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DEPARTMENT OF INFORMATION TECHNOLOGY

COURSE CODE: DJ19ITL303 DATE: 03/10/2022

COURSE NAME: Database Management System Laboratory CLASS: SE IT B2

EXPERIMENT NO. 2

LO: Implement DDL and DML queries.

AIM / OBJECTIVE: Study of Basic SQL commands

IMPLEMENTATION / COMMANDS:

```
create table Customer
(
  Cust_id varchar2(10),
  Lname varchar2(20),
  Fname varchar2(20),
  Area varchar2(20),
  Phone_no integer
)
```

Results Explain **Describe** Saved SQL History

Object Type **TABLE** Object **CUSTOMER**

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
CUSTOMER	CUST_ID	VARCHAR2	3	-	-	-	✓	-	-
	LNAME	VARCHAR2	20	-	-	-	✓	-	-
	FNAME	VARCHAR2	20	-	-	-	✓	-	-
	AREA	VARCHAR2	20	-	-	-	✓	-	-
	PHONE_NO	NUMBER	22	-	0	-	✓	-	-

1 - 5

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```
create table Movie
(
  Movie_no integer,
  Title varchar2(15),
  Type varchar2(10),
  Star varchar2(25),
  Price number (8,2)
)
desc Movie
```

Object Type **TABLE** Object **MOVIE**

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
MOVIE	MOVIE_NO	NUMBER	22	-	0	-	✓	-	-
	TITLE	VARCHAR2	15	-	-	-	✓	-	-
	TYPE	VARCHAR2	10	-	-	-	✓	-	-
	STAR	VARCHAR2	25	-	-	-	✓	-	-
	PRICE	NUMBER	-	8	2	-	✓	-	-

1 - 5

```
create table Invoice
(
 Inv_no varchar2(3),
 Movie_no integer,
 Cust_id varchar2(3),
 Issue_date Date,
 Return_date Date
)
desc Invoice
```

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Object Type **TABLE** Object **INVOICE**

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
INVOICE	INV_NO	VARCHAR2	3	-	-	-	✓	-	-
	MOVIE_NO	NUMBER	22	-	0	-	✓	-	-
	CUST_ID	VARCHAR2	3	-	-	-	✓	-	-
	ISSUE_DATE	DATE	7	-	-	-	✓	-	-
	RETURN_DATE	DATE	7	-	-	-	✓	-	-

1 - 5

```
insert all
into Customer values('A01','Border','Allan','SA',723622)
into Customer values('A02','Shields','Tina','Mo',123784)
into Customer values('A03','Kumar','Ravi','BI',545621)
into Customer values('A04','Rai','Sunita','CH',983724)
into Customer values('A05','','Sachin','DR',253489)
into Customer values('A06','Smith','James','WA',634672)
select 1 from dual;
select * from Customer;
```

CUST_ID	LNAME	FNAME	AREA	PHONE_NO
A01	Border	Allan	SA	723622
A02	Shields	Tina	Mo	123784
A03	Kumar	Ravi	BI	545621
A04	Rai	Sunita	CH	983724
A05	-	Sachin	DR	253489
A06	Smith	James	WA	634672

6 rows returned in 0.02 seconds Download

```
insert all
into Movie values(1,'Carry On doctor','Comedy','Leslie Phollips',175.00)
into Movie values(2,'The Firm','Thriller','Tom Cruise',200.00)
```

into Movie values(3,'Pretty Woman','Romance','Richard Gere',150.55)

into Movie values(4,'Home Alone','Comedy','Macaulay Culkin',150.00)

into Movie values(5,'The Fugitive','Thriller','Harison Ford',200.00)

into Movie values(6,'Coma','Suspense','Michael Douglas',100.00)

into Movie values(7,'Dracula','Horror','Gary Oldman',150.25)

into Movie values(8,'Quick Change','Comedy','Bill Murray',190.00)

select 1 from dual;

select * from Movie;

MOVIE_NO	TITLE	TYPE	STAR	PRICE
1	Carry On doctor	Comedy	Leslie Phollips	175
2	The Firm	Thriller	Tom Cruise	200
3	Pretty Woman	Romance	Richard Gere	150.55
4	Home Alone	Comedy	Macaulay Culkin	150
5	The Fugitive	Thriller	Harison Ford	200
6	Coma	Suspense	Michael Douglas	100
7	Dracula	Horror	Gary Oldman	150.25
8	Quick Change	Comedy	Bill Murray	190

8 rows returned in 0.00 seconds Download

insert all

into Invoice values('I01',4,'A01','07-23-1995','07-28-1995')

into Invoice values('I02',3,'A02','08-12-1995','09-15-1995')

into Invoice values('I03',1,'A02','09-10-1995','08-16-1995')

into Invoice values('I04',6,'A03','07-23-1995','07-24-1995')

into Invoice values('I05',7,'A04','07-28-1995','07-29-1995')

into Invoice values('I06',2,'A06','09-01-1995','09-04-1995')

into Invoice values('I07',9,'A05','08-07-1995','08-08-1995')

into Invoice values('I08',9,'A01','08-18-1995','09-22-1995')

into Invoice values('I09',5,'A03','07-06-1995','07-09-1995')

into Invoice values('I10',8,'A06','08-02-1995','08-05-1995')

select 1 from dual;

select * from Invoice;

INV_NO	MOVIE_NO	CUST_ID	ISSUE_DATE	RETURN_DATE
I01	4	A01	07/23/1995	07/28/1995
I02	3	A02	08/12/1995	09/15/1995
I03	1	A02	09/10/1995	08/16/1995
I04	6	A03	07/23/1995	07/24/1995
I05	7	A04	07/28/1995	07/29/1995
I06	2	A06	09/01/1995	09/04/1995
I07	9	A05	08/07/1995	08/08/1995
I08	9	A01	08/18/1995	09/22/1995
I09	5	A03	07/06/1995	07/09/1995
I10	8	A06	08/02/1995	08/05/1995

10 rows returned in 0.01 seconds Download

QUERIES:

a.Print the entire customer table.

select *

from Customer

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CUST_ID	LNAME	FNAME	AREA	PHONE_NO
A01	Border	Allan	SA	723622
A02	Shields	Tina	Mo	123784
A03	Kumar	Ravi	BI	545621
A04	Rai	Sunita	CH	983724
A05	-	Sachin	DR	253489
A06	Smith	James	WA	634672

6 rows returned in 0.00 seconds Download

b.Retrieve the list of fname and the area of all the customers.

```
select fname,area
from Customer
```

FNAME	AREA
Allan	SA
Tina	Mo
Ravi	BI
Sunita	CH
Sachin	DR
James	WA

6 rows returned in 0.00 seconds

c.Find the names of all the customers having ‘a’ as the second letter in fname.

```
select fname
from Customer
where fname like '_a%'
```

FNAME
Ravi
Sachin
James

3 rows returned in 0.00 seconds

d.Find the lname of all customers that begin with ‘S’ or ‘J’.

```
select lname
from Customer
where lname like 'S%' or
      lname like 'J%'
```

LNAME
Shields
Smith

e.Find out the customers who stay in an area whose 2nd letter is ‘a’.

```
select fname , lname , area
from Customer
where area like '_A%'
```

FNAME	LNAME	AREA
Allan	Border	SA
James	Smith	WA

f.Print the list of customers whose phone numbers are greater than 555000.

```
select fname , lname , phone_no
from Customer
```

where phone_no>555000

FNAME	LNAME	PHONE_NO
Allan	Border	723622
Sunita	Rai	983724
James	Smith	634672

g.Display the invoice table information for cust_id ‘A01’ and ‘A02’.

```
select * from Invoice
where Cust_id = 'A01'or
      Cust_id = 'A02'
```

INV_NO	MOVIE_NO	CUST_ID	ISSUE_DATE	RETURN_DATE
I01	4	A01	07/23/1995	07/28/1995
I02	3	A02	08/12/1995	09/15/1995
I03	1	A02	09/10/1995	08/16/1995
I08	9	A01	08/18/1995	09/22/1995

4 rows returned in 0.01 seconds Download

h.Find the movies whose price is greater than 150 and less than or equal to 200.

```
select title,price
from Movie
where price > 150 and
```

price <= 200

TITLE	PRICE
Carry On doctor	175
The Firm	200
Pretty Woman	150.55
The Fugitive	200
Dracula	150.25
Quick Change	190

i.List all details of customers without phone numbers.

```
select *
from Customer
where phone_no=NULL
```

no data found

j.List the movie_no and inv_no of customers having inv_no less than 'I05' from Invoice table.

```
select Movie_no,Inv_no
from Invoice
where Inv_no < 'I05'
```

MOVIE_NO	INV_NO
4	I01
3	I02
1	I03
6	I04

k.Change the area of cust_id 'A05' to 'VS'

```
Update Customer
set area = 'VS'
```

```
where cust_id='A05'
```

```
1 row(s) updated.
```

```
select area,cust_id
from Customer
where cust_id='A05'
```

AREA	CUST_ID
VS	A05

l.Modify the return date of invoice number ‘I08’ to 21-08-95’.

```
Update Invoice
set return_date = '08-21-1995'
where Inv_No='I08'
```

```
1 row(s) updated.
```

```
select Inv_no,return_date
from Invoice
where Inv_No='I08'
```

INV_NO	RETURN_DATE
I08	08/21/1995

1 rows returned in 0.00 seconds

m.Delete all the records having return date before 10th July ‘95.

```
delete from Invoice
where return_date < '07-10-
1995'
```

```
1 row(s) deleted.
```

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select *

from Invoice

INV_NO	MOVIE_NO	CUST_ID	ISSUE_DATE	RETURN_DATE
I01	4	A01	07/23/1995	07/28/1995
I02	3	A02	08/12/1995	09/15/1995
I03	1	A02	09/10/1995	08/16/1995
I04	6	A03	07/23/1995	07/24/1995
I05	7	A04	07/28/1995	07/29/1995
I06	2	A06	09/01/1995	09/04/1995
I07	9	A05	08/07/1995	08/08/1995
I08	9	A01	08/18/1995	08/21/1995
I10	8	A06	08/02/1995	08/05/1995

9 rows returned in 0.00 seconds Download

n.Truncate the MOVIE table

truncate table Movie

```
Table truncated.
```

select *

from Movie;

Results Explain

no data found

CONCLUSION:

Thus in this experiment, we learnt about all the basic commands in SQL such as create, insert, select, update, delete, truncate and use them to satisfy different queries asked in the above experiment.

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DEPARTMENT OF INFORMATION TECHNOLOGY

COURSE CODE: DJ19ITL303 **DATE: 31/10/2022**

COURSE NAME: Database Management System Laboratory **CLASS: B2**

NAME: ANUPKUMAR SINGH

EXPERIMENT NO. 3

LO: Write queries using Aggregate functions in SQL.

AIM / OBJECTIVE: Accessing and Modifying Data in SQL Server

IMPLEMENTATION / COMMANDS:

a.Find out the customers who stay in an area 'SA', or area 'BI' or area 'CH'.

```
select fname , lname , area
from Customer
where area IN('SA','BI','CH')
```

FNAME	LNAME	AREA
Allan	Border	SA
Ravi	Kumar	BI
Sunita	Rai	CH

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b.List the movies in sorted order of their titles.

```
select title
from movie
order by title
```

TITLE
Carry On doctor
Coma
Dracula
Home Alone
Pretty Woman
Quick Change
The Firm
The Fugitive

8 rows returned in 0.01 seconds

c.Calculate the total price of all the movies.

```
select sum(price) as Total_Price
```

from movie

TOTAL_PRICE
1315.8

1 rows returned in 0.00 seconds

d.Determine the maximum and minimum movie prices. Rename the columnsheadings as MAXIMUM and MINIMUMwhile displaying the output..

```
select max(price) as MAXIMUM
from movie
select min(price) as MINIMUM
from movie
```

MAXIMUM
200

1 rows returned in 0.00 seconds

MINIMUM
100

1 rows returned in 0.00 seconds

e.Find the number of movies of each type.

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```
select count(movie_no),type
from Movie
group by type
```

COUNT(MOVIE_NO)	TYPE
3	Comedy
2	Thriller
1	Romance
1	Horror
1	Suspense

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f.Print the type and average price of each type.

```
select type, avg(price)
from movie
group by type
```

TYPE	AVG(PRICE)
Comedy	171.66666666666666666666666666666666666667
Thriller	200
Romance	150.55
Horror	150.25
Suspense	100

5 rows returned in 0.00 seconds Download

g.Calculate the average price for each type that has average price > 150.

```
select type, avg(price)
from movie
group by type
```

having avg(price) > 150

TYPE	AVG(PRICE)
Comedy	171.66666666666666666666666666666666666667
Thriller	200
Romance	150.55
Horror	150.25

4 rows returned in 0.00 seconds Download

h.Calculate the average price of all movies where type is 'comedy' or 'thriller and price>=150

```
select avg(price)
from movie
where (type like 'Comedy' or
type like 'Thriller') and
price >= 150
```

AVG(PRICE)
183

1 rows returned in 0.00 seconds Download

i.Print the names of all customers whose customer id is between A01 and A05

```
select fname,lname
from customer
where cust_id BETWEEN 'A01' and 'A05'
```

FNAME	LNAME
Allan	Border
Tina	Shields
Ravi	Kumar
Sunita	Rai
Sachin	-

5 rows returned in 0.00 seconds Download

j.List the various movie types available from the movie table.

```
select distinct type
from movie
```

TYPE
Comedy
Thriller
Romance
Horror
Suspense

5 rows returned in 0.00 seconds Download

k.Find the movies whose price is greater than 150 and less than or equal to 200.

```
select title
from movie
where price > 150 and price <= 200
```

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TITLE
Carry On doctor
The Firm
Pretty Woman
The Fugitive
Dracula
Quick Change

6 rows returned in 0.00 seconds Download

l.Retrieve the top 5 customers.

```
select *
from (select cust_id, fname, lname
from customer
order by cust_id)
where rownum < 6
```

CUST_ID	FNAME	LNAME
A01	Allan	Border
A02	Tina	Shields
A03	Ravi	Kumar
A04	Sunita	Rai
A05	Sachin	-

5 rows returned in 0.00 seconds Download

m.Retrieve the top 5 customers in the alphabetical order of first name.

```
select *
from (select cust_id, fname, lname
```

```
from customer
order by fname)
where rownum < 6
```

CUST_ID	FNAME	LNAME
A01	Allan	Border
A06	James	Smith
A03	Ravi	Kumar
A05	Sachin	-
A04	Sunita	Rai

5 rows returned in 0.00 seconds Download

n.Alterthe customer table to add the age of every customer.

```
alter table customer
add(age number(3))
select *
from customer
```

```
Table altered.

0.04 seconds
```

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CUST_ID	LNAME	FNAME	AREA	PHONE_NO	AGE
A01	Border	Allan	SA	723622	-
A02	Shields	Tina	Mo	123784	-
A03	Kumar	Ravi	BI	545621	-
A04	Rai	Sunita	CH	983724	-
A06	Smith	James	WA	634672	-
A05	-	Sachin	VS	253489	-

6 rows returned in 0.00 seconds Download

o.Create a table 'NewCustomer'.Insert the last names and first names of all the customers into this table using select subquery.

```
create table NewCustomer
(
lname varchar2(15),
fname varchar2(15)
);

insert into NewCustomer(lname, fname)
select lname, fname
from customer
select *
from NewCustomer
```

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```
6 row(s) inserted.
```

0.00 seconds

LNAME	FNAME
Border	Allan
Shields	Tina
Kumar	Ravi
Rai	Sunita
Smith	James
-	Sachin

6 rows returned in 0.00 seconds Download

p.Print the information of invoice table in the following format for all records :The Invoice No. Of Customer Id. {cust_id} is {inv_no} and Movie No. Is {movie_no}.

```
select 'The Invoice No. Of Customer Id '||cust_id||' is '||inv_no||' and Movie No. is
'||movie_no

from invoice
```

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'THEINVOICENO.OFCUSTOMERID'||CUST_ID||'IS'||INV_NO||'ANDMOVIENO.IS'||MOVIE_NO
The Invoice No. Of Customer Id A01 is I01 and Movie No. is 4
The Invoice No. Of Customer Id A02 is I02 and Movie No. is 3
The Invoice No. Of Customer Id A02 is I03 and Movie No. is 1
The Invoice No. Of Customer Id A03 is I04 and Movie No. is 6
The Invoice No. Of Customer Id A04 is I05 and Movie No. is 7
The Invoice No. Of Customer Id A06 is I06 and Movie No. is 2
The Invoice No. Of Customer Id A05 is I07 and Movie No. is 9
The Invoice No. Of Customer Id A01 is I08 and Movie No. is 9
The Invoice No. Of Customer Id A03 is I09 and Movie No. is 5
The Invoice No. Of Customer Id A06 is I10 and Movie No. is 8

10 rows returned in 0.00 seconds Download

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DEPARTMENT OF INFORMATION TECHNOLOGY

COURSE CODE: DJ19ITL303 **DATE: 31 / 10 / 22**

COURSE NAME: Database Management System Laboratory **CLASS: B2**

EXPERIMENT NO. 4

LO: Write queries using Joins SQL.

AIM / OBJECTIVE: To study and implement Joins and Views.

IMPLEMENTATION / COMMANDS:

1. Display movie no, title, type ,cust_id, issue date and return date using INNER JOIN, LEFT OUTER JOIN, RIGHT OUTER JOIN and FULL OUTER JOIN in the descending order of movie no.

```
select m.movie_no,m.title,m.type,i.Cust_id,i.issue_date,i.return_date
from Movie m INNER JOIN  Invoice i
on m.Movie_no = i.Movie_no
order by Movie_no DESC
```

MOVIE_NO	TITLE	TYPE	CUST_ID	ISSUE_DATE	RETURN_DATE
8	Quick Change	Comedy	A06	08/02/1995	08/05/1995
7	Dracula	Horror	A04	07/28/1995	07/29/1995
6	Coma	Suspense	A03	07/23/1995	07/24/1995
5	The Fugitive	Thriller	A03	07/06/1995	07/09/1995
4	Home Alone	Comedy	A01	07/23/1995	07/28/1995
3	Pretty Woman	Romance	A02	08/12/1995	09/15/1995
2	The Firm	Thriller	A06	09/01/1995	09/04/1995
1	Carry On doctor	Comedy	A02	09/10/1995	08/16/1995

8 rows returned in 0.01 seconds Download

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```
select m.movie_no,m.title,m.type,i.Cust_id,i.issue_date,i.return_date
from Movie m LEFT OUTER JOIN  Invoice i
on m.Movie_no = i.Movie_no
order by Movie_no DESC
```

MOVIE_NO	TITLE	TYPE	CUST_ID	ISSUE_DATE	RETURN_DATE
8	Quick Change	Comedy	A06	08/02/1995	08/05/1995
7	Dracula	Horror	A04	07/28/1995	07/29/1995
6	Coma	Suspense	A03	07/23/1995	07/24/1995
5	The Fugitive	Thriller	A03	07/06/1995	07/09/1995
4	Home Alone	Comedy	A01	07/23/1995	07/28/1995
3	Pretty Woman	Romance	A02	08/12/1995	09/15/1995
2	The Firm	Thriller	A06	09/01/1995	09/04/1995
1	Carry On doctor	Comedy	A02	09/10/1995	08/16/1995

8 rows returned in 0.00 seconds Download

```
select m.movie_no,m.title,m.type,i.Cust_id,i.issue_date,i.return_date
from Movie m RIGHT OUTER JOIN  Invoice i
on m.Movie_no = i.Movie_no
order by Movie_no DESC
```

MOVIE_NO	TITLE	TYPE	CUST_ID	ISSUE_DATE	RETURN_DATE
-	-	-	A01	08/18/1995	09/22/1995
-	-	-	A05	08/07/1995	08/08/1995
8	Quick Change	Comedy	A06	08/02/1995	08/05/1995
7	Dracula	Horror	A04	07/28/1995	07/29/1995
6	Coma	Suspense	A03	07/23/1995	07/24/1995
5	The Fugitive	Thriller	A03	07/06/1995	07/09/1995
4	Home Alone	Comedy	A01	07/23/1995	07/28/1995
3	Pretty Woman	Romance	A02	08/12/1995	09/15/1995
2	The Firm	Thriller	A06	09/01/1995	09/04/1995
1	Carry On doctor	Comedy	A02	09/10/1995	08/16/1995

10 rows returned in 0.00 seconds Download

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```
select m.movie_no,m.title,m.type,i.Cust_id,i.issue_date,i.return_date
from Movie m FULL OUTER JOIN  Invoice i
on m.Movie_no = i.Movie_no
order by Movie_no DESC
```

MOVIE_NO	TITLE	TYPE	CUST_ID	ISSUE_DATE	RETURN_DATE
-	-	-	A01	08/18/1995	09/22/1995
-	-	-	A05	08/07/1995	08/08/1995
8	Quick Change	Comedy	A06	08/02/1995	08/05/1995
7	Dracula	Horror	A04	07/28/1995	07/29/1995
6	Coma	Suspense	A03	07/23/1995	07/24/1995
5	The Fugitive	Thriller	A03	07/06/1995	07/09/1995
4	Home Alone	Comedy	A01	07/23/1995	07/28/1995
3	Pretty Woman	Romance	A02	08/12/1995	09/15/1995
2	The Firm	Thriller	A06	09/01/1995	09/04/1995
1	Carry On doctor	Comedy	A02	09/10/1995	08/16/1995

10 rows returned in 0.00 seconds Download

2. Find the lname,fname who have been issued movies

```
select c.lname,c.fname
from Customer c INNER JOIN Invoice i
on c.Cust_id = i.Cust_id
where i.issue_date is NOT NULL
```

LNAME	FNAME
Border	Allan
Shields	Tina
Shields	Tina
Kumar	Ravi
Rai	Sunita
Smith	James
-	Sachin
Border	Allan
Kumar	Ravi
Smith	James

3. Find out the title and type of movies that have been issued to Tina.

```
select m.title ,m.type
from Movie_1 m ,Customer c,Invoice_1 i
where (m.Movie_no = i.Movie_no AND
        c.Cust_id =i.Cust_id ) AND
        (c.fname like 'Tina')
```

TITLE	TYPE
Pretty Woman	Romance
Carry On doctor	Comedy

4. Display the first names and last names of the customers who have issued movies after 23rd July 95.

```
select distinct c.fname , c.lname , i.issue_date
from Customer c, Invoice i
where c.Cust_id = i.Cust_id AND issue_date > '07-23-1995';
```

FNAME	LNAME	ISSUE_DATE
Sunita	Rai	07/28/1995
Sachin	-	08/07/1995
Tina	Shield	08/12/1995
James	Smith	08/02/1995
James	Smith	09/01/1995
Tina	Shield	09/10/1995
Allan	Border	08/18/1995

7 rows returned in 0.01 seconds Download

5. Find the customer name and area with invoice number 'I10'.

```
select c.fname ,c.lname ,c.area
from Customer c ,Invoice i
where (c.Cust_id = i.Cust_id ) AND
      (Inv_no like 'I10')
```

FNAME	LNAME	AREA
James	Smith	WA

6. Find the names and movie numbers of all the customers who have been issued a movie.

```
select c.fname,c.lname,m.Movie_no
from Customer c ,Invoice i , Movie m
where c.Cust_ID = i.Cust_ID AND
      m.Movie_no = i.Movie_no  AND
```

(i.issue_date is NOT NULL)

FNAME	MOVIE_NO
Tina	1
James	2
Tina	3
Allan	4
Ravi	5
Ravi	6
Sunita	7
James	8

7. Find out which customers have been issued movie number 9.

```
select c.fname,c.lname,m.Movie_no
from Customer c ,Invoice i , Movie m
where c.Cust_id = i.Cust_id AND
        m.Movie_no = i.Movie_no  AND
       (m.Movie_no = 9)
```

no data found

8. Find the name of the movie issued to Tina and Allan.

```
 select m.title ,m.type
from Movie m ,Customer c,Invoice i
where (m.Movie_no = i.Movie_no AND
    c.Cust_id =i.Cust_id ) AND
    (c.fname IN( 'Tina','Allan'))
```

TITLE	TYPE
Home Alone	Comedy
Pretty Woman	Romance
Carry On doctor	Comedy

9. For the above query create a view.

```
create view Movie AS
select m.title ,m.type
from Movie m ,Customer c,Invoice i
where (m.Movie_no = i.Movie_no AND
    c.Cust_id =i.Cust_id ) AND
    (c.fname IN( 'Tina','Allan'))
```

```
View created.
```

```
select *
from Movie
```

TITLE	TYPE
Home Alone	Comedy
Pretty Woman	Romance
Carry On doctor	Comedy

10. Modify the above view to add the price of the movie.

```
Create or Replace view Movie AS
select m.title ,m.type
from Movie m ,Customer c,Invoice i
where (m.Movie_no = i.Movie_no AND
    c.Cust_id =i.Cust_id ) AND
```

(c.fname IN('Tina','Allan'))

TITLE	TYPE	PRICE
Home Alone	Comedy	150
Pretty Woman	Romance	150.55
Carry On doctor	Comedy	175

11. Drop the view

Drop view Movie

```
View dropped.
```

CONCLUSION :

Thus, in this experiment, we learn the implementation of joins and views in SQL Oracle and how to solve queries using joins.

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DEPARTMENT OF INFORMATION TECHNOLOGY

COURSE CODE: DJ19ITL303 **DATE:09/11/2022**

COURSE NAME: Database Management System Laboratory **CLASS: SY B. Tech B2**

SAP ID: 60003210202

EXPERIMENT NO. 5

LO: To study and implement Sub-queries

AIM / OBJECTIVE: Study of SQL commands

IMPLEMENTATION / COMMANDS:

QUERIES:

1) Find the lname, fname who have been issued movies.

```
select fname,lname
from customer
where cust_id in(select cust_id
                 from invoice
                 where issue_date is not null )
```

FNAME	LNAME
Allan	Border
Tina	Shields
Ravi	Kumar
Sunita	Rai
James	Smith
Sachin	-

2) Find out the movie number which has been issued to Allan.

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```
select movie_no
from invoice
where cust_id in(select cust_id
                 from customer
                 where fname like 'Allan')
```

MOVIE_NO
9
4

3)Display all the movie title whose price is same as the price of movie ‘The Firm’

```
select title
from movie
where price in(select price
               from movie
               where title='The Firm')and title!='The Firm';
```

TITLE
The Fugitive

4) Find the customer name and area with invoice number ‘I10’.

```
select fname,area
from customer
where cust_id in(select cust_id
                 from invoice
                where inv_no like 'I10')
```

FNAME	AREA
James	WA

5) Find the names and movie numbers of all the customers who have been issued a movie.

```
select fname||' '||lname as Customer_name,Movie_no
from customer,invoice
where customer.cust_id=invoice.cust_id and movie_no in(select movie_no
                                                       from invoice
                                                       where issue_date is not null)
```

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CUSTOMER_NAME	MOVIE_NO
Allan Border	4
Tina Shields	3
Tina Shields	1
Ravi Kumar	6
Sunita Rai	7
James Smith	2
Allan Border	9
Sachin	9
Ravi Kumar	5
James Smith	8

6) Find out which customers have been issued movie number 9.

```
select fname
from customer
where cust_id in(select cust_id
                 from invoice
                 where movie_no=9)
```

FNAME
Sachin
Allan

7) Find the name of the movie issued to Tina and Allan.

```
select title
from movie
where movie_no in(select movie_no
                  from invoice
                  where cust_id in(select cust_id
                                   from customer
                                   where fname like 'Tina' or fname like 'Allan'))
```

TITLE
Home Alone
Pretty Woman
Carry on doctor

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8) List the movie number, movie name issued to all the customers.

```
select movie.movie_no,title
from invoice,movie
where invoice.movie_no=movie.movie_no and movie.movie_no in (select movie_no
                                                            from invoice
                                                            where issue_date is not null);
```

MOVIE_NO	TITLE
4	Home Alone
3	Pretty Woman
1	Carry on doctor
6	Coma
7	Dracula
2	The Firm
5	The Fugitive
8	Quick Change

9) Find the customer names and phone numbers who have been issued movies before 01-aug-95.

```
select fname,phone_no
from customer where cust_id in(select cust_id
                               from invoice
                               where issue_date<'08-01-1995')
```

FNAME	PHONE_NO
Allan	723622
Ravi	545621
Sunita	983724

10) Find the type and movie number of movie issued to cust_id ‘A01’ and ‘A02’.

```
select type,movie_no
from movie
where movie_no in(select movie_no
                  from invoice
                  where cust_id like 'A01' or cust_id like 'A02')
```

TYPE	MOVIE_NO
Comedy	4
Romance	3
Comedy	1

CONCLUSION:

Subqueries are successfully implemented in the above experiment.

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DEPARTMENT OF INFORMATION TECHNOLOGY

COURSE CODE: DJ19ITL303 **DATE:** 14-11-2022

COURSE NAME: Database Management System Laboratory **CLASS: B2**

NAME: ANUPKUMAR SINGH

EXPERIMENT NO. 6

LO: Write SQL queries using Subqueries.

AIM / OBJECTIVE: To study and implement integrity constraints

IMPLEMENTATION / COMMANDS:

1. Create a table with a name Sales_Order having columns order_no as primary key, order_date should not be a null value, client_no, order_status, salesman_no.

```
create table sales_order
(
order_no integer PRIMARY KEY,
order_date date NOT NULL,
client_no integer,
order_status varchar2(10),
salesman_no integer
);
```

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Object Type **TABLE** Object **SALES_ORDER**

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
SALES_ORDER	ORDER_NO	NUMBER	22	-	0	1	-	-	-
	ORDER_DATE	DATE	7	-	-	-	-	-	-
	CLIENT_NO	NUMBER	22	-	0	-	✓	-	-
	ORDER_STATUS	VARCHAR2	10	-	-	-	✓	-	-
	SALESMAN_NO	NUMBER	22	-	0	-	✓	-	-

1 - 5

2. Insert the records in the table in such a way that few records should show constraint violation for the columns order_no & order_date.

```
insert all
into sales_order values(1,'jul-10-2022',12,'Y',13)
into sales_order values(2,'jul-11-2022',8,'Y',13)
into sales_order values(1,'jul-10-2022',15,'N',90)
select * from dual
```

```
ORA-00001: unique constraint (IT1.SYS_C007556) violated
```

```
insert all
into sales_order values(1,'jul-10-2022',12,'Y',13)
into sales_order values(2,'jul-11-2022',8,'Y',13)
into sales_order values(3,'',15,'N',90)
select * from dual
```

```
ORA-01400: cannot insert NULL into ("YD"."SALES_ORDER"."ORDER_DATE")
```

3. Display all the records of the Sales_Order table.

```
select *
from sales_order
```

ORDER_NO	ORDER_DATE	CLIENT_NO	ORDER_STATUS	SALESMAN_NO
1	07/10/2022	12	Y	13
2	07/11/2022	8	Y	13
3	07/12/2022	15	N	90

3 rows returned in 0.00 seconds Download

4. Add the constraint to the Sales_Order table that client_no column should not have duplicate values & also it should allow null values to be inserted.

```
alter table sales_order
add CONSTRAINT clientno_uk UNIQUE(client_no)
```

```
Table altered.

0.04 seconds
```

5. Display all the records of the Sales_Order table.

```
select *
from sales_order
```

ORDER_NO	ORDER_DATE	CLIENT_NO	ORDER_STATUS	SALESMAN_NO
1	07/10/2022	12	Y	13
2	07/11/2022	8	Y	13
3	07/12/2022	15	N	90

3 rows returned in 0.00 seconds Download

6. Create a table with a name Client_Master having columns client_no as a primary key, name, address, city, pincode, order_no as foreign key referencing Sales_Order order_no.

```
create table client_master
(
client_no integer PRIMARY KEY,
name varchar2(10),
address varchar2(10),
```

pincode integer,

order_no integer REFERENCES sales_order(order_no)

)

Object Type TABLE Object CLIENT_MASTER

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
CLIENT_MASTER	CLIENT_NO	NUMBER	22	-	0	1	-	-	-
	NAME	VARCHAR2	10	-	-	-	✓	-	-
	ADDRESS	VARCHAR2	10	-	-	-	✓	-	-
	PINCODE	NUMBER	22	-	0	-	✓	-	-
	ORDER_NO	NUMBER	22	-	0	-	✓	-	-

1 - 5

7. Insert the records in the Client_Master table in such a way that few records should show constraint violation for the column order_no.

insert all

into client_master values(1,'Y','G',77,1)

into client_master values(2,'K','G',77,2)

into client_master values(3,'M','S',79,3)

into client_master values(4,'K','B',81,4)

select * from dual

```
ORA-02291: integrity constraint (IT1.SYS_C007557) violated - parent key not found
```

insert all

into client_master values(1,'Y','G',77,1)

into client_master values(1,'K','G',77,2)

select * from dual

```
ORA-00001: unique constraint (IT1.SYS_C007556) violated
```

8. Display all the records of the Client_Master table.

select *

from client_master

CLIENT_NO	NAME	ADDRESS	PINCODE	ORDER_NO
1	Y	G	77	1
2	K	G	77	2
3	M	S	79	3

3 rows returned in 0.01 seconds Download

9. Delete a record from the Client_Master table whose client_no is 1

```
delete from client_master
where client_no = 1
```

```
1 row(s) deleted.

0.00 seconds
```

10. Delete a record from the Sales_Order table whose order_no is 2.

```
delete from sales_order
where order_no = 2
```

```
1 row(s) deleted.

0.00 seconds
```

11. Update any one value of the order_no column to a new value of Sales_Order table.

```
update sales_order
set order_no =2
where order_no =1
```

```
1 row(s) updated.

0.00 seconds
```

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12. Create a table with name Client_Master1having columns client_no as primary key, name,city& balance. Names starting with 'a', city should be either Mumabi or Delhi & balance should be greater than 1000.

```
create table client_master1
(
client_no integer PRIMARY KEY,
name varchar2(10),
check(name like 'A%'),
city varchar2(10),
check(city in('Mumbai','Delhi')),
balance integer,
check(balance>1000)
)
```

Object Type TABLE Object CLIENT_MASTER1

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
CLIENT_MASTER1	CLIENT_NO	NUMBER	22	-	0	1	-	-	-
	NAME	VARCHAR2	10	-	-	-	✓	-	-
	CITY	VARCHAR2	10	-	-	-	✓	-	-
	BALANCE	NUMBER	22	-	0	-	✓	-	-

1 - 4

13. Insert the records in the table.

```
insert all
into client_master1 values (1,'Aa','Mumbai',1005)
into client_master1 values (2,'Ab','Mumbai',1010)
into client_master1 values (3,'Ac','Delhi',1015)
select * from dual
```

```
3 row(s) inserted.

0.00 seconds
```

14. Display all the records of the table.

```
select *
from client_master1
```

CLIENT_NO	NAME	CITY	BALANCE
1	Aa	Mumbai	1005
2	Ab	Mumbai	1010
3	Ac	Delhi	1015

3 rows returned in 0.00 seconds Download

CONCLUSION : Integrity constraints have been successfully implemented.

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DEPARTMENT OF INFORMATION TECHNOLOGY

COURSE CODE: DJ19ITL303 **DATE: 21 / 11 / 22**

COURSE NAME: Database Management System Laboratory **CLASS: B2**

EXPERIMENT NO. 7

LO : To implement Triggers

AIM / OBJECTIVE: To study and implement Triggers .

Practical Questions:

1. **Write a Trigger for employee table which will display the salary difference.**

   PROCEDURE

   (i) Create the employee table having columns empno, fname, lname, salary, address

```
create table employee_1
(
  emp_no integer,
  fname varchar2(20),
  lname varchar2(20),
  salary integer,
  address varchar2(20)
)
```

```
Table created.
```

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(ii) Insert values

```
insert all
into employee_1 values(1,'Anukul','Roy',500000,'Kharagpur')
into employee_1 values(2,'Amit','Yadav',500001,'Kolhapur')
into employee_1 values(3,'Anurag','Patil',499999,'Mumbai')
select 1 from dual
```

```
3 row(s) inserted.
```

```
select *
from employee_1
```

EMP_NO	FNAME	LNAME	SALARY	ADDRESS
1	Anukul	Roy	500000	Kharagpur
2	Amit	Yadav	500001	Kolhapur
3	Anurag	Patil	499999	Mumbai

Download CSV
3 rows selected.

(iii)Write the after update trigger

```
CREATE OR REPLACE TRIGGER display_salary_changes
AFTER UPDATE ON employee_1
FOR EACH ROW
DECLARE
  sal_diff number;
BEGIN
  sal_diff := :NEW.salary  - :OLD.salary;
  dbms_output.put_line('Old salary: ' || :OLD.salary);
  dbms_output.put_line('New salary: ' || :NEW.salary);
```

```
  dbms_output.put_line('Salary difference: ' || sal_diff);
END;
```

(iv)Update the salary in employee table

```
update employee_1
set salary = 500050
where emp_no = 2
```

```
1 row(s) updated.
```

```
select *
from employee_1
```

EMP_NO	FNAME	LNAME	SALARY	ADDRESS
1	Anukul	Roy	500000	Kharagpur
2	Amit	Yadav	500050	Kolhapur
3	Anurag	Patil	499999	Mumbai

Download CSV
3 rows selected.

(v) Display the difference in new and old salary

```
Old salary: 500001
New salary: 500050
Salary difference: 49
```

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2. **Create table GRADES with 5 columns:**
   - **SENo Number (Student's Enrollment Number)**
   - **M1 Number (Mark from test 1)**
   - **M2 Number (Mark from test 2)**
   - **M3 Number (Mark from test 3)**
   - **Avg_M Number (average mark from test 1, 2 and 3)**

```
create table GRADES
(
 SENo Number,
 M1 Number,
 M2 Number,
 M3 Number,
 Avg_M Number
)
```

```
Table created.
```

a) Create a trigger GRADES_TRG that calculates the value of the Avg_M column.

```
create or replace TRIGGER GRADES_TRG
before UPDATE OR INSERT
ON GRADES
FOR EACH ROW
DECLARE
sumM number;
avgM number;
BEGIN
```

```
    sumM := :NEW.M1 + :NEW.M2 + :NEW.M3;
    avgM := (sumM)/3;
    :new.avg_M := avgM;
  end;
```

```
Trigger created.
```

```
insert into GRADES(SENo,M1,M2,M3)values(1,98,99,99);
insert into GRADES(SENo,M1,M2,M3)values(2,98,98,99);
insert into GRADES(SENo,M1,M2,M3)values(3,98,98,98)
select *
from GRADES
```

SENO	M1	M2	M3	AVG_M
1	98	99	99	98.666666666666666666666666666666666666667
2	98	98	99	98.333333333333333333333333333333333333333
3	98	98	98	98

b) **Create a trigger on table GRADES such that it restricts the entry of duplicate SENo.**

```
CREATE OR REPLACE TRIGGER GRADES_TRG
BEFORE
INSERT
ON GRADES
FOR EACH ROW
DECLARE
count_N integer;
```

```
BEGIN
 SELECT * INTO count_N FROM
    (SELECT COUNT(rownum) FROM grades a
     WHERE a.SENo = :new.SENo);
 IF count_N = 1 THEN
  RAISE_APPLICATION_ERROR( -20003,'Error: Duplicate Entry of SENo .');
 END IF;
END;
```

```
Trigger created.
```

```
insert into GRADES(SENo,M1,M2,M3)values(1,99,99,99)
```

```
1 row(s) inserted.
```

```
insert into GRADES(SENo,M1,M2,M3)values(1,98,99,99)
```

```
ORA-20003: Error: Duplicate Entry of SENo . ORA-06512: at "SQL_ECECHDTCKDUXXQTDCWCRHZAEB.GRADES_TRG", line 8
ORA-06512: at "SYS.DBMS_SQL", line 1721
```

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Department of Information Technology

S.Y. BTech (IT)
SUB: DBMS LAB
Experiment No: 8
To implement Procedures, Functions and Cursors

AIM: To study and implement procedure, function and cursors

Implementation in SQL

1. **Create table order_master with the following columns.**

Column name	Data type	Size
Order_no	Number	
Order_date	Date	
Order_status	Char	1
Delete_date	Date	

```
create table order_master
(
    Order_no Number,
    Order_date Date,
    Order_status varchar2(1),
    Delete_date Date
)
```

```
Table created.
```

2. **Insert values into the order_master table.**

```
insert all
into order_master values(1,'7-Oct-2022','C','15-Oct-2022')
into order_master values(2,'9-Oct-2022','N','18-Oct-2022')
into order_master values(3,'12-Oct-2022','C','21-Oct-2022')
into order_master values(4,'17-Oct-2022','N','27-Oct-2022')
select 1 from dual;
```

```
4 row(s) inserted.
```

3. Create a procedure and a function separately that accepts order_no as the input and returns the order_status.

```
create or replace Procedure FetchOrderStatus_1(varorder_no IN Number)
AS varorder_status varchar2(1);
BEGIN
select order_status into varorder_status from order_master
where Order_no = varorder_no;
dbms_output.put_line('Order Status : '||varorder_status);
END;
```

```
Procedure created.
```

```
Begin
FetchOrderStatus_1(1);
End;
```

```
Statement processed.
Order Status : C
```

```
create or replace Function FetchOrderStatus(varorder_no IN Number)
Return varchar2
IS varorder_status varchar2(1);
BEGIN
select order_status into varorder_status from order_master
where Order_no = varorder_no;
return (varorder_status);
END;
```

```
Function created.
```

1

```
select FetchOrderStatus(1) from dual;
```

FETCHORDERSTATUS(1)
C

4. Implement a implicit and explicit cursor to retrieve all the details of the orders whose status is 'C' where C indicates order is complete and N indicates incomplete.

i) Implicit Cursor

```
DECLARE
ono number;
odate date;
ostatus char(1);
```

```
ddate date;
BEGIN
select orderno, order_date, order_status, delete_date into ono,odate,ostatus,ddate
FROM order_master
where order_status like 'C';
IF sql%FOUND then
dbms_output.put_line('The order no is' ||ono||' , the order date is '||odate||' and delete date is ' ||ddate);
end iF;
if sql%NOTFOUND THEN
dbms_output.put_line('No data found');
END IF;
END;
```

```
Statement processed.
The order no is 1 , the order date is 07-OCT-22 and delete date is 15-OCT-22
```

ii) Explicit Cursor

```
Declare
order_master_rec order_master %rowtype;
CURSOR order_master_cur IS
select *
from Order_master
where order_status like 'C';
```

```
BEGIN
 OPEN order_master_cur;
 LOOP
 FETCH order_master_cur INTO order_master_rec;
 dbms_output.put_line('_____');
 IF order_master_cur%NOTFOUND
 THEN
 EXIT;
 END IF;
 dbms_output.put_line(' | '||order_master_rec.order_no||' | '||order_master_rec.order_date||'
| '||order_master_rec.order_status||' | '||order_master_rec.delete_date||' | ');
 END LOOP ;
 dbms_output.put_line('Total rows fetched is '||order_master_cur%ROWCOUNT);
 CLOSE order_master_cur;
END;
```

```
Statement processed.
 _____________________________________
| 1 | 07-OCT-22 | C | 15-OCT-22 |
 _____________________________________
| 3 | 12-OCT-22 | C | 21-OCT-22 |
 _____________________________________
Total rows fetched is 2
```

CONCLUSION :

Thus we learn to implement procedures, functions and cursors successfully in SQL server.