ASSIGNMENT SHEET on RELATIONAL ALGEBRA AND SQL

Table Name – Studies

PNAME	**INSTITUTE**	**COURSE**	COURSEFEE
ANAND	SABHARI	PGDCA	4500
ALTAF	COIT	DCA	7200
JULIANA	BITS	MCA	22000
KAMALA	PRAGATHI	DCP	5000
MARY	SABHARI	PGDCA	4500
NELSON	PRAGATHI	DAP	6200
PATRICK	PRAGATHI	DCAP	5200
QADIR	APPLE	HDCP	14000
RAMESH	SABHARI	PGDCA	4500
RESECCA	BRILLIANT	DCAP	11000
REMITHA	BDPS	DCS	6000
VIJAYA	BDPS	DCA	48000

Commands –

- `INSERT INTO STUDIES VALUES('ANAND','SABHARI','PGDCA',4500)`
- `INSERT INTO STUDIES VALUES('ALTAF','COIT','DCA',7200)`
- `INSERT INTO STUDIES VALUES('JULIANA','BITS','MCA',22000)`
- `INSERT INTO STUDIES VALUES('KAMALA','PRAGATHI','DCP',5000)`
- `INSERT INTO STUDIES VALUES('MARY','SABHARI','PGDCA',4500)`
- `INSERT INTO STUDIES VALUES('NELSON','PRAGATHI','DAP',6200)`
- `INSERT INTO STUDIES VALUES('PATRICK','PRAGATHI','DCAP',5200)`
- `INSERT INTO STUDIES VALUES('QADIR','APPLE','HDCP',14000)`
- `INSERT INTO STUDIES VALUES('RAMESH','SABHARI','PGDCA',4500)`
- `INSERT INTO STUDIES VALUES('RESECCA','BRILLIANT','DCAP',11000)`
- `INSERT INTO STUDIES VALUES('REMITHA','BDPS','DCS',6000)`
- `INSERT INTO STUDIES VALUES('VIJAYA','BDPS','DCA',48000)`

Table Name – Software

PNAME	TITLE	DEVELOPING	SCOST	DCOST	SOLD
MARY	README	CPP	100.00	1200	84
ANAND	PARACHUTES	BASIC	399.95	6000	43
ANAND	VIDEOTITLING	PASCAL	7500.00	16000	9
JULIANA	INVENTORY	COBOL	3000.00	3500	0
KAMALA	PAYROLLPRG	DBASE	9000.00	20000	7
MARY	FINANCIALACC	ORACLE	18000.00	85000	4
MARY	CODEGENERATOR	C	4500.00	20000	23
PATTRICK	README	CPP	300.00	1200	84
QADIR	BOMBSAWAY	ASSEMBLY	750.00	5000	11
QADIR	VACCINES	C	1900.00	3400	21
RAMESH	HOTELMGMT	DBASE	12000.00	35000	4
RAMESH	DEADLEE	PASCAL	599.95	4500	73
REMITHA	PCUTILITIES	C	725.00	5000	51
REMITHA	TSRHELPPKG	ASSEMBLY	2500.00	6000	7
REVATHI	HOSPITALMGMT	PASCAL	1100.00	75000	2
VIJAYA	TSREDITOR	C	900.00	700	6

Commands –

- `INSERT INTO SOFTWARE VALUES('MARY','README','CPP',100.00,1200,84);`
- `INSERT INTO SOFTWARE VALUES('ANAND','PARACHUTES','BASIC',399.95,6000,43);`
- `INSERT INTO SOFTWARE VALUES('ANAND','VIDEOTITLING','PASCAL',7500.00,16000,9);`
- `INSERT INTO SOFTWARE VALUES('JULIANA','INVENTORY','COBOL',3000.00,3500,0);`
- `INSERT INTO SOFTWARE VALUES('KAMALA','PAYROLLPRG','DBASE',9000.00,20000,7);`
- `INSERT INTO SOFTWARE VALUES('MARY','FINANCIALACC','ORACLE',18000.00,85000,4);`
- `INSERT INTO SOFTWARE VALUES('MARY','CODEGENERATOR','C',4500.00,20000,23);`
- `INSERT INTO SOFTWARE VALUES('PATTRICK','README','CPP',300.00,1200,84);`
- `INSERT INTO SOFTWARE VALUES('QADIR','BOMBSAWAY','ASSEMBLY',750.00,5000,11);`
- `INSERT INTO SOFTWARE VALUES('QADIR','VACCINES','C',1900.00,3400,21);`
- `INSERT INTO SOFTWARE VALUES('RAMESH','HOTELMGMT','DBASE',12000.00,35000,4);`
- `INSERT INTO SOFTWARE VALUES('RAMESH','DEADLEE','PASCAL',599.95,4500,73);`
- `INSERT INTO SOFTWARE VALUES('REMITHA','PCUTILITIES','C',725.00,5000,51);`
- `INSERT INTO SOFTWARE VALUES('REMITHA','TSRHELPKG','ASSEMBLY',2500.00,6000,7);`
- `INSERT INTO SOFTWARE VALUES('REVATHI','HOSPITALMGMT','PASCAL',1100.00,75000,2);`
- `INSERT INTO SOFTWARE VALUES('VIJAYA','TSREDITOR','C',900.00,700,6);`

Table Name – Programmer

PNAME	DOB	DOJ	SEX	PROF1	PROF2	SALARY
ANAND	12-APR-66	21-APR-92	M	PASCAL	BASIC	3200
ALTAF	02-JUL-64	13-NOV-90	M	CLIPPER	COBOL	2800
JULIANA	31-JAN-60	21-APR-90	F	COBOL	DBASE	3000
KAMALA	30-OCT-68	02-JAN-92	F	C	DBASE	2900
MARY	24-JUN-70	01-FEB-91	F	CPP	ORACLE	4500
NELSON	11-SEP-85	11-MAR-89	M	COBOL	DBASE	2500
PATTRICK	10-NOV-65	21-APR-90	M	PASCAL		2800
QADIR	31-AUG-65	21-APR-90	M	ASSEMBLY	C	3000
RAMESH	03-MAY-67	26-FEB-91	M	PASCAL	DBASE	3200
REBECCA	01-JAN-67	01-DEC-90	F	BASIC	COBOL	2500
REMITHA	19-APR-70	20-APR-93	F	C	ASSEMBLY	3000
REVATHI	02-DEC-69	02-JAN-92	F	PASCAL	BASIC	3200
VIJAYA	14-DEC-65	02-MAY-92	F	FOXPRO	C	4500

Commands –

- `INSERT INTO PROGRAMMER VALUES('ANAND','12-APR-66','21-APR-92','M','PASCAL','BASIC',3200);`
- `INSERT INTO PROGRAMMER VALUES('ALTAF','02-JUL-64','13-NOV-90','M','CLIPPER','COBOL',2800);`
- `INSERT INTO PROGRAMMER VALUES('JULIANA','31-JAN-60','21-APR-90','F','COBOL','DBASE',3000);`
- `INSERT INTO PROGRAMMER VALUES('KAMALA','30-OCT-68','02-JAN-92','F','C','DBASE',2900);`
- `INSERT INTO PROGRAMMER VALUES('MARY','24-JUN-70','01-FEV-91','F','CPP','ORACLE',4500);`
- `INSERT INTO PROGRAMMER VALUES('NELSON','11-SEP-85','11-MAR-89','M','COBOL','DBASE',2500);`
- `INSERT INTO PROGRAMMER VALUES('PATTRICK','10-NOV-65','21-APR-90','M','PASCAL','',2800);`
- `INSERT INTO PROGRAMMER VALUES('QADIR','31-AUG-65','21-APR-90','M','ASSEMBLY','C',3000);`
- `INSERT INTO PROGRAMMER VALUES('RAMESH','03-MAY-67','26-FEB-91','M','PASCAL','DBASE',3200);`
- `INSERT INTO PROGRAMMER VALUES('REBECCA','01-JAN-67','01-DEC-90','F','BASIC','COBOL',2500);`
- `INSERT INTO PROGRAMMER VALUES('REMITHA','19-APR-70','20-APR-93','F','C','ASSEMBLY',3000);`
- `INSERT INTO PROGRAMMER VALUES('REVATHI','02-DEC-69','02-JAN-92','F','PASCAL','BASIC',3200);`
- `INSERT INTO PROGRAMMER VALUES('VIJAYA','14-DEC-65','02-MAY-92','F','FOXPRO','C',4500);`

1. Find out the selling average cost for Packages developed in PASCAL.

```
select AVG(SCOST) from software where developing='PASCAL';
```

2. Display the names ages of all programmers.

```
select pname,(sysdate - dob)/365 Age from programmer;
```

3. Display the names of those who have done the DAP course.

```
select *  from studies where course='DAP';
```

4. Display the names and date of births of all programmers born in January.

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

```
select max(sold) from software;
```

6. Display the lowest course fee

```
select min(coursefee) from studies;
```

7. How many programmers done the PGDCA course

```
select * from studies where course='PGDCA';
```

8. How much revenue has been earned thru sales of packages developed in c.

```
select SUM(scost* sold) from software where developing='C';
```

9. Display the details of the software developed by Ramesh.

```
select * from software where pname='RAMESH';
```

10. How may programmers studied at Sabhari

```
select count(*) from STUDIES WHERE institute='SABHARI';
```

11. Display details of packages whose sales crossed the 2000 mark

```
select * from SOFTWARE WHERE (scost* sold)>2000;
```

12. Find out the number of copies which should be sold in order to

13. Display the details of packages for which developments cost have been recovered.

```
select * from SOFTWARE WHERE (scost* sold)> dcost;
```

14. What is the cost of the costliest software developed in basic

```
select MAX(dcost) from SOFTWARE WHERE developing='BASIC';
```

15. How many packages developed in dbase

```
select COUNT(*) from SOFTWARE WHERE developing='DBASE';
```

16. How many programmers studies in Pragathi

```
select COUNT(*) from STUDIES WHERE institute='PRAGATHI';
```

17. How many programmers paid 5000 to 10000 for their studies.

```
select COUNT(*) from STUDIES WHERE coursefee BETWEEN 5000 AND 10000;
```

18. What is avg course fee

```
select AVG(coursefee) from STUDIES;
```

19. Display the detail the programmers knowing c

```
select * from programmer WHERE prof1='C' OR prof2='C';
```

20. How many programmers know either Cobol or Pascal

```
select * from programmer WHERE (prof1='COBOL' OR prof2='PASCAL') OR
(prof1='PASCAL' OR prof2='COBOL');
```

21. 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');
```

22. How old is the oldest male programmers

```
select MAX((sysdate-DOB)/365) from programmer WHERE sex='M';
```

23. Calculate the experience in years for each programmers and. Display along with the names in descending order.

```
select (sysdate-DOJ)/365 AS EXPERIENCE, pname from programmer ORDER BY EXPERIENCE
desc;
```

24. Who are the programmers who celebrate their birthdays during the current month.

25. How many female programmers are there

```
SELECT count(*) FROM programmer WHERE sex='F';
```

26. What are the languages by male programmers

```
select prof1,prof2 from programmer where sex='M';
```

27. What is the average salary

```
select avg(salary) from programmer;
```

28. How many people draw salary 2000 to 4000

```
select count(*) from programmer where salary BETWEEN 2000 AND 4000;
```

29. Display the details of those who don't know clipper Cobol or Pascal

```
select * from programmer where prof1 not in ('CLIPPER','COBOL','PASCAL') and prof2
not in ('CLIPPER','COBOL','PASCAL');
```

30. Display the cost of package developed by each programmer

```
select pname,sum(dcost) from software GROUP BY pname;
```

31. Display the sales values of the packages developed by the each programmer

```
select pname,sum(scost) from software GROUP BY pname;
```

32. Display the number of packages sold by each programmer.

```
select pname,sum(sold) from software GROUP BY pname;
```

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

```
select pname,sum(sold* scost) from software GROUP BY pname;
```

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

```
select developing, pname,sum(sold*scost) from software GROUP BY developing, pname;
```

35. Display each language name with average development cost, average selling cost and average price per copy.

```
select developing,avg(dcost),avg(scost),avg(scost+dcost/sold) from software GROUP
BY developing ;
```

36. Display each programmers name costliest and cheapest packages developed by him or her .

```
select pname,max(dcost),min(dcost) from software GROUP BY pname ;
```

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

```
select institute, count(course),avg(coursefee) from studies group by institute;
```

38. Display each institute name with number of students.

```
select institute, count(pname) from studies group by institute;
```

39. Display names of male and female programmers name and sex also

```
select pname, sex from programmer order by sex;
```

40. Display the name of programmers and their packages

```
select pname, salary from programmer;
```

41. Display the number of packages in each languages except c and c++.

```
select count(title), developing from software where developing not in ('C','CPP')
group by developing;
```

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

```
select count(title), developing from software where dcost<1000 group by developing;
```

43. Display the average difference between SCOST and DCOST for each package.

```
select title, AVG(dcost- scost) from software group by title;
```

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

45. 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;
```

46. Who is the highest paid in c programmers.

```
select pname,salary from programmer where salary = (select max(salary) from
programmer where prof1='C' OR prof2='C');
```

47. Who is the highest paid female Cobol programmer

```
select pname,sex,salary from programmer where salary = (select max(salary) from
programmer where (prof1='COBOL' OR prof2='COBOL')) AND sex='F';
```

48. Display the names of the highest paid programmer for each language

```
select prof1,max(salary) from programmer group by prof1;
```

49. Who is the least experienced programmer

50. Who is the most experienced male programmer knowing Pascal

```
select max((sysdate - doj)/365) from programmer where prof1='PASCAL' OR
prof2='PASCAL' AND sex='M';
```

51. Which language does only one programmer know?

52. Who is the above programmer referred in 51.

53. Who is the youngest programmer knowing dbase

select pname,min((sysdate- dob)/365) from programmer where prof1='DBASE' OR prof2='DBASE' group by pname;

** select pname,min((sysdate- dob)/365) from programmer where pname = (select pname from programmer where (prof1='DBASE' AND prof2 NOT IN ('DBASE')) OR (prof2='DBASE' AND prof1 NOT IN ('DBASE'))) group by pname;

54. Which female programmer earning more than 3000 does not know c. C++ oracle or dbase.

select P.pname from programmer P where P.sex = 'F' AND P.salary>3000 AND (P.prof1 NOT in ('C','C++','ORACLE','DBASE') OR P.prof2 NOT IN ('C','C++','ORACLE','DBASE'));

55. Which institute has most number of students

select institute,count(pname) from studies group by institute;

56. What is the costliest course

select course from studies where coursefee = (select max(coursefee) from studies);

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

SELECT COURSE FROM studies having count(course)=(select max(count(course))from studies group by course) GROUP by course;

58. Which course has been done by the most of the student

SELECT COURSE,COUNT(*) FROM studies having count(course)=(select max(count(course))from studies group by course) GROUP by course;

59. Which institute conducts costliest course

select institute from studies where coursefee = (select max(coursefee) from studies);

60. Display the name of the institute and course which has below average course fee

select institute, course from studies where coursefee < (select avg(coursefee) from studies);

61. Display the names of the courses whose fees are within 1000 (+or-) of the average fee.

SELECT COURSE FROM studies WHERE coursefee<(SELECT (AVG(coursefee)+1000) FROM STUDIES) AND coursefee>(SELECT (AVG(COURSEFEE)-1000) FROM studies);

62. Which package has the highest development cost

SELECT title FROM software WHERE dcoST = (SELECT MAX(dcost) FROM software);

63. Which course has below average number of students

SELECT course FROM studies HAVING count(pname)<(SELECT AVG(COUNT(PNAME)) FROM studies GROUP BY course) GROUP BY course;

64. Which package has the lowest selling cost.

SELECT title FROM software WHERE scost =(SELECT MIN(scost) FROM software);

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

SELECT pname FROM software WHERE sold =(SELECT MIN(SOLD) FROM software);

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

    SELECT developing FROM software WHERE scost =(SELECT MAX(scost) FROM software);

67. How many copies of package that has the least difference between development and selling cost were sold

    SELECT sold,TITLE FROM software WHERE title = (SELECT TITLE FROM software WHERE dcost- scost =(SELECT MIN(Dcost-SCOST) FROM software));

68. Which is the costliest package developed in Pascal

    SELECT TITLE FROM SOFTWARE WHERE SCOST = (SELECT MAX(SCOST) FROM SOFTWARE WHERE DEVELOPING='PASCAL');

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

    SELECT developing FROM software HAVING COUNT(TITLE) = (SELECT MAX(COUNT(TITLE)) FROM SOFTWARE GROUP BY developing) GROUP BY developing;

70. Which programmer has developed the highest number of packages

    SELECT pname FROM software HAVING COUNT(PNAME) = (SELECT MAX(COUNT(PNAME)) FROM SOFTWARE GROUP BY PNAME) GROUP BY pname;

71. Display the names of the package which have sold less than the average number of copies

    SELECT TITLE FROM SOFTWARE WHERE sold<(SELECT AVG(sold) FROM software);

72. Who are the authors of the packages which have recovered more than double the development cost

    SELECT PNAME FROM software WHERE scost* sold > 2* dcost;

73. Display the programmer names and the cheapest packages developed by them in each language

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

75. Who is the youngest male programmer born in 1965

    SELCT PNAME FROM PROGRAMMER WHERE DOB= (SELECT MAX(DOB) FROM PROGRAMMER WHERE TO_CHAR(DOB,'YYYY') LIKE '1965');

76. Who is the oldest female programmer who joined in 1992.

    SELCT PNAME FROM PROGRAMMER WHERE DOJ= (SELECT MAX(DOB) FROM PROGRAMMER WHERE TO_CHAR(DOB,'YYYY') LIKE '1992');

77. In which year were the most number of programmers born.

    SELECT DISTINCT(TO_CHAR(DOB,'YYYY')) FROM PROGRAMMER WHERE TO_CHAR(DOB,'YYYY') = (SELECT MAX(TO_CHAR(DOB,'YYYY')) FROM PROGRAMMER);

78. In which month did most number of programmers join

SELECT DISTINCT TO_CHAR(DOJ,'MONTH') FROM PROGRAMMER WHERE TO_CHAR(DOJ,'MON') = (SELECT MIN(TO_CHAR(DOJ,'MON')) FROM PROGRAMMER);

79. In which language are most of the programmers proficient
80. Who are the male programmers earning below the average salary of female programmers.

    SELECT PNAME FROM programmer WHERE salary<(SELECT AVG(salary) FROM programmer WHERE sex='F') AND sex='M';

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

    SELECT PNAME FROM programmer WHERE salary<(SELECT MAX(salary) FROM programmer WHERE sex='M') AND sex='F';

82. Which language has been stated as the PROF1 by most of the programmers

    SELECT prof1 FROM programmer HAVING COUNT(PROF1) =(SELECT MAX(COUNT(PROF1)) FROM programmer GROUP BY prof1) GROUP BY prof1;

83. Display the details of those who are drawing the same salary.
84. Display the details of the software developed by the male programmers earning more than 3000/-

    SELECT S.* FROM software S, programmer P WHERE P.salary>3000 and p.sex='M' and p.pname= s.pname;

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

    SELECT S.* FROM software S, programmer P WHERE p.sex='F' and s.developing='PASCAL' and p.pname= s.pname;

86. Display the details of the programmers who joined before 1990

    select * from programmer where TO_CHAR(DOJ,'YYYY')<'1990';

87. Display the details of the software developed in c by female programmers of Pragathi
88. Display the number of packages, number of copies sold and sales value of each programmer institute wise.
89. Display the details of the software developed in dbase by male programmers who belong to the institute in which most number of programmers studied
90. Display the details of the software developed by the male programmers born before 1965 and female programmers born after 1975
91. Display the details of the software that has developed in the language which is neither the first nor the second proficiency of the programmer
92. Display the details of the software developed by the male students of Sabhari
93. Display the names of the programmers who have not developed any packages
94. What is the total cost of the software developed by the programmers of apple

95. Display the names of the programmers who have not developed any packages'
96. Who are the programmers who have the same PROF2.
97. Display the total sales value of the software institute wise.
98. In which institute does the person who developed the costliest package studied.
99. Which language listed in PROF1 and PROF2 has not been used to develop any package
100. How much does the person who developed the highest selling package earn and what course did he / she undergo
101. How many months will it take for each programmer to recover the cost of the course under went
102. Which is the costliest package by a person with under 3 years experience
103. What is the average salary for those whose software sales is more than 50,000/-
104. How many packages were developed by students who studied in institute that charge the lowest courser fee
105. How many packages were developed by the person who developed the cheapest package, where did he / she studied.
106. How many packages were developed by the female programmers earning more than the highest paid male programmer
107. How many packages are developed by the most experienced programmers from BDPS.
108. List the programmers from the software table and the institutes they studied including those who did not develop and package
109. List each PROF with the number of programmers having that PROF and the number of the packages in that PROF.

List the programmer names from the programmer table and the no of packages each has developed.