PRACTICAL FILE

DATABASE MANAGEMENT (MCA-165)

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Q1. Create table to store customer information and solvethe queries.

CUST_ID	CUST_NAME	STATE	COUNTRY	AMOUNT	PHONE
3 digit	20 Characters	10 Characters	10 Chars	8 digits including 2 decimal places	11 digits
Key Field	All capital	Default=”Delhi”	Default=”India ”	Between 2000 to 15000	
	Not Null				

Create table customer(

Cust_id number(3) primary key,

Cust_name varchar(20) check(cust_name=upper(cust_name))not null,

State varchar(10) default 'Delhi', Country varchar(10)

default 'India',

Amount number(8,2) check(amount between 2000 and15000),

Phone number(11)

);

a) WAQ to select customer name and id of those customers belonging to Germany

Select cust_name,cust_id from customer

Where country=”Germany”;

CUST_NAME	CUST_ID
JOHN	2

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b) WAQ to display complete information of customerwhose amount > 3000

Select * from customerWhere

amount>3000;

CUST_ID	CUST_NAME	STATE	COUNTRY	AMOUNT	PHONE
3	PEEYUSH	California	USA	8625	107080904
4	SCARLET	London	England	13564	5054786945
7	SMITH	Paris	France	5684.86	48496169498
1	PETER	Delhi	india	9543.15	9070405080
2	JOHN	Bavaria	Germany	9800	5040603010

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5 rows selected.

c) WAQ to select id and country of customer whose name contain a substring as “et”.

Select cust_id , country from customerWhere cust_name

like ‘%ET%’;

CUST_ID	COUNTRY
4	England
1	india

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2 rows selected.

d) WAQ to display the average of amount of all customers

Select round(avg(amount)) as average_amount fromcustomer;

AVERAGE_AMOUNT
7468

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e) WAQ to display the complete information of “Peter”.

Select * from customer

Where cust_name=”PETER”;

CUST_ID	CUST_NAME	STATE	COUNTRY	AMOUNT	PHONE
1	PETER	Delhi	india	9543.15	9070405080

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f) WAQ to display the information of customer whoseamount > 5000 and less than 7000.

Select * from customer

Where amount > 5000 and amount < 7000;

CUST_ID	CUST_NAME	STATE	COUNTRY	AMOUNT	PHONE
7	SMITH	Paris	France	5684.86	48496169498

Download CSV

g) WAQ to select state and id of customer whose name contain “h” as third character.

Select state ,cust_id from customer

Where cust_name like ‘_H%’;

STATE	CUST_ID
Bavaria	2
Queensland	5

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2 rows selected.

h) WAQ to display the maximum amount

Select max(amount) as maximum_amount from customer;

MAXIMUM_AMOUNT
13564

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i) WAQ to display the complete information ofcustomer(s) belongs to Australia

Select * from customer Where

country=”Australia”;

CUST_ID	CUST_NAME	STATE	COUNTRY	AMOUNT	PHONE
5	ROHAN	Queensland	Australia	2598.52	486954561

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j) WAQ to display name of customer whose amount >2000 and < 5000

Select cust_name from customer

Where amount > 2000 and amount <5000;

CUST_NAME
ROHAN
HARSHA

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2 rows selected.

k) WAQ to select id and phone of customer whose name start with “pe”

Select cust_id , phone from customer

Where cust_name like ‘PE%’;

CUST_ID	PHONE
3	107080904
1	9070405080

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2 rows selected.

l) WAQ to display the maximum amount for country “Germany”.

Select max(amount) as maximum_amount from customerWhere country = “germany”;

MAXIMUM_AMOUNT
9800

Download CSV

m) WAQ to display the complete information of “Smith”.

Select * from customer Where cust_name =

“SMITH”;

CUST_ID	CUST_NAME	STATE	COUNTRY	AMOUNT	PHONE
7	SMITH	Paris	France	5684.86	48496169498

n) WAQ to select state and id of customer whose name contain “o” as second character.

Select state , cust_id from customerWhere

cust_name like ‘_O%’;

STATE	CUST_ID
Bavaria	2
Queensland	5

Download CSV

2 rows selected.

o) WAQ to select id and country of customer whose name contain a substring as “oh”.

Select cust_id,country from customerWhere cust_name

like ‘%OH%’;

CUST_ID	COUNTRY
2	Germany
5	Australia

Download CSV

Q2. Create a table to store bank information and solve thequeries:

ID	NAME	BRANCH	ACCOUNT NO	INTEREST	AMOUNT
10	ICICI	Delhi	34	4	56000
20	HDFC	Agra	56	5	43255
30	SBI	Delhi	77	3	67345
40	ICICI	Jaipur	89	3	87623
50	YES	Nagpur	20	5	45500
60	SBI	Agra	561	4	43255
70	YES	Delhi	771	3	67345
80	ICICI	Jaipur	891	7	87600
90	YES	Nagpur	201	5	45200

Create table bank(Id int
primary key,
Name varchar(10) not null, Branch
varchar(10) not null,Account_no int not
null, Interest int not null,
Amount int not null);

a) WAQ to display complete information for ICICI bank.

```
select * from bank where name="icici";
```

id	name	branch	account_no	interest	amount	no_user
10	ICICI	Delhi	34	4	56000	5
40	ICICI	Jaipur	89	3	87623	5
80	ICICI	Jaiput	891	7	87600	5

b) WAQ to select id and name of bank whose amount >50000.

```
select  id , name from bank where amount>50000
```

id	name
10	ICICI
30	SBI
40	ICICI
80	ICICI

c) WAQ to select name of bank whose branch name has "pur" as a substring

select name from bank where branch like '%pur%';

name
ICICI

d) WAQ to select maximum amount among all bank.

select max(amount) as max_amount from bank;

max_amount
87623

e) WAQ to display name and branch of bank whose no. ofaccount > 50.

select name , branch from bank where account_no>50;

name	branch
HDFC	Agra
SBI	Bangalore
ICICI	Jaipur
SBI	Agra
ICICI	Jaiput

f) WAQ to display average of amount for Delhi branch.select

avg(amount) as average_amount from bank

where branch=`Delhi`;

average_amount
56000.0000

g) WAQ to select name of bank whose branch name has "g" as a substring.

select name from bank where branch like '%g%';

name
HDFC
SBI
SBI

h) WAQ to select minimum amount among all bank.

select min(amount) as minimum_amount from bank;

+ Options

minimum_amount
43255

i) WAQ to display id, name of bank whose interest >5 andless than 8.

select id , name from bank where interest > 5 and interest <8;

id	name
80	ICICI

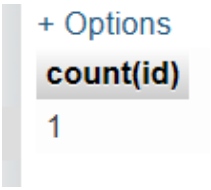
j) WAQ to display branch name whose amount > 20000and < 55000.

select branch from bank where amount > 20000 andamount < 55000;

name	branch
HDFC	Agra
SBI	Agra

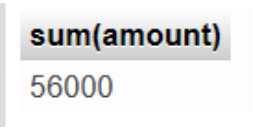
k) WAQ to count ID of HDFC bank.

select count(id) from bank where name = ‘HDFC’;



l) WAQ to display the sum of amount for Delhi branch.

select sum(amount) from bank where branch = ‘Delhi’;

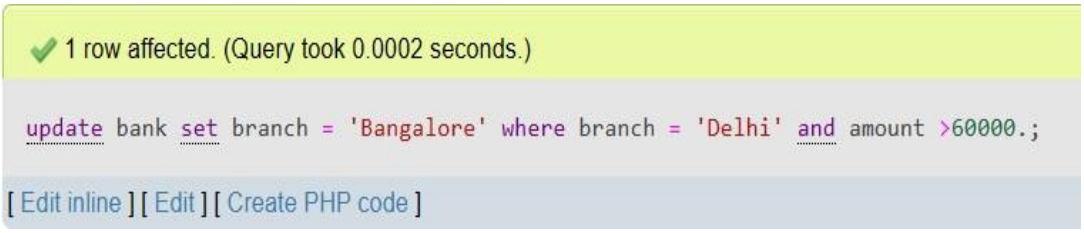


m) WAQ to update Delhi branch by Bangalore whereamount > 60000

update table bank

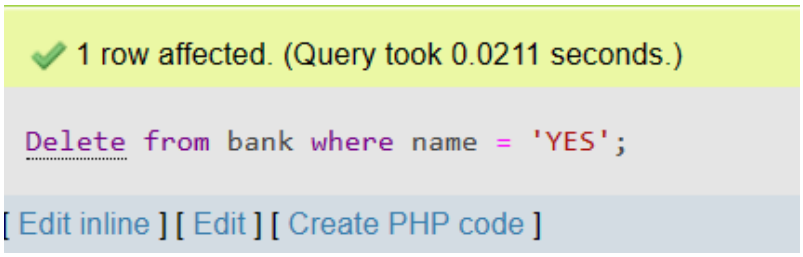
set branch = ‘Bangalore’

where branch = ‘Delhi’ and amount >60000.



n) WAQ to delete the information of yes bank.

Delete from bank where name = ‘YES’;



o) WAQ to display name of bank where branch is Delhiand whose amount> 50000.

Select name from bank where branch = ‘Delhi’ and amount >50000;

name
ICICI

p) WAQ to select maximum amount of HDFC bank

Select max(amount) as max_amount from bank where name = 'HDFC';

max_amount
43255

q) WAQ to display complete information for Delhi branch.

Select * from bank where branch = 'Delhi';

id	name	branch	account_no	interest	amount	no_user
10	ICICI	Delhi	34	4	56000	5

r) WAQ to find distinct bank name.

Select distinct name from bank;

name
ICICI
HDFC
SBI

s) WAQ to delete all data from bank table.

Truncate bank;

t) WAQ to select name and ID of bank where ID belongs tohdfc or yes bank.

Select id from bank

Where name in('HDFC','YES');

id
20

u) WAQ to select name and branch of bank where no. ofaccount between 50 and 90.

Select name,branch from bank

Where account_no BETWEEN 50 AND 90;

name	branch
HDFC	Agra
SBI	Bangalore
ICICI	Jaipur

v) WAQ to select complete details of all bank whose interest between 2 to 6 and belong to IDBI and HDFCbank.

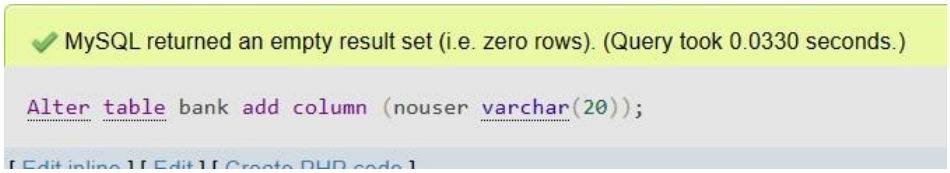
select * from bank

where interest between 2 and 6 and name in('HDFC','IDBI');

id	name	branch	account_no	interest	amount	no_user
20	HDFC	Agra	56	5	43255	5

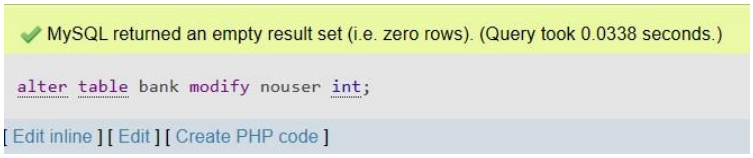
w) WAQ to add a new column "no_user" in bank table with char datatype.

Alter table bank add column (no_user varchar(20));



x) WAQ to modify the data type of "no_user" column from char to int.

alter table bank modify no_user int;

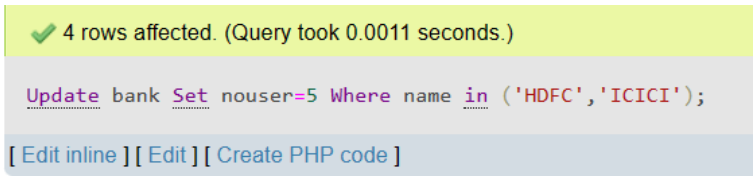


y) WAQ to update the value no_user = 5 for ICICI andHDFC bank.

Update bank Set

no_user=5

Where name in ('HDFC','ICICI');



z) WAQ to list the details of bank whose no of usercolumn contains null value.

Select * from bank Where

no_user IS null;

Q3) Create the table as shown below and perform thefollowing query:-

DeptNo	DName	Loc
10	ACCOUNTING	NEW YORK
20	RESEARCH	DALLAS
30	SALES	CHICAGO
40	OPERATIONS	BOSTON

empno	ename	job	mgr	hiredate	sal	comm	deptno
7839	KING	PRESIDENT	null	17-11-1981	5000	Null	10
7698	BLAKE	MANAGER	7839	1-5-1981	2850	Null	30
7782	CLARK	MANAGER	7839	9-6-1981	2450	Null	10
7566	JONES	MANAGER	7839	2-4-1981	2975	Null	20
7788	SCOTT	ANALYST	7566	13-JUL-87	3000	Null	20
7902	FORD	ANALYST	7566	3-12-1981	3000	Null	20
7369	SMITH	CLERK	7902	17-12-	800	null	20
7499	ALLEN	SALESMAN	7698	20-2-1981	1600	300	30
7521	WARD	SALESMAN	7698	22-2-1981	1250	500	30
7654	MARTIN	SALESMAN	7698	28-9-1981	1250	1400	30
7844	TURNER	SALESMAN	7698	8-9-1981	1500	0	30
7876	ADAMS	CLERK	7788	13-JUL-87	51	null	20
7900	JAMES	CLERK	7698	3-12-1981	950	null	30
7934	MILLER	CLERK	7782	23-1-1982	1300	null	10

Create table department(Deptno int
primary key,
Dname varchar(20) not null,Loc
varchar(20) not null);

Create table employee(Empno int primary
key, Ename varchar(20) not null,Job
varchar(20) not null, Mgr int ,
Hire_date date not null,Sal int not
null,
Comm int,
Deptno int references department(deptno)
);

//DUMP DATA FOR DEPARTMENT TABLE

INSERT into department values(10,'ACCOUNTING','NEWYORK');

INSERT into department values(20,'RESEARCH','DALLAS'); INSERT into department values(30,'SALES','CHICAGO'); INSERT into department values(40,'OPERATIONS','BOSTON');

//DUMP DATA FOR EMPLOYEE TABLE

INSERT INTO employee VALUES (7782, 'CLARK', 'MANAGER',7839, '1981-06-09', 2450, NULL, '10');

- **Display the names of all the employees who are working as clerks and drawing a salary more than 3000.**

Select ename from employee where job=’CLERK’ andsal>3000;

- **Display the names of employees who are working asclerks,salesman or analyst and drawing a salary morethan 3000.**

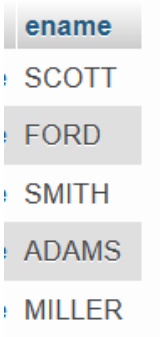
Select ename from employee where job in(‘CLERK’,’SALESMAN’,’ANALYST’) and sal>3000;

- **Display the list of employees who have joined the company before 30-JUN-90 or after 31-DEC-90.**

Select ename from employee where hire_date between ‘1990-06-30’ and ‘1990-12-31’;

- **Display the names of employees working in departnumber 10 or 20 or 40 or employees working as CLERKS,SALESMAN or ANALYST.**

Select ename from employee where deptno in(10,20,40) and job in(‘CLERK’,’SALESMAN’,’ANALYST’);



ename
SCOTT
FORD
SMITH
ADAMS
MILLER

- **Display name,salary,hra,pf,da,total salary for each employee. The output should be in the order of totalsalary,hra 15% of salary,da 10% of salary,pf 5% salary,total salary will be(salary+hra+da)-pf**

SELECT ENAME, SAL, (0.15*SAL) AS HRA , (0.10 * SAL) AS DA,(0.05 * SAL) AS PF,(SAL+0.15 * SAL+ 0.10*SAL - 0.05 * SAL) AS TOTAL_SAL FROM EMPLOYEE;

ENAME	SAL	HRA	DA	PF	TOTAL_SAL
KING	5000	750.00	500.00	250.00	6000.00
BLAKE	2850	427.50	285.00	142.50	3420.00
CLARK	2450	367.50	245.00	122.50	2940.00
JONES	2975	446.25	297.50	148.75	3570.00
SCOTT	3000	450.00	300.00	150.00	3600.00
FORD	3000	450.00	300.00	150.00	3600.00
SMITH	800	120.00	80.00	40.00	960.00
ALLEN	1600	240.00	160.00	80.00	1920.00
WARD	1250	187.50	125.00	62.50	1500.00
MARTIN	1250	187.50	125.00	62.50	1500.00
TURNER	1500	225.00	150.00	75.00	1800.00
ADAMS	51	7.65	5.10	2.55	61.20
JAMES	950	142.50	95.00	47.50	1140.00
MILLER	1300	195.00	130.00	65.00	1560.00

- **Display depart numbers and total number of employees working in each department.**

SELECT DEPTNO , COUNT(EMPNO) FROM EMPLOYEE GROUPBY DEPTNO;

+ Options

DEPTNO	COUNT(EMPNO)
10	3
20	5
30	6

- **Display the various jobs and total salary for each job.**

SELECT JOB , SUM(SAL) AS TOTAL_SAL FROM EMPLOYEEGROUP BY JOB;

JOB	TOTAL_SAL
ANALYST	6000
CLERK	3101
MANAGER	8275
PRESIDENT	5000
SALESMAN	5600

lected: Edit Copy

- **Display the total salary drawn by ANALYST working in depart number 40.**

Select sum(sal) as total_sal from employee where deptno=40
and job='ANALYST';

- **Display the names of employees whose names havesecond alphabet A in their names.**

Select ename from employee where ename like '%A%';

ename
BLAKE
CLARK
ALLEN
WARD
MARTIN
ADAMS
JAMES

- **Display the maximum salary being paid to CLERK.**

Select max(sal) as maximum_sal from employee where job =
'CLERK';

+ Options

maximum_sal
1300

- **Display the names of the employee in descending order of salary.**

Select ename,sal from employee order by sal desc;

ename	Sal
KING	5000
SCOTT	3000
FORD	3000
JONES	2975
BLAKE	2850
CLARK	2450
ALLEN	1600
TURNER	1500
MILLER	1300
WARD	1250
MARTIN	1250
JAMES	950
SMITH	800
ADAMS	51

- **Display the name of the employee along with their annual salary(sal*12).The name of the employee earninghighest annual salary should appear first.**

Select ename , (sal*12) as annual_sal from employee order bysal*12 desc;

ename	annual_sal
KING	60000
SCOTT	36000
FORD	36000
JONES	35700
BLAKE	34200
CLARK	29400
ALLEN	19200
TURNER	18000
MILLER	15600
WARD	15000
MARTIN	15000
JAMES	11400
SMITH	9600
ADAMS	612

- **Display the depart numbers and total salary for each department.**

Select deptno, sum(sal) as total_sal from employee group bydeptno;

deptno	total_sal
10	8750
20	9826
30	9400

- **Display the depart numbers and max salary for each department.**

Select deptno , max(sal) as maximum_sal from employeegroup by deptno;

deptno	maximum_sal
10	5000
20	3000
30	2850

- **Display the various jobs and total salary for each job.**

Select distinct(job) as job , sum(sal) as total_sal fromemployee group by job;

job	total_sal
ANALYST	6000
CLERK	3101
MANAGER	8275
PRESIDENT	5000
SALESMAN	5600

- **Display the depart numbers with more than three employees in each dept.**

Select deptno,count(deptno) as num from employee group bydeptno having count(Empno)>3;

	deptno	num
Delete	20	5
Delete	30	6

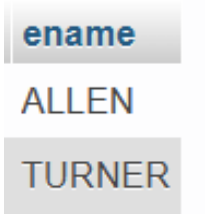
- **Display the employee number and name for employee working as clerk and earning highest salary amongclerks.**

Select empno, ename from employee WHERE SAL=(SELECTMAX(SAL) FROM EMPLOYEE WHERE JOB='CLERK');

empno	ename
7934	MILLER

- **Display the names of salesman who earns a salary morethan the highest salary of any clerk.**

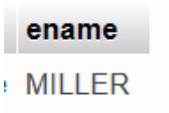
Select ename from employee where job=’SALESMAN’ ANDsal>(select max(sal) from employee where job=’CLERK’);



ename
ALLEN
TURNER

- **Display the names of clerks who earn a salary more than the lowest salary of any salesman.**

select ename from employee where job=’CLERK’ and sal>(select min(sal) from employee where job=’SALESMAN’);



ename
MILLER

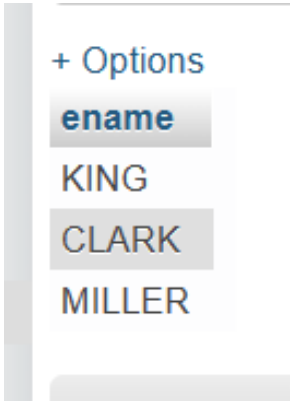
- **Display the names of the employees who earn highest salary in their respective departments.**

Select deptno, ename from employee group by deptno havingmax(sal);

deptno	ename
10	KING
20	JONES
30	BLAKE

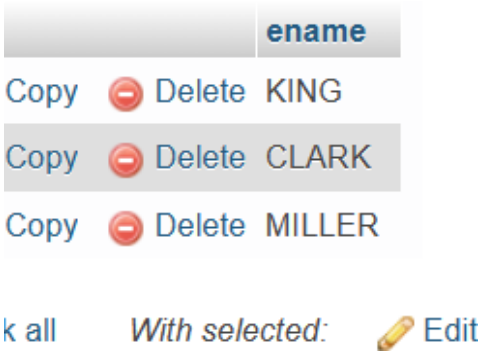
- **Display the employee names who are working in accounting department.**

Select ename from employee,DEPARTMENT where EMPLOYEE.DEPTNO=DEPARTMENT.DEPTNO AND DNAME='ACCOUNTING';



- **Display the names of employees from department number 10 with salary greater than that of any employeeworking in other department.**

Select distinct(ename) from employee ,(select sal from employee where deptno !=10) dsal where deptno=10 andemployee.sal>dsal.sal;



- **Display the names of the employees from department number 10 with salary greater than that of all employeeworking in other departments.**

Select ename from employee where deptno=10 and sal>(select max(sal) from employee where deptno != 10);

ename
KING

- **Display the maximum salary being paid to depart number 20.**

Select max(sal) from employee where deptno=20;

max(sal)
3000

- **Display the average salary drawn by MANAGERS.**

Select avg(asal)from (Select avg(sal) as asal from employeegroup by mgr) avg_sal;

avg(asal)
2031.33332857

- **Select Avg(Sal) from emp where Joj< {01/08/81};**

Select avg(sal) from employee where hire_date<(01/08/81)

avg(sal)
NULL

Q4.Given the following tables for a database LIBRARY:

Book_ID	Book_Name	Author_Nme	Publishers	Price	Type	Qty
C0001	Fast Cook	Lata Kapoor	EPB	355	Cookery	5
F0001	The Tears	William Hopkins	First Publ.	650	Fiction	20
T0001	My first c++	Brian & Brooke	EPB	350	Text	10
T0002	C++ Brainworks	A.W. Rossaine	TDH	350	Text	15
F0002	Thunderbolts	Anna Roberts	First publ.	750	Fiction	50

Book_id	Quantity_Issued
T0001	4
C0001	5
F0001	2

Create table details(

Book_id varchar(5) primary key, Book_name

varchar(20) not null, Author_name varchar(20) not

null,Publisher varchar(20) not null, Price int not

null,

Type varchar(10) not null,Qty int not

null);

Create record(

Book_id varchar(5) references details(Book_id),Quantity_issued int);

Insert queries for details table.

insert into details values('C0001','Fast Cook','Lata
Kapoor','EPB',355,'Cookery',5);

insert into details values('F0001','The Tears','WilliamHopkins','First Publ',650,'Fiction',20);

insert into details values('T0001','My First c++','Brain & Brooke','EPB',350,'Text',10);

insert into details values('T0002','C++ Brainworks','A.W. Rossaine','TDH',350,'Text',15);

insert into details VALUES('F0002','Thunderbolts','AnnaRoberts','First publ',750,'Fiction',50);

insert queries for record table insert into record

values ('T0001',4);insert into record values('C0001',5);

insert into record values('F0001',2);

Write SQL statements for:-

- **To show book name, author name and price of book of First Publ. publishers.**

Select Book_name, Author_name, price from details where publisher = 'First Publ';

Book_name	Author_name	price
The Tears	William Hopkins	650
Thunderbolts	Anna Roberts	750

- **To list the names from books of text type.**

Select Book_name from details where type='Text';

Book_name
My First c++
C++ Brainworks

- **To display the names and price from books in ascending order of their price.**

Select Book_name,price from details order by price asc;

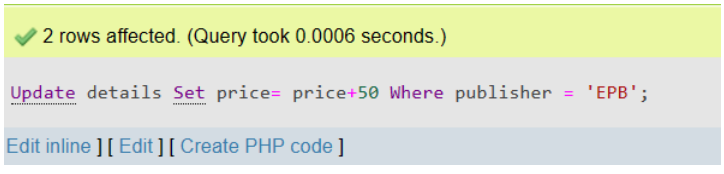
Book_name	price ▲ 1
My First c++	350
C++ Brainworks	350
Fast Cook	355
The Tears	650
Thunderbolts	750

- **To increase the price of all books of EPB publishers by 50.**

Update details

Set price= price+50

Where publisher = ‘EPB’;



- **To display the Book_Id, Book_Name and Quantity_Issued for all books which have been issued.**

Select d.Book_id,Book_name,Quantity_issued from details d ,record r where d.Book_id=r.Book_id;

Book_id	Book_name	Quantity_issued
T0001	My First c++	4
C0001	Fast Cook	5
F0001	The Tears	2

- **To insert a new row in the table issued during the following data: "F0003",1**

Insert into record values('F0003',1);

This query will show error as Book Id is not available inreference table.

- **Give the output for the following SQL queries:**

1. **select count(*) from book.**

Select count(*) from details;

2. **select max(Price) from books where quantity >= 15.**Select max(price) from details d, record r where r.quantity_issued >=15;

max(price)
NULL

   a. **select book_Name, Author_Name from book where Publishers = "EPB".**

   Select Book_name,Author_name from details where Publisher='EPB';

Book_name	Author_name
Fast Cook	Lata Kapoor
My First c++	Brain & Brooke

   b. **select count (Distinct Publishers) from books whereprice > = 400;**

select count(distinct(Publisher) from details whereprice>=40

Q5. With references to following relations PERSONAL and JOBanswer the questions that follow:

Create following tables such that empno and sno are not null and unique, date of birth is after '12-Jan-1960', name is never blank, area and Native place is valid, hobby, dept is not empty, salary is between 4000 and 10000.

Empno	Name	DoBirth	Native_Place	Hobby
123	Amit	23-jan-1965	delhi	music
127	Manoj	12-dec-1976	mumbai	writing
124	Abhai	11-aug-1975	allahabad	music
125	Vinod	04-apr-1977	delhi	Sports
128	Abhay	10-mar-1974	mumbai	grdening
129	ramesh	28-ovt-1981	pune	sports

Sno	Area	App_date	Salary	Retd_date	Dept
123	Agra	25-jan-2006	5000	25-jan-2026	Marketing
127	Mathura	22-dec-2006	6000	22-dec-202	Finance
124	Agra	19-aug-2007	5500	19-aug-202	Marketing
125	Delhi	14-apr-2004	8500	14-apr-2018	Sales
128	pune	13-mar-2008	7500	13-mar-2028	Sales

```
create table personal( Empno int primary
key, Name varchar(30) not null,
DoBirth date check (DoBirth>'1960-01-12'),
Native_Place varchar(20) check (Native_Place in
('delhi','mumbai','pune','allahabad','agra','mathura')),
Hobby varchar(20) not null
);

create table job(
Sno int references personal(empno) ,
Area varchar(20) check (area
in('agra','mathura','delhi','pune','allahabad')),
App_date date,
Salary int(10) check (salary between 4000 and 10000),Retd_date date,
Dept varchar(20) not null
);
```

Insert query fro personal table:

INSERT INTO `personal` (`Empno`, `Name`, `DoBirth`,
`Native_Place`, `Hobby`) VALUES

(123, 'Amit', '1965-01-23', 'delhi', 'music'),

(127, 'Manoj', '1976-12-12', 'mumbai', 'writing')
(124, 'Abhai', '1975-08-11', 'allahabad', 'music'),
(125, 'Vinod', '1977-04-04', 'delhi', 'Sports'),
(128, 'Abhay', '1974-03-10', 'mumbai', 'grdening'),
(129, 'ramesh', '1981-10-28', 'pune', 'sports');

Queries for job table:

INSERT INTO `job` (`Sno`, `Area`, `App_date`, `Salary`,
`Retd_date`, `Dept`) VALUES

(123, 'Agra', '2006-01-25', 5250, '2026-01-25', 'Marketing'),

(127, 'Mathura', '2006-12-22', 6000, '2022-12-22', 'Finance'),

(124, 'Agra', '2007-10-19', 5775, '2022-08-19', 'Marketing'),

(125, 'Delhi', '2004-04-14', 8500, '2018-04-14', 'Sales'),

(128, 'Pune', '2008-03-13', 7500, '2028-03-13', 'Sales');

- **Show empno, name and salary of those who have sports as hobby.**

select Empno,Name,salary from personal , job whereempno=sno and hobby = "Sports";

Empno	Name	salary
125	Vinod	8500

- **Show name of the eldest employee.**

Select name from personal order by DoBirth asc limit 1;

name
Amit

- **Show number of employee area wise.**

select Native_Place, count(empno) as no_of_emp frompersonal group by Native_Place;

Native_Place	no_of_emp
allahabad	1
delhi	2
mumbai	2
pune	1

- **Show youngest employees from ache native place.**

select max(DoBirth) "Date_Of_Birth" , name,Native_Place frompersonal group by Native_Place;

Date_Of_Birth	name	Native_Place
1975-08-11	Abhai	allahabad
1977-04-04	Amit	delhi
1976-12-12	Manoj	mumbai
1981-10-28	ramesh	pune

- **Show sno, name, hobby and salary in descending order of salary.**

select sno, name, hobby ,salary from personal join job onpersonal.empno=job.sno order by salary desc;

sno	name	hobby	salary
125	Vinod	Sports	8500
128	Abhay	grdening	7500
127	Manoj	writing	6000
124	Abhai	music	5500
123	Amit	music	5000

- **Show the hobbies of those whose name pronounces as‘Abhay’.**

Select hobby from personal where name in(‘Abhay’,’Abhai’);

hobby
music
grdening

- **Show the appointment date and native place of those whose name starts with ‘A’ or ends in ‘d’.**

select name , App_date from personal join job on personal.empno=job.sno where personal.name like 'A%' orpersonal.name like '%d'

+ Options

name	App_date
Amit	2006-01-25
Abhai	2007-10-19
Vinod	2004-04-14
Abhay	2008-03-13

- **Show the salary expense with suitable column headingof those who shall retire after 20-jan-2006.**

SELECT SUM(Salary) AS Salary_Expense FROM JOB WHERERetd_date > '20-jan-2006';

- **Show names of those who earn more than all of the employees of sales department.**

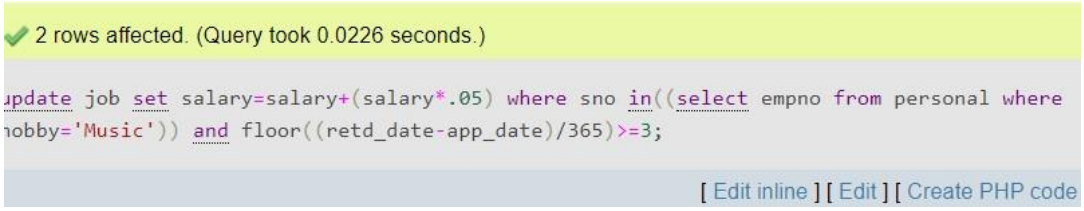
SELECT Name FROM JOB JOIN PERSONAL ON JOB.Sno = PERSONAL.Empno WHERE Salary > (SELECT MAX(Salary)FROM JOB WHERE Dept = 'Sales');

- **Increase salary of the employees by 5% of their presentsalary with hobby as music or they have completed atleast 3 years of services.**

update job

set salary=salary+(salary*.05)

where sno in((select empno from personal where hobby='Music')) and floor((retd_date-app_date)/365)>=3;



6.Write Pl/SQL code for

a) To reverse a number and print, i.e, if num is 677 then itshould print 776:

```
DECLARE
x number:=677;y
number:=0;
z number;
BEGIN
z:=x;
LOOP
IF x=0 THEN
EXIT;
END IF;
y:=(y*10)+(mod(x,10));
x:=floor(x/10);
END LOOP;
dbms_output.put_line('reverse of '||z||' is : '||y);END;
```

```
Statement processed.
reverse of 677 is : 776
```

b) To print a Fibonacci series:

```
DECLARE
    n NUMBER := 10;a
    NUMBER := 0; b
    NUMBER := 1;
    temp NUMBER;
BEGIN
    DBMS_OUTPUT.PUT_LINE(a);
    DBMS_OUTPUT.PUT_LINE(b);
    FOR i IN 1..n LOOP
        temp := a + b;a := b;
        b := temp; DBMS_OUTPUT.PUT_LINE(temp);
    END LOOP;
END;
```

```
Statement processed.
0
1
1
2
3
5
8
13
21
34
55
89
```

C) To check a number is Armstrong or not:

```
declare
a number:=153;b
number:=0;
c number;
begin c:=a;
loop
if a=0 thenexit;
end if; b:=b+power(mod(a,10),3);
a:=floor(a/10);
end loop; if b=c
then
dbms_output.put_line('c is a armstrong number');else
dbms_output.put_line('c is a not armstrong number');end if;
end;
```

```
Statement processed.
c is a armstrong number
```

D) To print the factorial of a given number:

```
DECLARE
    num NUMBER := 5;
    factorial NUMBER := 1;BEGIN
    FOR i IN 1..num LOOP
        factorial := factorial * i;END
    LOOP;
    DBMS_OUTPUT.PUT_LINE('Factorial of ' || num || ' is ' ||factorial);
END;
```

```
Statement processed.
Factorial of 5 is 120
```

E) To evaluate whether a given number is prime or not:

```
DECLARE
    num NUMBER := 11;
    is_prime BOOLEAN := TRUE;BEGIN
    FOR i IN 2..(num-1) LOOPIF num
        MOD i = 0 THEN
            is_prime := FALSE;EXIT;
        END IF; END
    LOOP;
    IF is_prime THEN
        DBMS_OUTPUT.PUT_LINE(num || ' is a prime number.');ELSE
        DBMS_OUTPUT.PUT_LINE(num || ' is not a primenumber.');
    END IF;
END;
```

```
Statement processed.
11 is a prime number.
```

F) To perform the addition of two numbers

```
DECLARE
   num1  NUMBER  :=  5; num2
   NUMBER := 7;s NUMBER;
BEGIN
   s := num1 + num2;
   DBMS_OUTPUT.PUT_LINE('The sum of ' || num1 || ' and ' ||num2 || ' is ' || s );
END;
```

```
Statement processed.
The sum of 5 and 7 is 12
```

f) To get a number from keyboard and if it zero print "natural number", else print "not a natural number":

```
DECLARE
   num NUMBER;
BEGIN
   DBMS_OUTPUT.PUT('Enter a number: ');num := &num;
   IF num = 0 THEN
      DBMS_OUTPUT.PUT_LINE('Natural number');

   ELSE
      DBMS_OUTPUT.PUT_LINE('Not a natural number');END IF;
END;
```

```
Statement processed.
Enter a number :
not a Natural Number
```

g) To find the area and perimeter of given circle:

```
DECLARE
    radius NUMBER := 2;pi
    NUMBER := 3.14;
    area NUMBER; perimeter
    NUMBER;
BEGIN
    area := pi * radius * radius; perimeter :=
    2 * pi * radius;
    DBMS_OUTPUT.PUT_LINE('Area of circle: ' || area);
    DBMS_OUTPUT.PUT_LINE('Perimeter of circle: ' ||perimeter);
END;
```

```
Statement processed.
Area of circle: 12.56
Perimeter of circle: 12.56
```

h) To calculate the net salary if dfa is 30% of basic, hra is10% of basic and pf is 7%. If basic salary is less than 8000, pf is 10% if basic sal between 8000 to 160000.

```
DECLARE
  basic_salary NUMBER := 10000;dfa
  NUMBER;
  hra NUMBER;pf
  NUMBER;
  net_salary NUMBER;BEGIN
  dfa := basic_salary * 0.3;hra :=
  basic_salary * 0.1;
  IF basic_salary < 8000 THENpf :=
     basic_salary * 0.1;
   ELSE
     pf := basic_salary * 0.07;END IF;
  net_salary := basic_salary + dfa + hra - pf; DBMS_OUTPUT.PUT_LINE('Net Salary: ' ||
  net_salary);
END;
```

```
Statement processed.
Net Salary: 13300
```

i) To select record of emp table with cursor:

```
DECLARE
    CURSOR emp_cursor ISSELECT
        * FROM emp;
    emp_rec emp%ROWTYPE;BEGIN
    OPEN emp_cursor;LOOP
        FETCH emp_cursor INTO emp_rec; EXIT WHEN
        emp_cursor%NOTFOUND;
        DBMS_OUTPUT.PUT_LINE(emp_rec.empno || ' ' ||emp_rec.ename);
    END LOOP;
    CLOSE emp_cursor;END;
```

```
Table created.

Statement processed.
7839 KING
7698 BLAKE
7782 CLARK
7566 JONES
7788 SCOTT
7902 FORD
7369 SMITH
7499 ALLEN
7521 WARD
7654 MARTIN
7844 TURNER
7876 ADAMS
7900 JAMES
7934 MILLER
```

j) To raise an error if no data found:

```
DECLARE
    CURSOR emp_cursor ISSELECT
        * FROM emp;
    emp_rec emp%ROWTYPE;
    no_data_found EXCEPTION;
    PRAGMA EXCEPTION_INIT(no_data_found, -20009);BEGIN
    OPEN emp_cursor;
    FETCH emp_cursor INTO emp_rec;IF
    emp_cursor%NOTFOUND THEN
        RAISE no_data_found;ELSE
        DBMS_OUTPUT.PUT_LINE(emp_rec.empno || ' ' ||emp_rec.ename);

    END IF;
    CLOSE emp_cursor;
EXCEPTION
    WHEN no_data_found THEN DBMS_OUTPUT.PUT_LINE('No data found in the
        table.');
END;
```

```
ORA-20009: No data found in emp Table ORA-06512: at line 12
ORA-06512: at "SYS.DBMS_SQL", line 1721
```

Q7 Write and explain the following Pl/SQL triggers on emp table

i) Before UPDATE Trigger

```
create or replace trigger
before_update_trigger beforeupdate
on emp for each row

begin
dbms_output.put_line('Before executing update
statement...');
dbms_output.put_line('Old Salary : '||:old.sal);
dbms_output.put_line('New Salary : '||:new.sal);end;
```

```
Trigger created.
```

```
update  emp set sal =
10000
where ename='KING';
```

```
1 row(s) updated.
Before executing update statement...
Old Salary : 5000
New Salary : 10000
```

ii) Before DELETE Trigger

```
create or replace trigger
before_delete_trigger beforedelete
on emp for each row

begin
dbms_output.put_line('Old Salary : '||:old.sal);
dbms_output.put_line('New Salary : '||:new.sal);
dbms_output.put_line('Before executing Delete
statement...'); end;
delete from emp where
ename=’KING’;
```

OUTPUT

```
1 row(s) deleted.
Old Salary : 10000
New Salary :
Before executing Delete statement...
```

iii) Before INSERT Trigger

create or replace trigger before_insert_trigger before insert onemp for each row

begin

dbms_output.put_line('Old Salary : '||:old.sal); dbms_output.put_line('New Salary : '||:new.sal); dbms_output.put_line('Before executing insert statement...');end;

Insert into emp(ename,sal) values('TARUN',7000);

OUTPUT:

```
1 row(s) inserted.
Old Salary :
New Salary : 7000
Before executing insert statement...
```

iv) AFTER INSERT TRIGGER

```
create or replace trigger after_insert_trigger after insert on emp for each row

begin

dbms_output.put_line('Old Salary : '||:old.sal); dbms_output.put_line('New Salary
: '||:new.sal); dbms_output.put_line('after executing insert statement...'); end;
```

```
1 row(s) inserted.
Old Salary :
New Salary : 7000
after executing insert statement...
```

v) After UPDATE Trigger

```
create or replace trigger

after_update_trigger after updateon emp

for each row

begin

dbms_output.put_line('New Salary : '||:new.sal);

dbms_output.put_line('after executing update statement...');

end;


update emp set

sal=10000

where ename=’vivek’;
```

```
4 row(s) updated.
New Salary : 10000
after executing update statement...
New Salary : 10000
after executing update statement...
New Salary : 10000
after executing update statement...
New Salary : 10000
after executing update statement...
```

vi) After DELETE Trigger

```
create or replace trigger after_delete_trigger
after delete
on emp for each row

begin

dbms_output.put_line('New Salary : '||:new.sal);
dbms_output.put_line('after executing delete statement...');
end;
```

```
4 row(s) deleted.
New Salary :
after executing delete statement...
New Salary :
after executing delete statement...
New Salary :
after executing delete statement...
New Salary :
after executing delete statement...
```

```
delete from emp where ename='bciit';OU
```