***VASIREDDY VENKATADRI INSTITUTE OF TECHNOLOGY***

**Department of CSE**

**DataBase Management Systems**

**Lab Cycle – I**

**Create the following tables along with their tuples:**

**Table Name: Programmer**

|  |  |  |  |
| --- | --- | --- | --- |
| **Column Name** | **Null?** | **Data Type** | **Description** |
| PNAME | Not Null | Varchar2(20) | Name of Programmer |
| DOB | Not Null | Date | Date of Birth |
| DOJ | Not Null | Date | Date of Joining |
| GENDER | Not Null | Char(1) | Male/ Female |
| PROF1 |  | Varchar2(10) | Known Language 1 |
| PROF2 |  | Varchar2(10) | Known Language 2 |
| SALARY | Not Null | Number(7,2) | Salary |

**Data in table Programmer**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **PNAME** | **DOB** | **DOJ** | **GENDER** | **PROF1** | | **PROF2** | **SALARY** |
| Anand | 21-apr-66 | 21-apr-92 | M | Pascal | | Basic | 3200 |
| Altaf | 02-jul-64 | 13-nov-90 | M | Fortran | | Cobol | 2800 |
| Juliana | 31-jan-68 | 21-apr-90 | F | Cobol | | Dbase | 3000 |
| Tulasi | 30-oct-68 | 02-jan-92 | F | C | | Dbase | 2900 |
| Mary | 24-jun-70 | 01-feb-91 | F | C++ | | Oracle | 4500 |
| Nelson | 14-sep-65 | 11-oct-89 | M | Cobol | | Dbase | 2500 |
| Patrick | 11-nov-65 | 21-apr-90 | M | Pascal | | Fortran | 2800 |
| Qadir | 30-aug-65 | 21-apr-91 | M | Assembly | | C | 3000 |
| Ramesh | 08-may-67 | 28-feb-91 | M | Pascal | | Dbase | 3200 |
| Rebacca | 04-jan-67 | 01-dec-90 | F | Basic | | Cobol | 2500 |
| Remitha | 19-apr-70 | 20-apr-93 | F | C | | Assembly | 3600 |
| Revathi | 02-dec-69 | 02-jan-92 | F | Pascal | | Basic | 3700 |
| Vijaya | 11-dec-65 | 02-may-92 | F | Foxpro | | C | 3500 |
|  | | | | |

**Table Name: Studies**

|  |  |  |  |
| --- | --- | --- | --- |
| **Column Name** | **Null?** | **Data Type** | **Description** |
| PNAME | Not Null | Varchar2(20) | Name of Programmer |
| SPLACE | Not Null | Varchar2(20) | Place of Study |
| COURSE | Not Null | Varchar2(20) | Course Name |
| COST |  | Number(5) | Course Cost |

**Data in table Studies**

|  |  |  |  |
| --- | --- | --- | --- |
| **PNAME** | **SPLACE** | **COURSE** | **COST** |
| Anand | Sabhari | PGDCA | 4500 |
| Altaf | CBIT | DCA | 7200 |
| Juliana | BITS | MCA | 22000 |
| Tulasi | Pragathi | DCP | 5000 |
| Mary | Sabhari | PGDCA | 4500 |
| Nelson | Pragathi | DAP | 6200 |
| Patrick | Pragathi | DCAP | 5200 |
| Qadir | Apple | HDCP | 14000 |
| Ramesh | Sabhari | PGDCA | 4500 |
| Rebacca | Brilliant | DCA&P | 11000 |
| Remitha | BDPS | DCS | 5000 |
| Revathi | Sabhari | DAP | 5000 |
| Vijaya | BDPS | DCA | 48000 |

**Table Name: Software**

|  |  |  |  |
| --- | --- | --- | --- |
| **Column Name** | **Null?** | **Data Type** | **Description** |
| PNAME | Not Null | Varchar2(20) | Name of Programmer |
| TITLE | Not Null | Varchar2(25) | Title of Software Project |
| DEV\_D | Not Null | Varchar2(10) | Platform Used |
| SCOST | Not Null | Number(10,2) | Per Product Selling Cost |
| DCOST | Not Null | Number(10,2) | Development Cost |
| SOLD |  | Number(4) | Number of Products Sold |

**Data in table Software**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **PNAME** | **TITLE** | **DEV\_D** | **SCOST** | **DCOST** | **SOLD** |
| Anand | Pharachutes | Basic | 399.95 | 6000 | 43 |
| Anand | Video Titling Pack | Pascal | 7500.00 | 16000 | 9 |
| Juliana | Inventory Control | Cobol | 3000 | 3500 | 0 |
| Tulasi | Payroll Package | Dbase | 9000 | 20000 | 7 |
| Mary | Financial Acc S/W | Oracle | 18000 | 85000 | 4 |
| Mary | Code Generation | C | 4500 | 20000 | 23 |
| Patrick | Read Me | C++ | 300 | 1200 | 84 |
| Qadir | Bombs Away | Assembly | 750 | 5000 | 11 |
| Qadir | Vaccines | C | 1900 | 3400 | 21 |
| Ramesh | Hotel Management | Dbase | 12000 | 35000 | 4 |
| Ramesh | Dead Lee | Pascal | 599.95 | 4500 | 73 |
| Remitha | PC Utilities | C | 725 | 5000 | 51 |
| Remitha | TSR Help Package | Assembly | 2500 | 6000 | 6 |
| Revathi | Hospital Management | Pascal | 1100 | 75000 | 2 |
| Revathi | Quiz Master | Basic | 3200 | 2100 | 15 |
| Vijaya | ISR Editor | C | 900 | 700 | 6 |

**Execute the following queries:**

**Part - I**

1. Find out the selling cost for the package(s) developed in Pascal

select  
scost  
from software  
where dev\_d = 'Pascal'

1. Display the names and ages of programmers

select

Pname,(sysdate-dob)/365 age

From programmer

1. Display the names of programmers who have done the DAP course

SELECT

PNAME

FROM studies

where COURSE='DAP' where course like ‘DAP’

1. What is the highest number of copies sold by a package

Query a: select  
 max(sold)  
 from software

Query b: select

title

from software

where sold=(Query a)

Query c: substitute query a into query b

select

title

from software

where sold=(select

max(sold)

from software)

1. Display the names and date of birth of all programmers born in January

select  
pname, dob  
from Programmer  
where dob like '%JAN%' where substr(dob,4,3)=’JAN’

SELECT dob,pname FROM programmer WHERE MONTH(dob) = '01'

1. Display the lowest course fee

Query a: SELECT MIN(COST) FROM Studies

Query b: select course from Studies where cost=(query a)

Query c: substitute query a in query b

select course from Studies where cost=(select min(cost) from Studies)

1. How many programmers have done the PGDCA course

select

count (\*)

FROM Studies

where COURSE='PGDCA'

1. How much revenue has been earned through the sale of packages developed in C

SELECT

SUM(scost\*sold)

FROM software

WHERE dev\_d='C'

1. Display the details of software developed by Ramesh

select  
\*  
from Software  
where pname='Ramesh'

1. How many programmers have studied at Sabhari

select  
count(\*)  
from Studies  
where splace='Sabhari'

1. Display the details of packages whose sales have been crossed 2000 mark

select  
\*  
from software  
where (sold\*scost)>2000

1. Find out the number of copies, which should be sold in-order to recover the development cost of each package

SELECT

title,ROUND(dcost/scost) AS copies

FROM software

1. Display the details of the packages for which development cost have been recovered

SELECT

\*

FROM SOFTWARE

WHERE DCOST<=SCOST\*SOLD

1. What is the price of the costlier software developed in Basic

Query a: select

Max(scost)

From software

Where dev\_d=’Basic’

Query b: select

title

From software

When dev\_d=’Basic’ and scost=(query a)

Query c: substitute query a in query b

select  
title  
from Software  
where dev\_d='Basic' and scost in (select

max(scost)

from Software

where dev\_d='Basic')

1. How many packages were developed in dbase

select  
count(\*)  
from Software  
where dev\_d='Dbase'

1. How many programmers studied in Pragathi

Select   
Count(\*) "programmers studied in praghati"  
From studies  
Where splace=’Pragathi’

1. How many programmers paid 5000-10000 for their course

select  
count(\*)  
from Studies  
where cost between 5000 and 10000 where cost>=5000 and cost<=10000

1. What is the average course fee

select  
avg(cost)  
From studies

1. Display the details of programmers knowing C

select  
\*  
from Programmer  
where PROF1='C' or PROF2='C'

1. How many programmers know either Cobol or Pascal

select  
count(\*)  
from Programmer  
where prof1 in ('Cobol', 'Pascal') or prof2 in ('Cobol', 'Pascal')

where prof1=‘Cobol’ or prof1=’Pascal’ or prof2=’Cobol’ or prof2=’Pascal’

1. How many programmers don’t know Pascal and C

select  
count(\*)  
from Programmer  
where prof1 not in ('C', 'Pascal') and prof2 not in ('C', 'Pascal')

1. How old is the oldest male programmer

select  
max(floor((sysdate-dob)/365)) "age of oldest male programmer"  
from Programmer  
where gender='M'

1. What is the average age of female programmers

select  
avg(floor((sysdate-dob)/365))  
from Programmer  
where gender = 'F'

1. Calculate the experience in years for each programmer and display along with their names in descending order

select  
pname, floor((sysdate-doj)/365) as experience  
from Programmer  
order by experience desc

1. Who are the programmers who celebrate their birthdays in the current month

Query a: Select   
 Substr(sysdate,4,3) from dual

Query b: select

pname

From programmer

Where substr(dob,4,3)=(query a)

Query c: substitute query a in query b

select  
pname  
from Programmer  
where substr(dob,4,3)=(select substr(sysdate,4,3) from dual)

Mysql:

select pname from programmer where month(dob) = month(curdate())

1. What are the languages known by male programmers

select

distinct(prof1)

from Programmer

where gender='M'

union

select

distinct(prof2)

from Programmer

where gender='M'

1. What is the average salary of programmers

select  
avg(salary) "average salary"  
from Programmer

1. How many male programmers are there

select  
count(\*)  
from Programmer  
where gender='M'

1. How many people draw 2000-4000

select  
count(\*)  
from programmer  
where salary between 2000 and 4000

select  
count(\*)  
from Programmer  
where salary<=4000 and salary>=2000

1. Display the details of programmers who don’t know Fortran, Cobol or Pascal

select  
\*  
from Programmer  
where prof1 not in ('cobol','pascal','fotron') and prof2 not in ('cobol','pascal','fotron')

select

\*

from programmer

where prof1!='Cobol' and prof1!='Fortran' and prof1!='Pascal' and prof2!='Cobol' and prof2!='Fortran' and prof2!='Pascal'

1. In which month did most of the programmers join

select  
substr(doj,4,3),count(\*)  
from Programmer  
group by (substr(doj,4,3))  
having count(\*) in (select  
 max(count(\*))  
 from Programmer  
 group by (substr(doj,4,3)))

1. In which language are most of the programmers proficient

Query a: merge the values under the columns prof1 and prof1 as one column

Select prof1 from programmer

union

select prof2 from programmer

Query b:

select

Prof1, count(\*)

From (query a)

Group prof1

select

Prof1, count(\*)

From (Select prof1 from programmer

union all

select prof2 from programmer)

Group prof1

Query c: find the max value in query b

select

max(count(\*))

From (Select prof1 from programmer

union all

select prof2 from programmer)

Group prof1

Query d: query b having count(\*) in query d

select

Prof1, count(\*)

From (Select prof1 from programmer

union all

select prof2 from programmer)

Group prof1

Having count(\*) in (select

max(count(\*))

From (Select prof1 from programmer

union all

select prof2 from programmer)

Group prof1)

1. Who are the female programmers earning more than the highest paid highest paid male programmer

select  
pname  
from Programmer  
where gender='F' and salary>(select

max(salary)

from Programmer

where gender='M')

1. Which language have been stated as prof1 by most of the programmers

Query a: number of programmers for each language in prof1

select

Prof1, count(\*)

From programmer

Group by prof1

Query b: find the max value in query a

Select

Max(count(\*))

From programmer

Group by prof1

Query c:

query a

having count(\*) in (query b)

select

Prof1, count(\*)

From programmer

Group by prof1

Having count(\*) in (Select

Max(count(\*))

From programmer

Group by prof1)

1. Identify and include the keys (Primary Keys & Foreign Keys) in the tables

Primary Keys:

alter table Programmer add constraint p\_pk primary key(pname)  
alter table Studies add constraint s\_pk primary key(pname)  
alter table Software add constraint So\_pk primary key(title)

Foreign Keys:

alter table Software add constraint f1\_k foreign key(pname) references Programmer

alter table Software add constraint f1\_k1 foreign key(pname) references Studies

**Part – II**

1. Display the number of packages developed in each language

select  
dev\_d,count(\*) "packages developed"  
from Software  
group by dev\_d

1. Display the number of packages developed by each person

select  
pname,count(\*)  
from Software  
group by pname

1. Display the number of male and female programmers

select  
gender,count(\*)  
from Programmer  
group by gender

G COUNT(\*)

* -----------

M 7

F 6

G COUNT(\*) G COUNT(\*)

* ----------- - ------------

M 7 F 6

Select

\*

from

(Select gender, count(\*) from programmer where gender=’M’), (Select gender, count(\*) from programmer where gender=’F’)

1. Display the costliest and highest selling package developed in each language

Query a: find the cost of costliest package in each language

select

Dev\_d, max(scost) c

From software

Group by dev\_d

Query b: find the title of project for each language in query a

select

T1.dev\_d,t1.scost,t1.title

From software t1, (query a) t2

Where t1.dev\_d=t2.dev\_d and t1.scost=t2.c

Query c: substitute query a in query b

select

T1.dev\_d,t1.scost,t1.title

From software t1, (select

Dev\_d, max(scost) c

From software

Group by dev\_d) t2

Where t1.dev\_d=t2.dev\_d and t1.scost=t2.c

Query a1: find the maximum sold value of project in each language

select

Dev\_d, max(sold) c1

From software

Group by dev\_d

Query b1:find the title of project for each language in query a1

select

T1.dev\_d,t1.sold,t1.title

From software t1, (query a1) t2

Where t1.dev\_d=t2.dev\_d and t1.sold=t2.c1

Query c1: substitute query a1 in query b1

select

T1.dev\_d,t1.sold,t1.title

From software t1, (select

Dev\_d, max(sold) c1

From software

Group by dev\_d) t2

Where t1.dev\_d=t2.dev\_d and t1.sold=t2.c1

Query d: final statement

select

\* or t1.dev\_d,t1.scost,t1.title,t2.sold,t2.title

From (query c) t1, (query c1) t2

Where t1.dev\_d=t2.dev\_d

1. Display the number of people born in each year

select  
substr(dob,8,2),count(\*)  
from programmer  
group by substr(dob,8,2)

order by substr(dob,8,2)

1. Display the number of people joined in each year

select  
substr(dob,8,2),count(\*)  
from programmer  
group by substr(dob,8,2)

order by substr(dob,8,2)

1. Display the number of people born in each month

select

substr(dob,4,3) Month, count(\*)

from Programmer

group by substr(dob,4,3)

1. Display the number of people joined in each month

select

substr(doj,4,3) Month, count(\*)

from Programmer

group by substr(doj,4,3)

1. Display language wise count of prof1

select

prof1,count(\*)

from Programmer

group by prof1

1. Display language wise count of prof2

select

prof2,count(\*)

from Programmer

group by prof2

1. Display the number of people in each salary group

select

salary, count(\*)

from Programmer

group by salary

order by salary

1. Display the number of people studied in each institute

select  
splace, count(\*)  
from studies  
group by splace

1. Display the number of people studied in each course

select  
course, count(\*)  
from studies  
group by course

1. Display the total development cost of packages developed in each language

select  
dev\_d, sum(dcost)  
from software  
group by dev\_d

1. Display the selling cost of packages developed in each language

select  
dev\_d, title, scost  
from software

order by dev\_d, scost

1. Display the costs of packages developed by each programmer language wise

select  
pname, dev\_d, scost  
from Software  
order by pname, dev\_d

1. Display the number of packages sold by each programmer

select  
pname, sum(sold)  
from Software  
group by pname

1. Display the sales cost of the packages developed by each programmer

select  
pname, dev\_d, scost  
from Software  
order by pname

1. Display the sales cost of the packages developed by each programmer language wise

select  
pname, dev\_d, scost  
from Software  
order by pname, dev\_d

1. Display the language name with average development cost, average selling cost and average price per copy

select  
dev\_d, avg(dcost), avg(scost)  
from software  
group by dev\_d

1. Display the programmers name, costliest package, cheapest package developed by him/ her

Query a: select

Pname, max(scost) mx

From programmer

Group by pname

Query b: select

T1.pname, t1.scost, t1.title

From programmer t1, (query a) t2

Where t1.pname=t2.pname and t1.scost=t2.mx

Query c: substitute query a in query b

select

T1.pname, t1.scost, t1.title

From programmer t1, (select

Pname, max(scost) mx

From programmer

Group by pname) t2

Where t1.pname=t2.pname and t1.scost=t2.mx

select  
p1.pname,p2.title,p3.title  
from  
(select pname,max(scost) e,min(scost) e1 from Software group by pname) p1 ,

(select title,scost,pname from Software) p2,

(select title,scost,pname from Software) p3  
where (p1.pname=p2.pname and p1.pname=p3.pname and p1.e=p2.scost and p1.e1=p3.scost)

PNAME E E1

Anand 7500 400

TITLE SCOST PNAME TITLE SCOST PNAME

T1 7500 Anand T1 7500 Anand

T2 400 Anand T2 400 Anand

Anand 7500 400 T1 7500 Anand T1 7500 Anand

Anand 7500 400 T1 7500 Anand T2 400 Anand

Anand 7500 400 T2 400 Anand T1 7500 Anand

Anand 7500 400 T2 400 Anand T2 400 Anand

select  
t1.pname, t1.title, t1.scost "costly", t2.title, t2.scost "cheap"  
from

(select t1.pname, t1.scost, t1.title from software t1, (select pname, max(scost) mx from software group by pname) t2 where t1.pname = t2.pname and t1.scost = t2.mx) t1,

(select t1.pname, t1.scost, t1.title from software t1, (select pname, min(scost) mn from software group by pname) t2  
where t1.pname = t2.pname and t1.scost = t2.mn) t2

where t1.pname = t2.pname

Anand 400 T1 7500 Anand

T2 400 Anand

T1 7500 Anand T2 400 Anand

1. Display each institute name with number of courses, average cost per course

select  
splace, count(course), avg(cost)  
from studies  
group by splace

1. Display each institute name with number of students

select  
splace, count(pname)  
from studies  
group by splace

1. Display the names of male and female programmers

select  
pname,gender  
from Programmer  
order by gender

1. Display the programmers name and their packages

select  
pname, title  
from software

order by pname, title

1. Display the number of packages in each language except C and C++

select  
dev\_d,count(title)  
from Software

where dev\_d!='C' and dev\_d!='C++'

group by dev\_d

1. Display the number of packages in each language for which the development cost is less than 1000

select  
dev\_d, count(\*)  
from software  
where dcost<1000  
group by dev\_d

1. Display the average difference between SCOST and DCOST for each language

select  
dev\_d, avg(abs(scost - dcost))  
from software  
group by dev\_d

1. Display the total SCOST, DCOST and amount to be recovered for each programmer for those whose DCOST has not yet been recovered

select  
pname, sum(dcost), sum(scost\*sold), sum(scost\*sold)-sum(dcost)  
from Software  
group by pname  
having sum(scost\*sold)-sum(dcost)<0

1. Display the highest, lowest and average salaries for those earning more than 2000

select  
max(salary), min(salary), avg(salary)  
from programmer  
where salary>2000

1. Display the name of programmer(s) with highest salary

select  
pname  
from Programmer  
where salary=(select max(salary) from Programmer)

1. Display the name of programmer(s) of second highest salary

select  
pname  
from programmer  
where salary in (select  
 max(salary)  
 from programmer  
 where salary not in (select  
 max(salary)  
 from programmer))

**Part – III**

1. Who is the highest paid C programmer

select  
pname,salary  
from Programmer  
where salary=(select max(salary)   
 salary  
 from Programmer  
 where prof1='C' or prof2='C')

1. Who is the highest paid female Cobol programmer

select  
pname,salary  
from Programmer  
where gender='F' and salary=(select max(salary)   
 from Programmer  
 where gender=‘F’ and (prof1='Cobol' or prof2='Cobol'))

1. Display the name of the highest paid programmers for each language (prof1)

select  
p1.prof1,p1.pname,p1.salary  
from Programmer p1,(select  
 prof1,max(salary) ms  
 from Programmer  
 group by prof1) p2  
 where p1.prof1=p2.prof1 and p1.salary=p2.ms

1. Who is the least experienced programmer

select  
pname  
from programmer  
where sysdate-doj in (select  
 min(sysdate-doj)  
 from programmer)

1. Who is the most experienced male programmer knowing Pascal

select  
pname  
from programmer  
where gender = 'M'

and (prof1 in ('Pascal') or prof2 = 'Pascal')

and sysdate-doj in (select  
 max(sysdate-doj)  
 from programmer  
 where gender = 'M' and (prof1 in ('Pascal') or prof2 = 'Pascal'))

1. Which language does only one programmer know

select  
prof1  
from (select prof1 from Programmer union all select prof2 from Programmer)  
 group by prof1  
 having count(prof1)=1

1. Who is the above programmer

Select

Pname

From programmer

Where prof in ( 6) or prof2 in (6)

select  
pname  
from Programmer  
where prof1 in (select  
prof1  
from (select  
prof1  
from Programmer  
union all  
select  
prof2  
from Programmer)  
group by prof1  
having count(prof1)=1) or prof2 in (select  
prof1  
from (select  
prof1  
from Programmer  
union all  
select  
prof2  
from Programmer)  
group by prof1  
having count(prof1)=1)

1. Who is the youngest programmer knowing dbase

select  
pname  
from Programmer  
where (prof1='Dbase' or prof2='Dbase') and (sysdate-dob) in (select  
 min(sysdate-dob)  
 from Programmer  
 where prof1='Dbase' or prof2='Dbase')

1. Which female programmer earning more than 3000 doesn’t know C, C++, Oracle or dbase

select  
pname,salary  
from Programmer  
where gender='F' and salary>3000

and prof1 not in ('C','C++','Oracle','Dbase') and prof2 not in ('C','C++','Oracle','Dbase')

1. Which institute has the most number of students

select  
splace  
from studies  
group by splace  
having count(pname) in (select  
 max(count(pname))  
 from studies  
 group by splace)

1. Which course has been done by most of the students

select  
course  
from studies  
group by course  
having count(course) in (select  
 max(count(course))  
 from studies  
 group by course)

1. Display the names of the institute and course which has below average course fee

select  
distinct splace, course  
from studies  
where cost< (select  
 avg(cost)  
 from studies)

1. Which is the costliest course

select  
course  
from studies  
where cost in (select  
 max(cost)  
 from studies)

1. Which institute conducts the costliest course

select  
splace  
from studies  
where cost in (select  
 max(cost)  
 from studies)

1. Which course has the below average number of students

select  
course  
from studies  
group by course  
having count(\*) < (select  
 avg(count(\*))  
 from studies  
 group by course)

1. Which institute conducts the above courses

select  
course, splace  
from studies

where course in (select  
 course  
 from studies  
 group by course  
 having count(\*) < (select  
 avg(count(\*))  
 from studies  
 group by course))

1. Display the number of courses whose fee are within the average fee

select  
count(unique(course))  
from studies  
where cost in (select  
 avg(cost)  
 from studies)

1. Which package has highest development cost

select  
title  
from software  
where dcost in (select  
 max(dcost)  
 from software)

1. Which package has lowest development cost

select  
title  
from software  
where dcost in (select  
 min(dcost)  
 from software)

1. Who developed the package that has sold least number of copies

select  
pname  
from software  
where sold in (select  
 min(sold)  
 from software)

1. Which language was used to develop the package which has the highest sales amount

select  
dev\_d  
from software  
where sold\*scost in (select  
 max(sold\*scost)  
 from software)

1. Display the package that has the least difference between development and selling cost

select  
title  
from software  
where abs(dcost-scost) in (select  
 min(abs(dcost-scost))  
 from software)

1. Which is the costliest package developed in Pascal

select  
title, dev\_d, scost  
from software  
where dev\_d = 'Pascal' and scost in (select  
 max(scost)  
 from software  
 where dev\_d = 'Pascal')

1. Which language was used to develop the most number of packages

select  
dev\_d  
from software  
group by dev\_d  
having count(title) in (select  
 max(count(title))  
 from software  
 group by dev\_d)

1. Which programmer has developed the highest number of packages

select  
pname  
from software  
group by pname  
having count(title) = (select  
 max(count(title))  
 from software  
 group by pname)

1. Who is the author of the costliest package

select  
pname  
from Software  
where scost in(select  
 max(scost)  
 from Software)

1. Display the names of the packages which have sold less than the average number of copies

select  
title  
from Software  
where sold <(select avg(sold) from Software)

1. Who are the authors of the packages who have recovered more than the double the development cost

select  
pname  
from Software  
where dcost\*2<scost\*sold

1. Display the programmers name and his cheapest package developed by him in each language

select  
pname, s1.dev\_d, title  
from Software s1,(select dev\_d ,min(scost) scost from Software group by dev\_d) s2  
where s1.dev\_d=s2.dev\_d and s1.scost=s2.scost

1. Display the language used by each programmer to develop the highest selling and lowest selling package

select  
s1.pname, s2.dev\_d, s2.dev\_d  
from (select pname, min(sold) x, max(sold) y from Software group by pname) s1,Software s2, Software s3  
where s1.pname=s2.pname and s1.pname=s3.pname and s1.x=s2.sold and s1.y=s3.sold

1. Who is the youngest male programmer born in 1965

select  
pname  
from Programmer  
where gender='M' and substr(dob,8,2)=65 and sysdate-dob in (select  
 min(sysdate-dob)  
 from Programmer  
 where substr(dob,8,2)=65 and gender='M')

1. Who is the oldest female programmer joined in 1982

select  
pname  
from Programmer  
where gender='F' and substr(dob,8,2)=82 and sysdate-dob in (select  
 max(sysdate-dob)  
 from Programmer  
 where substr(dob,8,2)=82 and gender='F')

1. In which year did most of the programmers join

select  
month  
from (select substr(doj, 4, 3) month from programmer)  
 group by month  
 having count(\*) in (select  
 max(count(\*))  
 from programmer  
 group by substr(doj, 4, 3))

1. Display the details of those who will be completed 20 years of service this year

select  
pname  
from programmer  
where (sysdate-doj)/365 >20

1. Calculate the amount to be recovered for those packages whose development cost has not yet been recovered

select  
title, dcost-scost\*sold  
from software  
where dcost-scost\*sold>0

1. List the packages which have not been sold so far

select  
title  
from Software  
where sold=0

1. Find out the cost of the software developed by Mary

select  
pname,title,dcost  
from Software  
where pname='Mary'

1. Display the institute name from studies table without duplicates

select  
unique(splace)  
from Studies

1. How many different courses are mentioned in the studies table

select  
count(unique(course))  
from studies

1. Display the names of the programmers whose names contain 2 occurrences of the letter ‘a’

select  
pname  
from programmer  
where pname like '%a%a%'

1. Display the names of programmers whose names contains up to 5 characters

select  
pname  
from programmer where length(pname)<=5

1. How many female programmers knowing Cobol have more than 2 years experience

select  
count(\*)  
from Programmer  
where gender='F' and (prof1='Cobol' or prof2='Cobol') and round((sysdate-doj)/365)>2

1. What is the length of the shortest name in the programmers table

select

min(length(pname))

from Programmer

1. What is the average development cost of a package developed in Cobol

select  
avg(dcost)  
from software  
where dev\_d = 'Cobol'

1. Display the name, sex, dob (dd/ mmm/ yy format), doj (dd/ mmm/ yy format) for all programmers without using the conversion function

select  
pname, gender, replace(dob, '-', '/') dob, replace(doj, '-', '/') doj  
from programmer

1. Who are the programmers who were born on the last day of the month

select  
pname  
from programmer  
where (substr(dob, 4, 3) in ('JAN', 'MAR', 'MAY', 'JULY', 'AUG', 'OCT', 'DEC') and substr(dob, 0, 2) = 31) or (substr(dob, 4, 3) in ('APR', 'JUNE', 'SEP, NOV') and substr(dob, 0, 2) = 30) or (substr(dob, 4, 3) = 'FEB' and substr(dob, 0, 2) = 28)

1. What is the amount paid salaries of male programmers who don’t know Cobol

select

pname,salary

from Programmer

where gender='M' and prof1!='Cobol' and prof2!='Cobol'

1. Display the title, scost, dcost and difference between scost and dcost in descending order of difference

select  
title, scost, dcost, abs(scost-dcost) diff  
from software  
order by diff desc

1. Display the names of the packages whose name contain more than one word

select  
title  
from software  
where title like '% %'

1. Display the name, job, dob, doj of those month of birth and month of joining are same

select  
pname, dob, doj  
from programmer  
where substr(dob, 4, 3) = substr(doj, 4, 3)

**Part – IV**

1. Display the details of those who are drawing the same salary

select  
p1.pname,p1.salary,p2.pname, p2.salary  
from Programmer p1,Programmer p2  
where p1.pname!=p2.pname and p1.salary=p2.salary  
order by p1.salary;

1. Display the details of the software developed by the male programmers earning more than 3000

Solution 1: using join

select  
s.\*  
from programmer p, software s  
where p.pname = s.pname

and p.gender = 'M' and p.salary > 3000;

Solution 2: using nested query

Query a:

select

pname

From programmer

Where gender=’M’ and salary>3000;

Query b:

select

\*

From software

Where pname in (query a);

select

\*

From software

Where pname in (select

pname

From programmer

Where gender=’M’ and salary>3000);

1. Display the details of the packages developed in Pascal by female programmers

Solution 1: using join

select  
s.\*  
from Software s, Programmer p  
where s.pname=p.pname

and gender='F' and dev\_d='Pascal';

Solution 2: using nested query

Query a:

Select

Pname

From programmer

Where gender=’F’;

Query b:

select

\*

From software

Where pname in (query a)

And dev\_d=’Pascal’;

select

\*

From software

Where pname in (Select

Pname

From programmer

Where gender=’F’)

And dev\_d=’Pascal’;

1. Display the details of software developed in C by female programmers of Pragathi

select  
s.\*, st.splace  
from programmer p, software s, studies st  
where p.pname = s.pname and p.pname = st.pname

and p.gender = 'F'

and s.dev\_d=’C’

and st.splace = 'Pragathi';

Query A:

select

pname

From programmer

Where gender=’F’;

Query B:

Select

pname

From studies

Where splace=’Pragathi’

And pname in (Query A);

Query C:

select

\*

From software

Where pname in (query b) and dev\_d=’C’;

select

\*

From software

Where pname in (select

pname

From studies

Where splace=’Pragathi’

And pname in (select

pname

From programmer

Where gender=’F’))

And dev\_d=’C’;

1. Display the number of packages, number of copies sold and sales value of each programmer institute wise

Query A:

select

pname, count(\*) packages, sum(sold) copies, sum(scost\*sold) sales

from Software

group by pname

Query b:

select  
t1.\*,t2.splace  
from (Query A) t1,Studies t2  
where t1.pname=t2.pname  
order by t2.splace

Query C:

select  
t1.\*,t2.splace  
from (select pname, count(\*) packages, sum(sold) copies, sum(scost\*sold) sales from Software group by pname) t1,Studies t2  
where t1.pname=t2.pname  
order by t2.splace

1. Display the details of the software developed in dbase by male programmers who being to the institute in which most number of programmer studied

Select  
s.\*  
From software s, studies st, programmer p  
Where s.pname = st.pname and

s.pname=p.pname and

s.dev\_d='Dbase' and p.gender='M' and st.splace=(select  
 Splace  
 From studies  
 Group by splace  
 Having count(pname) = (select  
 Max(count(pname))  
 From studies  
 Group by splace))

1. Display the details of the software developed by male programmers who salary less 2500 and female programmers whose salary greater than 2500

Select  
s.\*  
from software s, programmer p  
where s.pname = p.pname and

( (p.gender='M' and p.salary<2500)

or

(p.gender='F' and p.salary>2500) );

Or

select  
s.\*  
from software s  
where pname in ( (select  
 pname  
 from programmer  
 where gender='M' and salary<2500)  
 union  
 (select  
 pname  
 from programmer  
 where gender='F' and salary>2500) )

or

select  
s.\*  
from software s, programmer p  
where s.pname = p.pname and p.gender='M' and p.salary<2500  
union  
select  
s.\*  
from software s, programmer p  
where s.pname = p.pname and p.gender='F' and p.salary>2500

1. Display the details of the software that was developed in the language that is not programmers first proficiency

Select  
\*  
From software  
Where dev\_d not in (select  
 prof1  
 From programmer)

select

s.\*

from Software s,Programmer p

where s.pname=p.pname and s.dev\_d !=p.prof1

1. Display the details of the software that was developed in the language that is neither the first nor the second proficiency of the programmer

Select  
\*  
From software  
Where dev\_d not in (select prof1 from programmer) and dev\_d not in (select prof2 from programmer)

select

s.\*

from Software s,Programmer p

where s.pname=p.pname

and dev\_d!=prof1 and dev\_d!=prof2

or

Select  
s.\*  
From software s, programmer p  
Where s.pname=p.pname and s.dev\_d!=p.prof1  
INTERSECT  
Select  
s.\*  
From software s, programmer p  
Where s.pname=p.pname and s.dev\_d!=p.prof2

1. Display the details of the software that was developed by the male students of Sabhari

Select  
s.\*  
From software s, studies st, programmer p  
Where s.pname = st.pname and s.pname=p.pname

and st.splace=’Sabhari’ and p.gender=’M’

1. Display the names of programmers who have not developed any package

select

pname

from Programmer

MINUS

select

pname

from Software

1. What is the total cost of the software developed by the programmer in apple

Select  
Sum(scost)  
From software s, studies st  
Where s.pname=st.pname and st.splace = 'apple'