

## Question 1

employee:

```
create table employee1(ssn number(10) primary key,Name varchar(30),dno number(10),dname
varchar(30));
insert into employee1 values('&ssn','&name','&dno','&dname');
```

project:

```
create table project1 (pno number(10) primary key,pname varchar(30),domain varchar(30));
insert into project1 values('&pno','&pname','&domain');
```

Works on:

```
Create table workson(ssn number(10) ,pno number(10) ,n_hours number(10),primary
key(ssn,pno),foreign key (ssn) references employee1(ssn),foreign key (pno) references
project1(pno));
```

```
insert into workson values (&ssn,&pno,&n_hours);
```

```
SQL> select count(ssn) from employee1 group by dname;
COUNT(SSN)
-----
2
2
1

SQL> select dname,count(ssn) from employee1 group by dname;
DNAME                                COUNT(SSN)
-----
backend                               2
frontend                              2
Analysis                             1

SQL> █
```

2 d ii

```
commit complete.
SQL> select * from workson;
SSN      PNO      N_HOURS
-----
1         123         10
2         456         20
3         246         12
4         153         15
1         153         10

SQL> select * from employee1;
SSN NAME                                DNO DNAME
-----
1 Anvesh                                10 backend
2 Ram                                  20 frontend
3 Sal                                  30 Analysis
4 Lakshman                             10 backend
5 Krishna                              20 frontend

SQL> select * from project1;
PNO PNAME                                DOMAIN
-----
123 mini library                        database
456 com cloud                          cloud
789 floppy bird                        game
153 Ticket booking                    webapp
246 sales analysis                     finance

SQL> select * from workson;
SSN      PNO      N_HOURS
-----
1         123         10
2         456         20
3         246         12
4         153         15
1         153         10

SQL> select count(ssn) from employee1 group by dname;
select count(ssn) from employee1 group by dname
*
ERROR at line 1:
```

all table details

```

Activities Terminal 4a@i
1      123      10
2      456      20
3      246      12
4      153      15
1      153      10

SQL> select count(ssn) from employee1 group by dname;
select count(ssn) from employee1 group by dname
*
ERROR at line 1:
ORA-00942: table or view does not exist

SQL> select count(ssn) from employee1 group by dname;

COUNT(SSN)
-----
2
2
1

SQL> select dname,count(ssn) from employee1 group by dname;

DNAME                                COUNT(SSN)
-----
backend                               2
frontend                              2
Analysis                              1

SQL> update workson set pno=789 where ssn=3;

1 row updated.

Commit complete.
SQL> select * from project1;

PNO PNAME                                DOMAIN
-----
123 mini library                        database
456 com cloud                          cloud
789 flappy bird                        game
153 Ticket booking                    Webapp
246 sales analysis                    finance

SQL>

```

2 d iii

```

SQL> select pno from project1 where lower(pname)='com cloud';

PNO
-----
456

SQL> select ssn from workson where pno=(select pno from project1 where lower(pname)='com cloud');

SSN
-----
2

SQL> select * from employee1 where ssn = (select ssn from workson where pno=(select pno from project1 where lower(pname)='com cloud') );

SSN NAME                                DNO DNAME
-----
2 Ram                                  20 frontend

SQL>

```

2 d i

## Question 2

Supplier:

Create table supplier(sid number(3),sname varchar(20),saddr varchar(30),primary key(sid));

insert into supplier values(&sid,'&sname','&saddr');

Part:

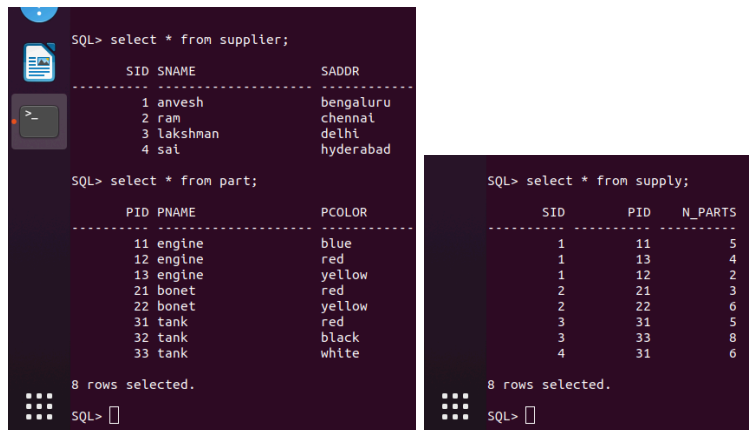
Create table part(pid number(3),pname varchar(20),pcolor varchar(20),primary key(pid));

insert into part values(&pid,'&pname','&pcolor');

Supply:

Create table supply(sid number(3),pid number(3),n\_parts number(3),foreign key (sid) references supplier(sid),foreign key (pid) references part(pid));

insert into supply values(&sid,&pid,&n\_parts);



The image shows two screenshots of a SQL\*Plus terminal window. The left screenshot displays the contents of the 'supplier' and 'part' tables. The right screenshot displays the contents of the 'supply' table.

**Left Screenshot: SQL> select \* from supplier;**

SID	SNAME	SADDR
1	anvesh	bengaluru
2	ram	chennai
3	lakshman	delhi
4	sat	hyderabad

**SQL> select \* from part;**

PID	PNAME	PCOLOR
11	engine	blue
12	engine	red
13	engine	yellow
21	bonet	red
22	bonet	yellow
31	tank	red
32	tank	black
33	tank	white

8 rows selected.

**Right Screenshot: SQL> select \* from supply;**

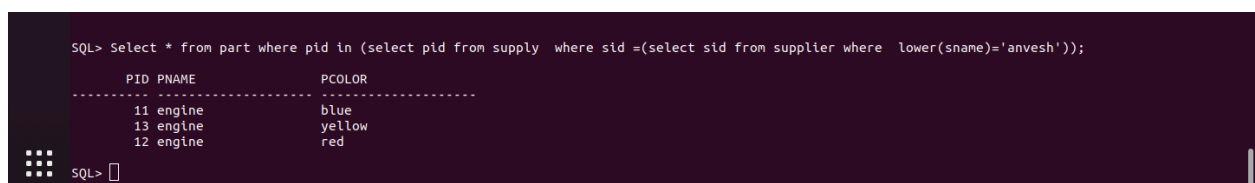
SID	PID	N_PARTS
1	11	5
1	13	4
1	12	2
2	21	3
2	22	6
3	31	5
3	33	8
4	31	6

8 rows selected.

2 d i

Obtain the details of parts supplied by supplier #SNAME.

Select \* from part where pid in (select pid from supply where sid =(select sid from supplier where lower(sname)='anvesh'));



The image shows a screenshot of a SQL\*Plus terminal window displaying the result of a query that filters parts supplied by the supplier 'anvesh'.

**SQL> Select \* from part where pid in (select pid from supply where sid =(select sid from supplier where lower(sname)='anvesh'));**

PID	PNAME	PCOLOR
11	engine	blue
13	engine	yellow
12	engine	red

SQL>

2 d ii

Obtain the Names of suppliers who supply #PNAME.

select sname from supplier where sid in (select sid from supply where pid in (select pid from part where pname='engine'));

```
SQL> select sname from supplier where sid in (select sid from supply where pid in (select pid from part where pname='engine'));
SNAME
-----
anvesh
```

2 e ii

Display all suppliers who supply the part with part identifier: #PID.

```
SQL> select sname from supplier where sid in (select sid from supply where pid =11);
SNAME
-----
anvesh

SQL> select sname from supplier where sid in (select sid from supply where pid =12);
SNAME
-----
anvesh

SQL> select sname from supplier where sid in (select sid from supply where pid =22);
SNAME
-----
ram
```

2 e i

Update the details of parts for a given part identifier: #PID.

```
SQL> select * from part;

  PID PNAME      PCOLOR
-----
   11 engine      blue
   12 engine      red
   13 engine      yellow
   21 bonet       red
   22 bonet       yellow
   31 tank        red
   32 tank        black
   33 tank        white

8 rows selected.

SQL> Update part set pcolor='violet' where pid =31;
1 row updated.

SQL> select * from part;

  PID PNAME      PCOLOR
-----
   11 engine      blue
   12 engine      red
   13 engine      yellow
   21 bonet       red
   22 bonet       yellow
   31 tank        violet
   32 tank        black
   33 tank        white

8 rows selected.

SQL>
```

2 d iii

Delete the parts which are in #PCOLOR.

```
SQL> select constraint_name from user_constraints where table_name='SUPPLY' and constraint_type='R';
```

CONSTRAINT_NAME
SYS_C0042364
SYS_C0042365

```
SQL> alter table supply drop constraint SYS_C0042364;
Table altered.
SQL> alter table supply drop constraint SYS_C0042365;
Table altered.
SQL> ALTER TABLE supply modify FOREIGN KEY (pid) REFERENCES part(pid) ON DELETE CASCADE;
Table altered.
SQL> ALTER TABLE supply modify FOREIGN KEY (sid) REFERENCES supplier(sid) ON DELETE CASCADE;
Table altered.
```

```
SQL> select * from part;
```

PID	PNAME	PCOLOR
11	engine	blue
12	engine	red
13	engine	yellow
21	bonet	red
22	bonet	yellow
31	tank	red
32	tank	black
33	tank	white

8 rows selected.

```
SQL> delete part where pcolor='white';
1 row deleted.
SQL> select * from part;
```

PID	PNAME	PCOLOR
11	engine	blue
12	engine	red
13	engine	yellow
21	bonet	red
22	bonet	yellow
31	tank	red
32	tank	black

7 rows selected.

```
SQL> select * from supply;
```

SID	PID	N_PARTS
1	11	5
1	13	4
1	12	2
2	21	3
2	22	6
3	31	5
4	31	6

7 rows selected.

```
SQL> 
```

## Question 3

```
create table sailor(sailor_id number(10),sailor_name varchar(30),age number(3),primary  
key(sailor_id));
```

```
insert into sailor values (&id,&name,&age);
```

```
create table boat(boat_id number(10),boat_color varchar(20),boat_name varchar(30),primary  
key(boat_id));
```

```
insert into boat values (&id,&color,&name');
```

```
create table reserves ( sailor_id number(10),boat_id number(10),n_boat number(4),day  
varchar(20),primary key(sailor_id,boat_id),foreign key(sailor_id) references  
sailor(sailor_id),foreign key(boat_id) references boat(boat_id));
```

```
select * from boat;
```

BOAT_ID	BOAT_COLOR	BOAT_NAME
123	blue	boat 1
489	red	boat 2
542	orange	boat 3
5465	cyan	boat 6

```
select * from sailor;
```

SAILOR_ID	SAILOR_NAME	AGE
1	sailor 1	25
2	sailor 2	35
3	sailor 3	42
4	sailor 4	63
5	sailor 5	46

```
select * from reserves;
```

SAILOR_ID	BOAT_ID	N_BOAT	DAY
1	123	5	monday
2	5465	7	wednesday
4	542	18	thursday
3	489	15	sunday
1	489	3	saturday

```
select * from reserves;
```

SAILOR_ID	BOAT_ID	N_BOAT	DAY
1	123	5	monday
2	5465	7	wednesday
4	542	18	thursday
3	489	15	sunday
1	489	3	saturday
2	489	2	monday
4	489	2	tuesday
5	489	8	friday

```
8 rows selected.
```

i. Obtain the details of the boats reserved by '#Sailor\_Name'.

```
select * from boat where boat_id in (select boat_id from reserves where sailor_id = (select sailor_id from sailor where sailor_name='sailor 1'));
```

```
select * from boat where boat_id in (select boat_id from reserves where sailor_id = (select sailor_id from sailor where sailor_name='sailor 1'));
```

BOAT_ID	BOAT_COLOR	BOAT_NAME
123	blue	boat 1
489	red	boat 2

ii. Retrieve the BID of the boats reserved necessarily by all the sailors.

```
select boat_id from reserves group by boat_id having count(distinct(sailor_id)) = (select count(*) from sailor);
```

```
select boat_id from reserves group by boat_id having count(distinct(sailor_id)) = (select count(*) from sailor);
```

BOAT_ID
489

iii. Find the number of boats reserved by each sailor. Display the Sailor\_Name along with the number of boats reserved.

```
select sum(a.n_boat),b.sailor_name from reserves a,sailor b where a.sailor_id=b.sailor_id
group by a.sailor_id,b.sailor_name ;
```

```
SQL> select sum(a.n_boat),b.sailor_name from reserves a,sailor b where a.sailor_id=b.sailor_id
2 group by a.sailor_id,b.sailor_name ;
```

SUM(A.N_BOAT)	SAILOR_NAME
9	sailor 2
20	sailor 4
15	sailor 3
8	sailor 1
8	sailor 5



## Question 4

```
db.createCollection("branch")
db.createCollection("account")
```

```
db.branch.insert({"branch_id":"B001", "branch_name":"MG Road",
"branch_location":"Bangalore"})
db.branch.insert({"branch_id":"B002", "branch_name":"Park Street",
"branch_location":"Kolkata"})
```

```
db.account.insert({"account_id":"A001", "customer_id":"C001", "branch_id":"B001"})
db.account.insert({"account_id":"A002", "customer_id":"C001", "branch_id":"B002"})
db.account.insert({"account_id":"A003", "customer_id":"C002", "branch_id":"B001"})
db.account.insert({"account_id":"A004", "customer_id":"C003", "branch_id":"B002"})
```

```
db.branch.find({"branch_id":"B001"}, {branch_name:1, _id:0})
```

```
db.account.aggregate([
{
  $group: {
    _id: "$customer_id",
    total_accounts: { $sum: 1 }
  }
}]
```

```
CREATE TABLE Customer (
  CID INT PRIMARY KEY,
  cname VARCHAR(50), phone varchar(10)
);
```

```
CREATE TABLE Branch (
  BID INT PRIMARY KEY,
  bname VARCHAR(50) ,
  Bloc varchar(20)
);
```

```
CREATE TABLE Account (
  AID INT PRIMARY KEY,
  AType VARCHAR(10) CHECK (AType IN ('Savings', 'Current')),
  CID INT,
  BID INT,
  FOREIGN KEY (CID) REFERENCES Customer(CID),
  FOREIGN KEY (BID) REFERENCES Branch(BID)
);
```

```
CREATE TABLE Transaction (
  TID INT PRIMARY KEY,
  AID INT,
  CID INT,
  Ttype VARCHAR(10) CHECK (Ttype IN ('Deposit', 'Withdrawal')),
  FOREIGN KEY (CID) REFERENCES Customer(CID),
  FOREIGN KEY (AID) REFERENCES Account(AID)
);
```

1. Obtain the details of customers who have both savings and current accounts.
2. Retrieve the details of branches and the number of accounts in each branch.
3. Obtain the details of customers who have performed at least 3 transactions.
4. List the details of branches where the number of accounts is less than the average number of accounts in all branches.

```
SQL> select * from customer where cid in (select cid from account group by cid having count(distinct(atype))=2);
```

```
SQL> select b.bid,b.bname,b.bloc,count(a.aid) from branch b,account a where b.bid=a.bid group by b.bid,b.bname,b.bloc;
```

```
SQL> select * from customer where cid in ( select cid from transaction group by cid having count(tid)>=3);
```

```
Select b.bid,b.bname,b.bloc,count(a.aid) as accnum
from branch b,account a
where b.bid = a.bid
group by B.bid,b.bname,b.bloc
```

having

count(a.aid) < (select avg(accnt) from (select count(aid) as accnt from account group by bid));