Lab 6

1). Consider a rental fact table, which contains information about rental of DVDs, there is a DVD dimension which contains information about different DVDs like, DVD id, DVD release date, actors in DVD etc. Here actor information is mutivalued attribute. Resolve this using Bridge table and give the result for **„Number of DVDs rented in which actor Y play?"**

```
Create table dbo.DVD_RENTAL_FACT(
customer_id int, dvd_id int,
time_id int,
total_rent decimal(5,2));

insert into dbo.DVD_RENTAL_FACT values(100,1000,100,100.00),
(100,1001,100,100.00),
(101,1002,100,150.00),
(101,1001,100,100.00),
(103,1001,100,100.00),
(104,1002,100,100.00);

Select * from dbo.DVD_RENTAL_FACT;
```

	customer_id	dvd_id	time_id	total_rent
1	100	1000	100	100.00
2	100	1001	100	100.00
3	101	1002	100	150.00
4	101	1001	100	100.00
5	103	1001	100	100.00
6	104	1002	100	100.00

```
Create table dbo.DVD_DIM(
dvd_id               int,
dvd_release_date    date,
actors_group_id  int);

insert into dbo.DVD_DIM values(1000,'2000-01-01',10001),
(1001,'2000-09-01',10002),
(1002,'2000-10-01',10003),
(1003,'2000-01-10',10004);

Select * from dbo.DVD_DIM;
```

	dvd_id	dvd_release_date	actors_group_id
1	1000	2000-01-01	10001
2	1001	2000-09-01	10002
3	1002	2000-10-01	10003
4	1003	2000-01-10	10004

```
Create table dbo.ACTORS_BRIDGE(
actors_group_id int, actor_id
int);
insert into dbo.ACTORS_BRIDGE values(10001,101),
(10001,102),
(10002,101),
(10002,103),
(10003,102),
(10004,101),
(10004,102);

Select * from dbo.ACTORS_BRIDGE;
```

	actors_group_id	actor_id
1	10001	101
2	10001	102
3	10002	101
4	10002	103
5	10003	102
6	10004	101
7	10004	102

```
Create table dbo.ACTORS_DIM(
actor_id int, actor_name
char(20));

insert into dbo.ACTORS_DIM values(101,'X'),
(102,'Y'),
(103,'Z');


Select * from dbo.ACTORS_DIM;
```

	actor_id	actor_name
1	101	X
2	102	Y
3	103	Z

```
Select count(*)
From dbo.DVD_RENTAL_FACT as fct
Join dbo.DVD_DIM as dvd
On fct.dvd_id=dvd.dvd_id
Join dbo.ACTORS_BRIDGE as bridge
On dvd.actors_group_id=bridge.actors_group_id
Join dbo.ACTORS_DIM as actor
On bridge.actor_id=actor.actor_id
And actor.actor_name='Y';
```

	(No column name)
1	3

Rows are:

```
select fct.*
from dbo.DVD_RENTAL_FACT as fct join
dbo.DVD_DIMasdvd on fct.dvd_id=dvd.dvd_id
join dbo.ACTORS_BRIDGE as bridge on
dvd.actors_group_id=bridge.actors_group_id
join dbo.ACTORS_DIM as actor on
bridge.actor_id=actor.actor_id and
actor.actor_name='Y';
```

	customer_id	dvd_id	time_id	total_rent
1	100	1000	100	100.00
2	101	1002	100	150.00
3	104	1002	100	100.00

2). Consider the scenario of healthcare, a patient can be diagnosed with multiple diseases and one disease can be diagnosed for multiple patients. It is a many-to-many relation. Implement this using bridge tables, also there shouldn't be many-to-many relation between bridge table and fact table. Give the design of system as well as result for query **"How many patients diagnosed with disease X?".**

```
Create table dbo.health_care_billing_line_item_fact(
customer_id int, diagnosis_group_id int,
master_bill_id int,
total_bill_amount decimal(5,2));
 insert into dbo.health_care_billing_line_item_fact
values(101,10001,1001,100.00), (101,10002,1002,100.00),
(102,10001,1003,110.00),
(103,10001,1004,101.00),
(104,10002,1005,100.00),
(105,10001,1006,110.00),
(106,10002,1007,110.00),
(107,10001,1008,101.00),
(108,10002,1009,101.00);

Select * fromd bo.health_care_billing_line_item_fact;
```

	customer_id	diagnosis_group_id	master_bill_id	total_bill_amount
1	101	10001	1001	100.00
2	101	10002	1002	100.00
3	102	10001	1003	110.00
4	103	10001	1004	101.00
5	104	10002	1005	100.00
6	105	10001	1006	110.00
7	106	10002	1007	110.00
8	107	10001	1008	101.00
9	108	10002	1009	101.00

```
Create table dbo.dignosis_group_dim(diagnosis_group_id int);

Insert into dbo.dignosis_group_dim values(10001),
(10002);

Select * from dbo.dignosis_group_dim;
```

	diagnosis_group_id
1	10001
2	10002

```
Create table dbo.dignosis_group_bridge(
diagnosis_group_id int, diagnosis_key
int, weighting_factor decimal(3,2));

insert into dbo.dignosis_group_bridge values(10001,1001,0.5),
(10001,1002,0.5),
(10002,1003,0.4),
(10002,1004,0.3),
(10002,1002,0.3),
(10003,1001,0.5),
(10003,1002,0.5);

Select * from dbo.dignosis_group_bridge;
```

	diagnosis_group_id	diagnosis_key	weighting_factor
1	10001	1001	0.50
2	10001	1002	0.50
3	10002	1003	0.40
4	10002	1004	0.30
5	10002	1002	0.30
6	10003	1001	0.50
7	10003	1002	0.50

```
Drop table dbo.diagnosis_dim;

Create table dbo.diagnosis_dim( diagnosis_key
int,
```

```
ICD9 int, diagnosis_type
char(30));

insert into dbo.diagnosis_dim values(1001,700,'X'),
(1002,800,'Y'),
(1003,900,'Z'),
(1004,901,'W'),
(1005,702,'A');

Select * from dbo.diagnosis_dim;
```

	diagnosis_key	ICD9	diagnosis_type
1	1001	700	X
2	1002	800	Y
3	1003	900	Z
4	1004	901	W
5	1005	702	A

```
Select count(distinctfct.customer_id)
From dbo.health_care_billing_line_item_fact as fct
Join dbo.dignosis_group_dim as grp_dim
On fct.diagnosis_group_id=grp_dim.diagnosis_group_id
Join dbo.dignosis_group_bridge as brdg
On grp_dim.diagnosis_group_id=brdg.diagnosis_group_id
Join dbo.diagnosis_dim as dim
On brdg.diagnosis_key=dim.diagnosis_key
Where dim.diagnosis_type='X'
```

	(No column name)
1	5

Data

rows:

```
select fct.*
from dbo.health_care_billing_line_item_fact as fct
join dbo.dignosis_group_dim as grp_dim on
fct.diagnosis_group_id=grp_dim.diagnosis_group_id
join dbo.dignosis_group_bridge as brdg on
grp_dim.diagnosis_group_id=brdg.diagnosis_group_id
join dbo.diagnosis_dim as dim on
brdg.diagnosis_key=dim.diagnosis_key where
dim.diagnosis_type='X'
```

	customer_id	diagnosis_group_id	master_bill_id	total_bill_amount
1	101	10001	1001	100.00
2	102	10001	1003	110.00
3	103	10001	1004	101.00
4	105	10001	1006	110.00
5	107	10001	1008	101.00

Audit Dimension

Consider order fact table which stores data for each order and their amount. Create an audit dimension for it and and give result for query **"Net Revenue Amount for all the years considering completely valid data only by verifying from Audit Table"**

```
create table dbo.sales_fact_q_n_5(
orderid int, dateid int, Auditid
int,
Amount decimal(10,2));

insert into dbo.sales_fact_q_n_5 values(100,1,100,21000),
(101,2,100,34000.00),
(102,34,100,45000.00),
(103,1,101,21000.00),
(104,180,100,21000.00),
(105,181,101,34000.00),
(106,181,101,45000.00),
(107,183,101,21000.00);

select * from dbo.sales_fact_q_n_5;
```

	orderid	dateid	Auditid	Amount
1	100	1	100	21000.00
2	101	2	100	34000.00
3	102	34	100	45000.00
4	103	1	101	21000.00
5	104	180	100	21000.00
6	105	181	101	34000.00
7	106	181	101	45000.00
8	107	183	101	21000.00

```
create table dbo.audit_key( audit_id
int,
ETL_Master_version decimal(3,1),
Currency_Conversion_Version decimal(3,1),
Allocation_version decimal(3,1),
Missing_data_flag char(1), data_supplied_flag
char(1), Unlikely_value_flag char(1));
```

```
insert into dbo.audit_key values(100,1.0,1.0,1.0,'n','n','n'),
(101,1.0,1.0,1.0,'y','n','n'),
(102,1.0,1.0,1.0,'n','y','n'),
(103,1.0,1.0,1.0,'n','n','n');

select * from dbo.audit_key;
```

	audit_id	ETL_Master_version	Currency_Conversion_Version	Allocation_version	Missing_data_flag	data_supplied_flag	Unlikely_value_flag
1	100	1.0	1.0	1.0	n	n	n
2	101	1.0	1.0	1.0	y	n	n
3	102	1.0	1.0	1.0	n	y	n
4	103	1.0	1.0	1.0	n	n	n

```
select *
from dbo.sales_fact_q_n_5 as sq5
join dbo.audit_key as ak on
sq5.auditid = ak.audit_id where
ak.Missing_data_flag = 'n' and
ak.Unlikely_value_flag = 'n' and
ak.data_supplied_flag = 'n';
```

	orderid	dateid	Auditid	Amount	audit_id	ETL_Master_version	Currency_Conversion_Version	Allocation_version	Missing_data_flag	data_supplied_flag	Unlikely
1	100	1	100	21000.00	100	1.0	1.0	1.0	n	n	n
2	101	2	100	34000.00	100	1.0	1.0	1.0	n	n	n
3	102	34	100	45000.00	100	1.0	1.0	1.0	n	n	n
4	104	180	100	21000.00	100	1.0	1.0	1.0	n	n	n