

SUPPLIER (Sno, Sname, address, City

PARTS (Pno, Pname, Color, Weight, price)

PROJECT (Jno, Jname, City)

SPJ (Sno, Pno, Jno, Qty)

Integrity Constraints:

- The values of any attributes should not be null.
- Legal cities are London, Paris, Rome, New York and Amsterdam.
- SUPPLIER Number must start with 'S' followed by a decimal integer in the range of 0 to 9999.

create table **SUPPLIER**

(

sno varchar(10) primary key check(sno between 'S0' and 'S9999'),

sname varchar(10) not null,

address varchar(50) not null,

city varchar(15) not null check(city in('london','paris','new york','amsterdam','rome'))

);

insert into SUPPLIER values('&sno','&sname','&address','&city');

Enter value for sno: S1

Enter value for sname: vaishnavi

Enter value for address: karvand naka

Enter value for city: london

SQL> /

Enter value for sno: S2

Enter value for sname: ankita

Enter value for address: Shindhkheda

Enter value for city: rome

old 1: insert into SUPPLIER2 values('&sno','&sname','&address','&city')

new 1: insert into SUPPLIER2 values('S2','ankita','Shindhkheda','rome')

1 row created.

SQL> /

Enter value for sno: S3

Enter value for sname: harshda

Enter value for address: shirpur

Enter value for city: paris

1 row created.

SQL> select * from SUPPLIER;

SNO	SNAME	ADDRESS	CITY

S1	vaishnavi	karvand naka	london
S2	ankita	Shindhkheda	rome
S3	harshda	shirpur	paris

Table created.

create table **PARTS**

```
2  (  
3  pno number(5) primary key,  
4  pname varchar(15) not null,  
5  color varchar(10) not null,  
6  weight varchar(5) not null,  
7  price number(5) not null  
8  );
```

Table created.

SQL> insert into PARTS values(&pno,'&pname','&color','&weight', price);

Enter value for pno: 1

Enter value for pname: Mouse

Enter value for color: black

Enter value for weight: 2 kg

Enter value for price: 100

1 row created.

```
SQL> insert into PARTS values(&pno,'&pname','&color',&weight,&price);
```

Enter value for pno: 2

Enter value for pname: Keyboard

Enter value for color: black

Enter value for weight: 2 kg

Enter value for price: 150

1 row created.

```
SQL> insert into PARTS values(&pno,'&pname','&color',&weight,&price);
```

Enter value for pno: 3

Enter value for pname: Monitoe

Enter value for color: white

Enter value for weight: 2 kg

Enter value for price: 450

1 row created.

```
SQL> select * from PARTS;
```

PNO	PNAME	COLOR	WEIGHT	PRICE
1	Mouse	black	2 kg	100
2	Keyboard	black	2 kg	150
3	Monitoe	white	2kg	450

```
create table PROJECT
```

```
2  (
```

```
3   jno int primary key,
```

```
4   jname varchar(10) not null,
```

```
5   city varchar(15) not null check(city in('london','paris','new yark','amsterdam'))
```

```
6  );
```

Table created.

```
insert into PROJECT values(&jno,'&jname','&city');
```

Enter value for jno: 1

Enter value for jname: proj1

Enter value for city: london

1 row created.

```
SQL> insert into PROJECT values(&jno,'&jname','&city');
```

Enter value for jno: 2

Enter value for jname: proj2

Enter value for city: paris

1 row created.

```
SQL> insert into PROJECT values(&jno,'&jname','&city');
```

Enter value for jno: 3

Enter value for jname: proj3

Enter value for city: amsterdam

1 row created.

```
create table SPJ (
```

```
    sno varchar(10) references SUPPLIER (sno),
```

```
    pno number(5) references PARTS (pno),
```

```
    jno int references PROJECT (jno),
```

```
    qty int not null );
```

1) Find all the projects which are provided 3 or more PARTS.

```
select Jno,count(*) as Part_count from SPJ group by Jno having count(*)>3;
```

2) Find full details of all projects in London.

```
SELECT * FROM projects WHERE city = 'London';
```

3) Find all the projects which are provided 2 or more PARTS.

```
select Jno,count(*) as Part_count from SPJ group by Jno having count(*)>2;
```

4) Find full details of all PROJECTs in Paris .

```
SELECT * FROM projects WHERE city = 'Paris'
```



2. **DOCTOR** (Did, Dname, Daddress, qualification)

PATIENTMASTER (Pcode, Pname, Padd, age, gender, bloodgroup, Did)

ADMITTEDPATIENT (Pcode, Entry_date, Discharge_date, wardno,disease)

Integrity Constraints:

The values of any attributes should not be null.

Gender value should be M (male) or F(female).

Wardno should be less than 6.

create table **DOCTOR**(

did int primary key,

dname varchar(20) not null,

dadd varchar(20) not null,

qual varchar(20) not null

);

SQL> insert into DOCTOR values(1,'kalpesh','nasik','mbbs');

1 row created.

SQL> insert into DOCTOR values(2,'vaishnavi','nagpur','bhms');

1 row created.

SQL> insert into DOCTOR values(3,'karina','pune','bams');

1 row created.

SQL> select * from DOCTOR;

DID	DNAME	DADD	QUAL
1	kalpesh	nasik	mbbs
2	vaishnavi	nagpur	bhms
3	karina	pune	bams

SQL> create table **PATIENTMASTER**

(

pcode int primary key,

pname varchar(20) not null,

padd varchar(20) not null,

age int not null,

```

gender varchar(20) check(gender in ('m','f')),
bg varchar(10) not null,
did int references DOCTOR(did)
);

```

Table created.

```
SQL> insert into PATIENTMASTER values(1,'dipak','pune',19,'m','ab',1);
```

1 row created.

```
SQL> insert into PATIENTMASTER values(23,'divya','dhule',20,'f','b',2);
```

1 row created.

```
SQL> insert into PATIENTMASTER values(3,'anita','shirpur',20,'f','a',3);
```

1 row created.

```
SQL> select * from PATIENTMASTER;
```

PCODE PNAME		PADD	AGE
GENDER	BG	DID	
m	1 dipak ab	pune 1	19
f	23 divya b	dhule 2	20
f	3 anita a	shirpur 3	20

```
SQL> create table ADMITTEDPATIENT
```

```

(
  pcode int references PATIENTMASTER(pcode),
  entry_date date not null,
  disch_date date not null,
  ward_no int check(ward_no<6) not null,
  disease varchar(20) not null
);

```

Table created.

```
insert into ADMITTEDPATIENT values(&pcode,'&entry_date','&disch_date','&ward_no','&dis');
```

```
SQL> /
```

Enter value for pcode: 3

Enter value for entry_date: 3-mar-2003

Enter value for disch_date: 6-mar-2003

Enter value for ward_no: 3

Enter value for disease: tb

```
old 1: insert into ADMITTEDPATIENT values(&pcode,'&entry_date','&disch_date','&ward_no','&
```

disease)

```
new 1: insert into ADMITTEDPATIENT values(3,'3-mar-2003','6-mar-2003',3,'tb')
```

1 row created.

```
SQL> /
```

Enter value for pcode: 3

Enter value for entry_date: 6-mar-2008

Enter value for disch_date: 12-mar-2008

Enter value for ward_no: 3

Enter value for disease: corona

```
old 1: insert into ADMITTEDPATIENT
```

```
values(&pcode,&entry_date,&disch_date,&ward_no,&dis')
```

```
new 1: insert into ADMITTEDPATIENT values(3,'6-mar-2008','12-mar-2008',3,'corona')
```

```
SQL> /
```

Enter value for pcode: 23

Enter value for entry_date: 26-mar-2008

Enter value for disch_date: 29-mar-2008

Enter value for ward_no: 3

Enter value for dis: typhoid

```
old 1: insert into ADMITTEDPATIENT
```

```
values(&pcode,&entry_date,&disch_date,&ward_no,&dis')
```

```
new 1: insert into ADMITTEDPATIENT values(23,'26-mar-2008','29-mar-2008',3,'typhoid')
```

1 row created.

```
SQL> /
```

Enter value for pcode: 1

Enter value for entry_date: 22-mar-2008

Enter value for disch_date: 26-mar-2008

Enter value for ward_no: 2

Enter value for dis: corona

```
old 1: insert into ADMITTEDPATIENT
```

```
values(&pcode,&entry_date,&disch_date,&ward_no,&dis')
```

```
new 1: insert into ADMITTEDPATIENT values(1,'22-mar-2008','26-mar-2008',2,'corona')
```

1 row created.

```
SQL> /
```

Enter value for pcode: 3

Enter value for entry_date: 3-mar-2008

Enter value for disch_date: 4-mar-2012

Enter value for ward_no: 2

Enter value for dis: blood cancer

```
old 1: insert into ADMITTEDPATIENT
```

```
values(&pcode,&entry_date,&disch_date,&ward_no,&dis')
```

```
new 1: insert into ADMITTEDPATIENT values(3,'3-mar-2008','4-mar-2012',2,'blood cancer')
```

1 row created.

```
SQL> select *from ADMITTEDPATIENT;
```

PCODE	ENTRY_DAT	DISCH_DAT	WARD_NO	DIS
3	03-MAR-03	06-MAR-03	3	tb
3	06-MAR-08	12-MAR-08	3	corona
23	26-MAR-08	29-MAR-08	3	typhoid
1	22-MAR-08	26-MAR-08	2	corona

Table created.

Queries:

- 1) Find the details of patient who are admitted within the period 03/03/08 to 25/ 03/08.

```
select p.pcode,p.pname,p.age,p.gender,a.entry_date from PATIENTMASTER
p,ADMITTEDPATIENT a where p.pcode=a.pcode and entry_date between
'3-mar-2008'and'25-mar-2008';
```

PCODE	PNAME	AGE	GENDER	ENTRY_DAT
1	dipak	19	m	22-MAR-08
3	anita	20	f	06-MAR-08

- 2) Find the names of doctors who are treating TB patients.

```
select d.dname,a.dis from DOCTOR d,PATIENTMASTER p,ADMITTEDPATIENT a
where d.did=p.did and p.pcode=a.pcode and a.dis='tb';
```

DNAME	DIS
karina	tb

- 3) Find the details of the doctors who are treating the patients of ward no 3 & display the result along with patient name & disease.

```
select d.dname,a.dis,p.pname,a.ward_no from DOCTOR d,PATIENTMASTER
p,ADMITTEDPATIENT a where d.did=p.did and p.pcode=a.pcode and
a.ward_no=3;
```

DNAME	DIS	PNAME	WARD_NO
karina	tb	anita	3
karina	corona	anita	3
vaishnavi	typhoid	divya	3

- 4) Find the name of the disease by which maximum patients are suffering.

```
select dis from (select dis,count(*) as c from ADMITTEDPATIENT group by dis )where c=(select
max (count (*)) from ADMITTEDPATIENT group by dis);
```

DIS
Corona

or

```
SELECT disease, COUNT(*) as patient_count
```



```

FROM ADMITTEDPATIENT

GROUP BY disease

ORDER BY patient_count DESC

LIMIT 1;

```

5) Find details of the patients who are treated by M.B.B.S. doctors.

```

select p.pcode,p.pname,p.padd,p.age,d.qual from PATIENTMASTER p,DOCTOR d where
p.did=d.did and d.qual='mbbs';

```

PCODE	PNAME	PADD	AGE	QUAL
1	dipak	pune	19	mbbs

6) Find the details of patient who is suffered from blood cancer having age less than 50 years & blood group is A

```

select p.pcode,p.pname,p.padd,p.age,p.bg,p.did,a.dis from PATIENTMASTER
p,ADMITTEDPATIENT a where p.pcode=a.pcode and p.bg='A' and age<50 and
a.dis='Blood cancer';

```

PCODE	PNAME	PADD	AGE	BG	DID	DIS
5	dipika	pune	50	A	1	Blood cancel

7) Find the name of doctor who is treating maximum number of patients.

```

SELECT Dname, COUNT(*) as patient_count

FROM PATIENTMASTER

JOIN DOCTOR ON PATIENTMASTER.Did = DOCTOR.Did

GROUP BY Dname

ORDER BY patient_count DESC

LIMIT 1;

```

8) Find the details of patient who are discharge d within the period 03/03/12 to 25/03/12

```

select p.pcode,p.pname,p.age,p.gender,a.disch_date from PATIENTMASTER p,ADMITTEDPATIENT a
where p.pcode=a.pcode and disch_date between '3-mar-2008'and'25-mar-2008';

```

9) Find the details of doctors who are treating the patient of ward no 2.

```

Select d.did,d.dname,d.dadd,d.qual,a.ward_no from DOCTOR d,ADMITTEDPATIENT
a,PATIENTMASTER p where d.did=p.did and p.pcode=a.pcode and a.ward_no=2;

```

DID	DNAME	DADD	QUAL	WARD_NO
3	karina	pune	bams	2

10) Find the details of the doctors who are treating the patients of ward no 2 & display the result along with patient name & disease.

Select d.did,d.dname,d.dadd,d.qual,a.ward_no,p.pname,a.dis from DOCTOR d,ADMITTEDPATIENT a,PATIENTMASTER p where d.did=p.did and p.pcode=a.pcode and a.ward_no=2

DID	DNAME	DADD	QUAL	WARD_NO	PNAME	DIS
3	karina	pune	bams	2	anita	blood cancer

SQL> create table **product** (

2 Maker VARCHAR(10) NOT NULL,

3 Modelno INT NOT NULL,

4 Type VARCHAR(10) NOT NULL CHECK (Type IN('PC','Laptop','Printer')),

5 PRIMARY KEY (Modelno)

6);

Table created.

SQL> create table **PC**(

2 Modelno INT REFERENCES product(Modelno) NOT NULL,

3 Speed Real NOT NULL,

4 RAM INT NOT NULL,

5 HD INT NOT NULL,

6 CD VARCHAR(10) NOT NULL,

7 Price INT NOT NULL

8);

Table created.

SQL> create table **Laptop**(

Modelno INT REFERENCES product(Modelno) NOT NULL,

```
2 Speed REAL NOT NULL,  
3 RAM INT NOT NULL,  
4 HD INT NOT NULL,  
5 Price INT NOT NULL  
6 );
```

Table created.

```
SQL> create table Printer (
```

```
2 modelno INT REFERENCES product(Modelno) NOT NULL,  
3 Color VARCHAR(10) NOT NULL,  
4 Price INT NOT NULL,  
5 Type VARCHAR(10) NOT NULL  
6 );
```

Table created.

```
SQL> INSERT INTO product values ('&maker','&modelno','&type');
```

Enter value for maker: HP

Enter value for modelno: 1001

Enter value for type: PC

```
old 1: INSERT INTO product values ('&maker','&modelno','&type')
```

```
new 1: INSERT INTO product values ('HP','1001','PC')
```

1 row created.

```
SQL> /
```

Enter value for maker: Dell

Enter value for modelno: 1002

Enter value for type: PC

```
old 1: INSERT INTO product values ('&maker','&modelno','&type')
```

```
new 1: INSERT INTO product values ('Dell','1002','PC')
```

1 row created.

```
SQL> /
```

Enter value for maker: Lenovo

Enter value for modelno: 1003

Enter value for type: PC

old 1: INSERT INTO product values ('&maker','&modelno','&type')

new 1: INSERT INTO product values ('Lenovo','1003','PC')

1 row created.

SQL> /

Enter value for maker: Apple

Enter value for modelno: 1004

Enter value for type: Laptop

old 1: INSERT INTO product values ('&maker','&modelno','&type')

new 1: INSERT INTO product values ('Apple','1004','Laptop')

1 row created.

SQL> /

Enter value for maker: Hp

Enter value for modelno: 1005

Enter value for type: Laptop

old 1: INSERT INTO product values ('&maker','&modelno','&type')

new 1: INSERT INTO product values ('Hp','1005','Laptop')

1 row created.

SQL> /

Enter value for maker: Dell

Enter value for modelno: 1006

Enter value for type: Laptop

old 1: INSERT INTO product values ('&maker','&modelno','&type')

new 1: INSERT INTO product values ('Dell','1006','Laptop')

1 row created.

SQL> /

Enter value for maker: HP

Enter value for modelno: 1007

Enter value for type: Printer

old 1: INSERT INTO product values ('&maker','&modelno','&type')

new 1: INSERT INTO product values ('HP','1007','Printer')

1 row created.

```
SQL> /
Enter value for maker: Epson
Enter value for modelno: 1008
Enter value for type: Printer
old 1: INSERT INTO product values ('&maker','&modelno','&type')
new 1: INSERT INTO product values ('Epson','1008','Printer')
```

1 row created.

```
SQL> /
Enter value for maker: Canon
Enter value for modelno: 1009
Enter value for type: Printer
old 1: INSERT INTO product values ('&maker','&modelno','&type')
new 1: INSERT INTO product values ('Canon','1009','Printer')
```

1 row created.

```
SQL>
SQL> /
Enter value for maker: Brother
Enter value for modelno: 1010
Enter value for type: Printer
old 1: INSERT INTO product values ('&maker','&modelno','&type')
new 1: INSERT INTO product values ('Brother','1010','Printer')
```

1 row created.

```
SQL> Insert into PC Values('&Modelno','&speed','&RAM','&HD','&CD','&Price');
Enter value for modelno: 1001
Enter value for speed: 100
Enter value for ram: 8
Enter value for hd: 1000
Enter value for cd: DVD
Enter value for price: 1200
old 1: Insert into PC Values('&Modelno','&speed','&RAM','&HD','&CD','&Price')
new 1: Insert into PC Values('1001','3.2','8','1000','DVD','1200')
```

1 row created.

```
SQL> /
Enter value for modelno: 1002
Enter value for speed: 90
Enter value for ram: 16
Enter value for hd: 500
Enter value for cd: CD
Enter value for price: 900
old 1: Insert into PC Values('&Modelno','&speed','&RAM','&HD','&CD','&Price')
new 1: Insert into PC Values('1002','2.8','16','500','CD','900')
```

1 row created.

```
SQL> /
Enter value for modelno: 1003
Enter value for speed: 130
Enter value for ram: 16
Enter value for hd: 1000
Enter value for cd: DVD
Enter value for price: 1500
old 1: Insert into PC Values('&Modelno','&speed','&RAM','&HD','&CD','&Price')
new 1: Insert into PC Values('1003','3.5','16','1000','DVD','1500')

1 row created.
```

```
SQL> /
Enter value for modelno: 1004
Enter value for speed: 140
Enter value for ram: 8
Enter value for hd: 500
Enter value for cd: CD
Enter value for price: 800
old 1: Insert into PC Values('&Modelno','&speed','&RAM','&HD','&CD','&Price')
new 1: Insert into PC Values('1004','2.4','8','500','CD','800')

1 row created.
```

```
SQL> /
Enter value for modelno: 1005
Enter value for speed: 150
Enter value for ram: 16
Enter value for hd: 1000
Enter value for cd: DVD
Enter value for price: 1300
old 1: Insert into PC Values('&Modelno','&speed','&RAM','&HD','&CD','&Price')
new 1: Insert into PC Values('1005','2.6','16','1000','DVD','1300')

1 row created.
```

```
SQL> /
Enter value for modelno: 1006
Enter value for speed: 170
Enter value for ram: 16
Enter value for hd: 1000
Enter value for cd: DVD
Enter value for price: 1100
old 1: Insert into PC Values('&Modelno','&speed','&RAM','&HD','&CD','&Price')
new 1: Insert into PC Values('1006','3.0','16','1000','DVD','1100')

1 row created.
```

```
SQL> /
Enter value for modelno: 1007
Enter value for speed: 160
Enter value for ram: 8
```

Enter value for hd: 1000
Enter value for cd: CD
Enter value for price: 900
old 1: Insert into PC Values('&Modelno','&speed','&RAM','&HD','&CD','&Price')
new 1: Insert into PC Values('1007','2.8','8','1000','CD','900')

1 row created.

SQL> /
Enter value for modelno: 1008
Enter value for speed: 120
Enter value for ram: 32
Enter value for hd: 2000
Enter value for cd: Blu-ray
Enter value for price: 2500
old 1: Insert into PC Values('&Modelno','&speed','&RAM','&HD','&CD','&Price')
new 1: Insert into PC Values('1008','3.5','32','2000','Blu-ray','2500')

1 row created.

SQL> /
Enter value for modelno: 1009
Enter value for speed: 150
Enter value for ram: 16
Enter value for hd: 1000
Enter value for cd: DVD
Enter value for price: 1400
old 1: Insert into PC Values('&Modelno','&speed','&RAM','&HD','&CD','&Price')
new 1: Insert into PC Values('1009','3.0','16','1000','DVD','1400')

1 row created.

SQL> /
Enter value for modelno: 1010
Enter value for speed: 130
Enter value for ram: 8
Enter value for hd: 500
Enter value for cd: CD
Enter value for price: 700
old 1: Insert into PC Values('&Modelno','&speed','&RAM','&HD','&CD','&Price')
new 1: Insert into PC Values('1010','2.6','8','500','CD','700')

1 row created.

SQL> insert into Printer values ('&Modelno','&Color','&Price','&type');
Enter value for modelno: 1001
Enter value for color: Black
Enter value for price: 300
Enter value for type: Laser
old 1: insert into Printer values ('&Modelno','&Color','&Price','&type')
new 1: insert into Printer values ('1001','Black','300','Laser')

1 row created.

SQL> /

Enter value for modelno: 1007

Enter value for color: White

Enter value for price: 200

Enter value for type: Inkjet

old 1: insert into Printer values ('&ModelNo','&Color','&Price','&type')

new 1: insert into Printer values ('1007','White','200','Inkjet')

1 row created.

SQL>

SQL> /

Enter value for modelno: 1009

Enter value for color: Black

Enter value for price: 250

Enter value for type: Laser

old 1: insert into Printer values ('&ModelNo','&Color','&Price','&type')

new 1: insert into Printer values ('1009','Black','250','Laser')

1 row created.

SQL> /

Enter value for modelno: 1008

Enter value for color: White

Enter value for price: 150

Enter value for type: Inkjet

old 1: insert into Printer values ('&ModelNo','&Color','&Price','&type')

new 1: insert into Printer values ('1008','White','150','Inkjet')

1 row created.

SQL> /

Enter value for modelno: 1007

Enter value for color: Black

Enter value for price: 100

Enter value for type: Dot Matrix

old 1: insert into Printer values ('&ModelNo','&Color','&Price','&type')

new 1: insert into Printer values ('1007','Black','100','Dot Matrix')

1 row created.

SQL> /

Enter value for modelno: 1010

Enter value for color: White

Enter value for price: 180

Enter value for type: Inkjet

old 1: insert into Printer values ('&ModelNo','&Color','&Price','&type')

new 1: insert into Printer values ('1010','White','180','Inkjet')

1 row created.


```
SQL> /
Enter value for modelno: 1008
Enter value for color: Black
Enter value for price: 180
Enter value for type: Laser
old 1: insert into Printer values ('&Modelno','&Color','&Price','&type')
new 1: insert into Printer values ('1008','Black','180','Laser')
```

1 row created.

```
SQL> /
Enter value for modelno: 1009
Enter value for color: Black
Enter value for price: 350
Enter value for type: Laser
old 1: insert into Printer values ('&Modelno','&Color','&Price','&type')
new 1: insert into Printer values ('1009','Black','350','Laser')
```

1 row created.

```
SQL> /
Enter value for modelno: 1008
Enter value for color: White
Enter value for price: 200
Enter value for type: Inkjet
old 1: insert into Printer values ('&Modelno','&Color','&Price','&type')
new 1: insert into Printer values ('1008','White','200','Inkjet')
```

1 row created.

```
SQL> /
Enter value for modelno: 1010
Enter value for color: White
Enter value for price: 250
Enter value for type: Laser
old 1: insert into Printer values ('&Modelno','&Color','&Price','&type')
new 1: insert into Printer values ('1010','White','250','Laser')
```

1 row created.

```
SQL> /
Enter value for modelno: 1007
Enter value for color: Black
Enter value for price: 400
Enter value for type: Laser
old 1: insert into Printer values ('&Modelno','&Color','&Price','&type')
new 1: insert into Printer values ('1007','Black','400','Laser')
```

1 row created.

```
SQL> select * from Printer;
```

MODELNO	COLOR	PRICE	TYPE
1001	Black	300	Laser
1007	White	200	Inkjet
1009	Black	250	Laser
1008	White	150	Inkjet
1007	Black	100	Dot Matrix
1010	White	180	Inkjet
1008	Black	180	Laser
1009	Black	350	Laser
1008	White	200	Inkjet
1010	White	250	Laser
1007	Black	400	Laser

11 rows selected.

```
SQL> insert into Laptop values('&modelno','&Speed','&RAM','&HD','&Price');
Enter value for modelno: 1004
Enter value for speed: 2.6
Enter value for ram: 8
Enter value for hd: 256
Enter value for price: 1700
old 1: insert into Laptop values('&modelno','&Speed','&RAM','&HD','&Price')
new 1: insert into Laptop values('1004','2.6','8','256','1700')
```

1 row created.

```
SQL> /
Enter value for modelno: 1002
Enter value for speed: 2.8
Enter value for ram: 16
Enter value for hd: 512
Enter value for price: 2000
old 1: insert into Laptop values('&modelno','&Speed','&RAM','&HD','&Price')
new 1: insert into Laptop values('1002','2.8','16','512','2000')
```

1 row created.

```
SQL> 1/
SP2-0042: unknown command "1/" - rest of line ignored.
SQL> /
Enter value for modelno: 1001
Enter value for speed: 2.4
Enter value for ram: 8
Enter value for hd: 512
Enter value for price: 1500
old 1: insert into Laptop values('&modelno','&Speed','&RAM','&HD','&Price')
new 1: insert into Laptop values('1001','2.4','8','512','1500')
```

1 row created.

```
SQL> /
Enter value for modelno: 1003
Enter value for speed: 2.2
Enter value for ram: 8
Enter value for hd: 256
Enter value for price: 1200
old 1: insert into Laptop values('&modelno','&Speed','&RAM','&HD','&Price')
new 1: insert into Laptop values('1003','2.2','8','256','1200')
```

1 row created.

```
SQL> /
Enter value for modelno: 1005
Enter value for speed: 2.8
Enter value for ram: 16
Enter value for hd: 1000
Enter value for price: 1700
old 1: insert into Laptop values('&modelno','&Speed','&RAM','&HD','&Price')
new 1: insert into Laptop values('1005','2.8','16','1000','1700')
```

1 row created.

```
SQL> /
Enter value for modelno: 1006
Enter value for speed: 2.2
Enter value for ram: 4
Enter value for hd: 256
Enter value for price: 800
old 1: insert into Laptop values('&modelno','&Speed','&RAM','&HD','&Price')
new 1: insert into Laptop values('1006','2.2','4','256','800')
```

1 row created.

```
SQL> /
Enter value for modelno: 1007
Enter value for speed: 2.6
Enter value for ram: 88
Enter value for hd: 512
Enter value for price: 1200
old 1: insert into Laptop values('&modelno','&Speed','&RAM','&HD','&Price')
new 1: insert into Laptop values('1007','2.6','88','512','1200')
```

1 row created.

```
SQL> /
Enter value for modelno: 1008
Enter value for speed: 3.0
Enter value for ram: 16
Enter value for hd: 1000
Enter value for price: 1500
old 1: insert into Laptop values('&modelno','&Speed','&RAM','&HD','&Price')
new 1: insert into Laptop values('1008','3.0','16','1000','1500')
```

1 row created.

SQL> /

Enter value for modelno: 1009

Enter value for speed: 2.4

Enter value for ram: 8

Enter value for hd: 256

Enter value for price: 1000

old 1: insert into Laptop values('&modelno','&Speed','&RAM','&HD','&Price')

new 1: insert into Laptop values('1009','2.4','8','256','1000')

1 row created.

SQL> /

Enter value for modelno: 1010

Enter value for speed: 2.2

Enter value for ram: 4

Enter value for hd: 128

Enter value for price: 700

old 1: insert into Laptop values('&modelno','&Speed','&RAM','&HD','&Price')

new 1: insert into Laptop values('1010','2.2','4','128','700')

1 row created.

QUERIES

1) Find the manufacturers of Black printers.

```
select DISTINCT Maker
  FROM product p
 join printer pr ON p.Modelno = pr.Modelno
  WHERE pr.Color = 'Black';
```

MAKER

Epson

Canon

HP

2) Find the Laptop Whose Speed is Slower Than That of any PC.

```
Select *
  FROM Laptop
  WHERE Speed < (Select MAX(Speed) From PC);
```

3) Find the Different types of printers produced by Epson.

```
select DISTINCT pr. Type
  2 FROM product p
  3 JOIN Printer pr ON p.Modelno = pr.Modelno
  4 WHERE p.Maker = 'Epson';
```

4) Find those hard disk Sizes which occur in two or more PC's.

```
select HD
2 FROM PC
3 GROUP BY HD
4 HAVING COUNT(*) > 1;
```

5) Find PC models having a speed of at least 150 MHz.

```
SELECT *

FROM PC

WHERE speed >= 150;
```

6) Find those manufacturers that sell Laptops, but not PC's

```
SELECT DISTINCT Maker
FROM product
WHERE Type = 'Laptop'
AND Maker NOT IN (
    SELECT DISTINCT Maker
    FROM product
    WHERE Type = 'PC'
);
```

create table **BOOKMASTER**

```
2 (
3   bid int primary key,
4   title varchar(20) not null,
5   auother varchar(20) not null,
6   price int not null
7 );
```

Table created

```
SQL> insert into BOOKMASTER values(100,'xyz','john',120);
SQL> insert into BOOKMASTER values(101,'pqr','mohan',150);
SQL> insert into BOOKMASTER values(103,'rst','vikas',250);
SQL> insert into BOOKMASTER values(104,'mnq','ritesh',350);
SQL> insert into BOOKMASTER values(105,'def','mahesh',150);
SQL> insert into BOOKMASTER values(106,'lmn','chayya',200);
SQL> insert into BOOKMASTER values(107,'sat','ritu',230);
SQL> insert into BOOKMASTER values(108,'opt','situ',230);
SQL> insert into BOOKMASTER values(109,'opt','tinu',290);
SQL> insert into BOOKMASTER values(110,'apt','sinu',290);
```

```
SQL> select *from BOOKMASTER;
```

BID TITLE	AUOTHER	PRICE
100 xyz	john	120
101 pqr	mohan	150
103 rst	vikas	250
104 mnq	ritesh	350
105 def	mahesh	150
106 lmn	chayya	200
107 sat	ritu	230
108 opt	situ	230
109 opt	tinu	290
110 apt	sinu	290

SQL> create table **STUDENTMASTER**

```
2 (
3  stud_rno int primary key,
4  sname varchar(20) not null,
5  class varchar(20) not null,
6  dept varchar(10) not null
7 );
```

Table created.

```
SQL> insert into STUDENTMASTER values(1,'jagruti','imca','it');
SQL> insert into STUDENTMASTER values(2,'unnati','mca','it');
SQL> insert into STUDENTMASTER values(3,'darp','mca','teacher');
SQL> insert into STUDENTMASTER values(4,'harshda','mca','bussiness');
SQL> insert into STUDENTMASTER values(5,'dhanii','imca','bussiness');
SQL> insert into STUDENTMASTER values(6,'ankita','imca','bussiness');
SQL> insert into STUDENTMASTER values(7,'desale','mca','it');
SQL> insert into STUDENTMASTER values(8,'arpita','mca','it');
SQL> insert into STUDENTMASTER values(9,'rupali','imca','it');
SQL> insert into STUDENTMASTER values(10,'khushi','mca','it');
```

SQL> select *from **STUDENTMASTER**;

STUD_RNO	SNAME	CLASS	DEPT
1	jagruti	imca	it
2	unnati	mca	it
3	darp	mca	teacher
4	harshda	mca	bussiness
5	dhanii	imca	bussiness
6	ankita	imca	bussiness
7	desale	mca	it
8	arpita	mca	it
9	rupali	imca	it
10	khushi	mca	it

create table **ACCESSIONTABLE**

```
2 (
3  bid int references BOOKMASTER(bid),
```

```

4  ac_no int primary key,
5  avail varchar(10) check(avail in ('t','f')) not null
6 );

```

Table created.

```

SQL> insert into ACCESSIONTABLE values(100,123,'t');
SQL> insert into ACCESSIONTABLE values(101,124,'f');
SQL> insert into ACCESSIONTABLE values(103,125,'f');
SQL> insert into ACCESSIONTABLE values(104,127,'t');
SQL> insert into ACCESSIONTABLE values(105,128,'f');
SQL> insert into ACCESSIONTABLE values(106,129,'f');
SQL> insert into ACCESSIONTABLE values(107,130,'t');
SQL> insert into ACCESSIONTABLE values(109,132,'f');
SQL> insert into ACCESSIONTABLE values(108,131,'t');
SQL> insert into ACCESSIONTABLE values(110,133,'t');

```

```
SQL> select *from ACCESSIONTABLE;
```

BID	AC_NO	AVAIL
100	123	t
101	124	f
103	125	f
104	127	t
105	128	f
106	129	f
107	130	t
109	132	f
108	131	t
110	133	t

```
SQL> create table ISSUETABLE
```

```

2 (
3  is_id int primary key,
4  ac_no int references ACCESSIONTABLE(ac_no),
5  stud_rno int references STUDENTMASTER(stud_rno) not null,
6  isdate date not null,
7  duedate date not null,
8  ret_date date not null,
9  bid int references BOOKMASTER(bid) not null
10 );

```

Table created.

```

SQL> insert into ISSUETABLE values(10,123,1,'15-mar-23','20-mar-23','19-mar-23',100);
SQL> insert into ISSUETABLE values(11,124,2,'1-mar-23','10-mar-23','9-mar-23',101);
SQL> insert into ISSUETABLE values(12,125,3,'11-mar-23','20-mar-23','14-mar-23',103);
SQL> insert into ISSUETABLE values(13,127,4,'21-mar-23','16-mar-23','18-mar-23',104);
SQL> insert into ISSUETABLE values(14,128,5,'12-mar-23','16-mar-23','18-mar-23',105);
SQL> insert into ISSUETABLE values(15,129,5,'22-mar-23','24-mar-23','18-mar-23',106);
SQL> insert into ISSUETABLE values(16,130,6,'30-mar-23','11-apr-23','10-mar-23',106);

```

```
SQL> insert into ISSUETABLE values(17,130,7,'30-mar-23','1-apr-23','10-apr-23',106);
SQL> insert into ISSUETABLE values(18,131,8,'1-apr-23','11-apr-23','10-apr-23',107);
SQL> insert into ISSUETABLE values(19,132,9,'11-apr-23','21-apr-23','20-apr-23',108);
SQL> insert into ISSUETABLE values(20,133,10,'21-apr-23','26-apr-23','23-apr-23',109);
```

```
SQL> select *from ISSUETABLE;
```

IS_ID	AC_NO	STUD_RNO	ISDATE	DUE DATE	RET_DATE	BID
10	123	1	15-MAR-23	20-MAR-23	19-MAR-23	100
11	124	2	01-MAR-23	10-MAR-23	09-MAR-23	101
12	125	3	11-MAR-23	20-MAR-23	14-MAR-23	103
13	127	4	21-MAR-23	16-MAR-23	18-MAR-23	104
14	128	5	12-MAR-23	16-MAR-23	18-MAR-23	105
15	129	5	22-MAR-23	24-MAR-23	18-MAR-23	106
16	130	6	30-MAR-23	11-APR-23	10-MAR-23	106
17	130	7	30-MAR-23	01-APR-23	10-APR-23	106
18	131	8	01-APR-23	11-APR-23	10-APR-23	107
19	132	9	11-APR-23	21-APR-23	20-APR-23	108
20	133	10	21-APR-23	26-APR-23	23-APR-23	109

11 rows selected.

1) Find the name of books which is issued maximum times.

```
SQL> select title from BOOKMASTER where bid=(select bid from ISSUETABLE group by bid having
count(bid)=(select max (count(bid)) from ISSUETABLE group by bid));
```

TITLE

lmn

2) Find the detail information of books that are issued by computer department students

```
select b.bid,b.title,b.auother,b.price,s.dept from BOOKMASTER b,STUDENTMASTER s,ISSUETABLE i
where b.bid=i.bid and i.stud_rno=s.stud_rno and dept='it';
```

BID	TITLE	AUOTHER	PRICE	DEPT
100	xyz	john	120	it
101	pqr	mohan	150	it
106	lmn	chayya	200	it
107	sat	ritu	230	it
108	opt	situ	230	it
109	opt	tinu	290	it

3) Create a view that display all the accession information for a book having bid = 100

```
create view view1 as select * from ACCESSIONTABLE where bid=100;
```

View created.

SQL> select * from view1;

BID	AC_NO	AVAIL
100	123	t

4) Find the information of books issued by MCA students.

select i.is_id,i.ac_no,i.stud_rno,i.isdate,i.duedate,i.ret_date,i.bid,s.class from STUDENTMASTER s,ISSUETABLE i where i.stud_rno=s.stud_rno and class='mca';

IS_ID	AC_NO	STUD_RNO	ISDATE	DUEDATE	RET_DATE	BID	
CLASS	11	124	2	01-MAR-23	10-MAR-23	09-MAR-23	101
mca							

12	125	3	11-MAR-23	20-MAR-23	14-MAR-23	103
mca						

13	127	4	21-MAR-23	16-MAR-23	18-MAR-23	104
mca						

IS_ID	AC_NO	STUD_RNO	ISDATE	DUEDATE	RET_DATE	BID
CLASS						
17	130	7	30-MAR-23	01-APR-23	10-APR-23	106
mca						

18	131	8	01-APR-23	11-APR-23	10-APR-23	107
mca						

20	133	10	21-APR-23	26-APR-23	23-APR-23	109
Mca						

5) Find the detail information of the students who have issued books between two given dates.

SELECT sm.stud_enrollno, sm.sname, sm.class, sm.dept, it.issuedate, it.duedate, it.ret_date, bt.title
FROM STUDENTMASTER sm, ISSUETABLE it, ACCESSIONTABLE at,BOOKMASTER bt
ON sm.stud_enrollno = it.stud_enrollno
AND it.accession_no = at.accession_no
AND ON at.bid = bt.bid
WHERE it.issuedate BETWEEN '30-MAR-23' AND '21-APR-23'

6) Find the number of books issued by each student.

SELECT sm.stud_enrollno, sm.sname, COUNT(*) as num_books_issued
FROM STUDENTMASTER sm
JOIN ISSUETABLE it ON sm.stud_enrollno = it.stud_enrollno

GROUP BY sm.stud_enrollno, sm.sname

7) Find the number of books available in the library & written by "Henry Korth".

```
SELECT COUNT(*) as num_books_available
FROM BOOKMASTER bm
JOIN ACCESSIONTABLE at ON bm.bid = at.bid
WHERE bm.author = 'Henry Korth' AND at.avail = 'Y'
```

ACCOUNT (accno, open_date, Acctype, balance)
TRANSACTION (trans_id, trans_date, accno, trans_type, amount)
CUSTOMER (cust_id, name, address, accno)

Integrity Constraints:

- The values of any attributes should not be null.
- acctype value should be P(Personal) or J(Joint).
- Accno should be less than 3 digits.
- Trans type should be C(Credit) or D(Debit)

SQL> create table account

```
(
  accno int primary key check(accno<9999),
  open_date date not null,
  acctype varchar(20) check(acctype in('P','J')) not null
);
```

Table created.

SQL> create table transaction

```
(
  trans_id int primary key,
  trans_date date not null,
  accno int references account(accno),
  trans_type varchar(20) not null check(trans_type in('C','D')) ,
  amount int not null
)
```

Table created.

SQL> create table customer

```
(
  cust_id int,
  name varchar(20),
  address varchar(20),
  accno int references account(accno)
```

)

Table created.

SQL> insert into account values(&accno,&open_date,&acctype);

Enter value for accno: 1

Enter value for open_date: 2 march 2012

Enter value for acctype: P

old 1: insert into account values(&accno,&open_date,&acctype)

new 1: insert into account values(1,'2 march 2012','P')

1 row created.

SQL> /

Enter value for accno: 101

Enter value for open_date: 25 march 2012

Enter value for acctype: J

old 1: insert into account values(&accno,&open_date,&acctype)

new 1: insert into account values(101,'25 march 2012','J')

1 row created.

SQL> /

Enter value for accno: 102

Enter value for open_date: 26 march 2012

Enter value for acctype: P

old 1: insert into account values(&accno,&open_date,&acctype)

new 1: insert into account values(102,'26 march 2012','P')

1 row created.

SQL> /

Enter value for accno: 103

Enter value for open_date: 27 march 2012

Enter value for acctype: J

old 1: insert into account values(&accno,&open_date,&acctype)

new 1: insert into account values(103,'27 march 2012','J')

1 row created.

SQL> /

Enter value for accno: 104

Enter value for open date: 28 march 2012

Enter value for acctype: P

old 1: insert into account values(&accno,'&open_date','&acctype')

new 1: insert into account values(104,'28 march 2012','P')

1 row created.

Queries:

- 1) Find the details of all transactions performed on account number 101. Also specify the name/names of customers who own that account.

```
SELECT t.trans_id, t.trans_date, t.amount, c.name, c.address
FROM transaction t
JOIN customer c ON t.accno = c.accno
WHERE t.accno = 101;
```

- 2) Find the details of amount credited within the period 15 -3-2012 to 18 -3 -2012.

```
SELECT * FROM transaction WHERE trans_type = 'C' AND trans_date BETWEEN '2012-03-15'
AND '2012-03-18';
```

- 3) Find the details of customers who have opened the accounts within the period 25-3-2012 to 28-3-2012.

```
SELECT *
FROM customer
WHERE accno IN (
SELECT accno
FROM account
WHERE open_date BETWEEN '2012-03-25' AND '2012-03-28'
);
```

- 4) Find the details of customers who have joint accounts & balance is less than 2 lakhs.

```
SELECT *
FROM customer c
JOIN account a ON c.accno = a.accno
WHERE a.acctype = 'J'
AND a.balance < 200000;
```

- 5) Find the details of customers whose minimum balance is 1 lakhs.

```
SELECT *  
FROM customer c  
JOIN account a ON c.accno = a.accno  
WHERE a.acctype = 'J'  
AND a.balance <= 100000;
```

6) Find the details of customers who have joint accounts.

```
SELECT *  
FROM customer c  
JOIN account a ON c.accno = a.accno  
WHERE a.acctype = 'J'
```