companies whose phone numbers are missing*/
```

```
select concat([com_name], ' ID:', [com_id], ' has a missing phone number') from  
[dbo].[Company]
```

```
where [con_num] is null
```

```
/*12. Count the total number of companies, materials, stores and products*/
```

```
select count([com_id]) as 'Number of Companies' from [dbo].[Company]
```

```
select count([mat_id]) as 'Number of Materials' from [dbo].[Material]
```

```
select count([prod_id]) as 'Number of Products' from [dbo].[Product]
```

```
select count([store_id]) as 'Number of Stores' from [dbo].[Stores]
```

```
/*13. Find the number of companies per country*/
```

```
select distinct [country], count([com_id])
```

```
from [dbo].[Location], [dbo].[Company]
```

```
where [dbo].[Location].[country]=[dbo].[Company].[com_loc_country]
```

```
group by [country]
```

```
/*14. Find the average number of companies between Bangladesh, Saudi Arabia and Singapore*/
```

```
select avg(comps)
```

```
from (select count([com_id]) as comps from [dbo].[Location], [dbo].[Company]
where [dbo].[Location].[country]=[dbo].[Company].[com_loc_country]
group by [country]) as t
```

/*15. Find the number of location the govt brings product from outside of Bangladesh*/

```
select distinct [country] as 'Export Zones' from [dbo].[Location]
where [country] not in ('Bangladesh')
```

/*16. Find all the companies that produce more than 1 product*/

```
select [com_name] from [dbo].[Company]
where [dbo].[Company].[com_id] in
(select [dbo].[Company].[com_id] from [dbo].[Company], [dbo].[Produces]
where [dbo].[Company].[com_id]=[dbo].[Produces].[com_id]
group by [dbo].[Company].[com_id]
having count([prod_id])>1)
```

/*17. Provide a readable format including the company id, company name and the products it is producing currently*/

```
SELECT [dbo].[Company].[com_id], [com_name], [prod_name]
FROM [dbo].[Company], [dbo].[Product], [dbo].[Produces]
WHERE [dbo].[Company].[com_id]= [dbo].[Produces].[com_id]
and [dbo].[Product].[prod_id] = [dbo].[Produces].[prod_id]
ORDER BY [com_name], [prod_name]
```

```
select * from [dbo].[Government]
```

```
select * from [dbo].[Location]
```

```
select * from [dbo].[Material]
```

```
select * from [dbo].[Product]
```

```
select * from [dbo].[Used]
```

```
select * from [dbo].[Company]
```

```
select * from [dbo].[Produces]
```

```
select * from [dbo].[Stores]
```