

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

bject Type TA	ABLE Object C	USTOMER							
Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
CUSTOMER	CUST_ID	VARCHAR2	3	-	(4)	-	/	-	-
	LNAME	VARCHAR2	20	-	-	-	/	-	-
	FNAME	VARCHAR2	20	-	-	-	/	1.	-
	AREA	VARCHAR2	20		-	-	/	.=	-
	PHONE_NO	NUMBER	22	_	0	-	/		-



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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 Data Type Length Precision Scale Primary Key Nullable Default Comment MOVIE NO NUMBER 22 0 **MOVIE** 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	-	ā	5	/	5.T.	-
	MOVIE_NO	NUMBER	22	-	0	7	~	8 7 8	<u></u> 4
	CUST_ID	VARCHAR2	3	25	2	8	/	12	2
	ISSUE_DATE	DATE	7	25	2	2	/	72	<u>i</u> ;
	RETURN_DATE	DATE	7	25	2	2	~	-	25
								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	Мо	123784
A03	Kumar	Ravi	BI	545621
A04	Rai	Sunita	CH	983724
A05	2	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')



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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
101	4	A01	07/23/1995	07/28/1995
102	3	A02	08/12/1995	09/15/1995
103	1	A02	09/10/1995	08/16/1995
104	6	A03	07/23/1995	07/24/1995
105	7	A04	07/28/1995	07/29/1995
106	2	A06	09/01/1995	09/04/1995
107	9	A05	08/07/1995	08/08/1995
108	9	A01	08/18/1995	09/22/1995
109	5	A03	07/06/1995	07/09/1995
I10	8	A06	08/02/1995	08/05/1995

10 rows returned in 0.01 seconds

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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	Мо	123784
A03	Kumar	Ravi	BI	545621
A04	Rai	Sunita	CH	983724
A05	20	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	Мо
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%'



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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%'



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



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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
102	3	A02	08/12/1995	09/15/1995
103	1	A02	09/10/1995	08/16/1995
108	9	A01	08/18/1995	09/22/1995

4 rows returned in 0.01 seconds

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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



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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'

INV_NO
I01
102
103
104

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

Update Customer

set area = 'VS'



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where cust_id='A05'

1 row(s) updated.

select area, cust id

from Customer

where cust_id='A05'

AREA	CUST_ID
VS	A05

1. 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	
108	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
101	4	A01	07/23/1995	07/28/1995
102	3	A02	08/12/1995	09/15/1995
103	1	A02	09/10/1995	08/16/1995
104	6	A03	07/23/1995	07/24/1995
105	7	A04	07/28/1995	07/29/1995
106	2	A06	09/01/1995	09/04/1995
107	9	A05	08/07/1995	08/08/1995
108	9	A01	08/18/1995	08/21/1995
110	8	A06	08/02/1995	08/05/1995

9 rows returned in 0.00 seconds

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n.Truncate the MOVIE table

truncate table Movie

Table truncated.

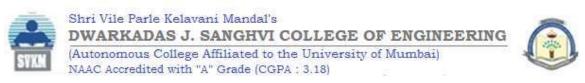
select *

from Movie;



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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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, Iname, area

from Customer

where area IN('SA','BI','CH')

FNAME	LNAME	AREA
Allan	Border	SA
Ravi	Kumar	ВІ
Sunita	Rai	СН





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

select title

from movie

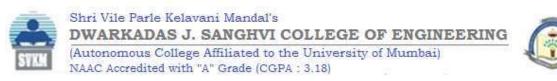
order by title

1	TITLE
Carry	On doctor
Coma	ì
Dracu	ıla
Home	Alone
Pretty	Woman
Quick	Change
The F	irm
The F	ugitive

8 rows returned in 0.01 seconds

c.Calculate the total price of all the movies.

select sum(price) as Total_Price



from movie



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



1 rows returned in 0.00 seconds



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





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

select type, avg(price)

from movie

group by type

AVG(PRICE)		
171.66666666666666666666666666666666666		
200		
150.55		
150.25		
100		

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	171.66666666666666666666666666666666666		
Thriller	200		
Romance	150.55		
Horror	150.25		

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,Iname

from customer

where cust id BETWEEN 'A01' and 'A05'



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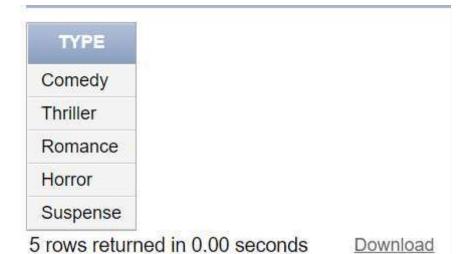
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FNAME	LNAME	
Allan	Border	
Tina	Shields	
Ravi	Kumar	
Sunita	Rai	
Sachin	-	

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

select distinct type

from movie



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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T.	TLE
Carry (On doctor
The Fir	m
Pretty '	Woman
The Fu	gitive
Dracula	а
Quick (Change

6 rows returned in 0.00 seconds

Download

I.Retrieve the top 5 customers.

select *

from (select cust_id, fname, Iname

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

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

select *

from (select cust_id, fname, lname



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from customer

order by fname)

where rownum < 6

CUST_ID	FNAME	LNAME
A01	Allan	Border
A06	James	Smith
A03	Ravi	Kumar
A05	Sa <mark>ch</mark> in	•
A04	Sunita	Rai

5 rows returned in 0.00 seconds

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

alter table customer

add(age number(3))

select *

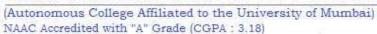
from customer

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	Мо	123784	-
A03	Kumar	Ravi	ВІ	545621	-
A04	Rai	Sunita	CH	983724	-
A06	Smith	James	WA	634672	-
A05	-	Sachin	VS	253489	=

6 rows returned in 0.00 seconds

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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
(
Iname varchar2(15),
fname varchar2(15)
);
insert into NewCustomer(Iname, fname)
select Iname, fname
from customer
select *
from NewCustomer
```





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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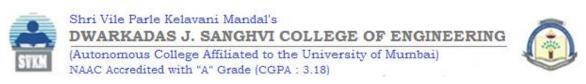


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THEINVOICENO.OFCUSTOMERID' CUST_ID 'IS' INV_NO 'ANDMOVIENO.IS' MOVIE_NO
The Invoice No. Of Customer Id A01 is I01 and Movie No. is 4
The Invoice No. Of Customer Id A02 is I02 and Movie No. is 3
The Invoice No. Of Customer Id A02 is I03 and Movie No. 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
AND THE REPORT OF THE AND THE

10 rows returned in 0.00 seconds

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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:

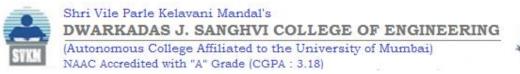
1. Display movie no, title, type ,cust_id, issue date and return date using INNER JOIN, LEFT OUTER JOIN, RIGHT OUTER JOIN and FULL OUTER JOIN in the descending order of movie no.

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

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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

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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
5	57a	155	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

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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
ā	R.	5	A01	08/18/1995	09/22/1995
÷	井	-	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

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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



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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';



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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



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(i.issue date is NOT NULL)

MOVIE_NO
1
2
3
4
5
6
7
8

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

from Customer c ,Invoice i , Movie m

select c.fname,c.lname,m.Movie_no

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'))



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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 *

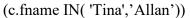
from Movie

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





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.

FNAME	LNAME
Allan	Border
Tina	Shields
Ravi	Kumar
Sunita	Rai
James	Smith
Sachin	070

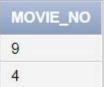
2) Find out the movie number which has been issued to Allan.



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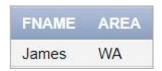
3)Display all the movie title whose price is same as the price of movie 'The Firm'

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



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')



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

select fname||' '||Iname 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)



7) Find the name of the movie issued to Tina and 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')



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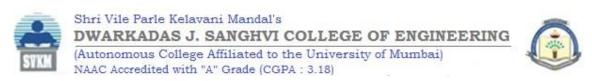


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TYPE	MOVIE_NO
Comedy	4
Romance	3
Comedy	1

CONCLUSION:

Subqueries are successfully implemented in the above experiment.



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	-	-	-	~	-	(-2)
	SALESMAN NO	NUMBER	22	-	0	5	~	-	9 -
								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



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

3 rows returned in 0.00 seconds Download

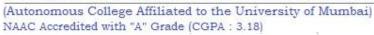
6. Create a table with a name Client_Master having columns client_no as a primary key, name, address, city, pincode, order_no as foreign key referencing Sales_Order order_no.

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



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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	-	17 <u>11</u>	1.
	NAME	VARCHAR2	10	-	-	-	~	-	-
	ADDRESS	VARCHAR2	10	12	-	_	~	12	2
	PINCODE	NUMBER	22	-	0		~	19 <u>2</u>	_
	ORDER_NO	NUMBER	22	177	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 *



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from client master

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

3 rows returned in 0.01 seconds <u>Download</u>

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



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

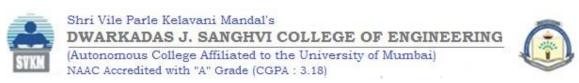
Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
CLIENT MASTER1	CLIENT NO	NUMBER	22	-	0	1	-	-	-
	NAME	VARCHAR2	10	-	-	-	~	-	-
	CITY	VARCHAR2	10	-	-	-	~	-	=
	BALANCE	NUMBER	22	-	0	2	~	-	4
								1	- 4

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	СПҮ	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.



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)
)
```





(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

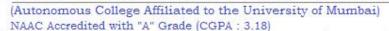
sal diff number;

BEGIN

sal_diff := :NEW.salary - :OLD.salary;
dbms_output.put_line('Old salary: ' || :OLD.salary);
dbms_output.put_line('New salary: ' || :NEW.salary);



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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

(v) Display the difference in new and old salary

Old salary: 500001 New salary: 500050

Salary difference: 49

³ rows selected.





- 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
)
```

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



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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	МЗ	AVG_M
1	98	99	99	98.666666666666666666666666666666666666
2	98	98	99	98.333333333333333333333333333333333333
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

<u>AIM</u>: 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.



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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
```



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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.
select FetchOrderStatus(1) from dual;
FETCHORDERSTATUS(1)
c
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);



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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';



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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 07-0CT-22 C 15-0CT-22
3 12-0CT-22 C 21-0CT-22
Total rows fetched is 2

CONCLUSION:

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