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SQL ASSIGNMENT

Queries - I

- 1) Find out the SELLING COST AVERAGE for the packages developed in PASCAL?**

```
SELECT AVG(scost) FROM software WHERE dev_in = 'pascal';
```

- 2) Display the names and ages of all programmers.**

```
SELECT name, TIMESTAMPDIFF(YEAR, dob, CURDATE()) AS age FROM  
programmer;
```

- 3) Display the names and ages of all the programmers who have undergone training in DCS course.**

```
SELECT name, TIMESTAMPDIFF(YEAR, dob, CURDATE()) AS age FROM  
programmer WHERE name IN (SELECT name FROM Studies WHERE course =  
'DCS');
```

- 4) What is the highest numbers of copies sold by a package?**

```
SELECT MAX(sold) FROM software;
```

- 5) Display the names and date of birth of all the programmer born in JANUARY.**

```
SELECT name,dob FROM programmer WHERE dob like '____01____';
```

- 6) Display lowest course fee.**

```
SELECT MIN(ccost) FROM studies;
```

- 7) How many programmer has done PGDCA course.**

```
SELECT COUNT(name) FROM studies WHERE course = "pgdca";
```

- 8) How much revenue has been earned through sales of packages in C.**

```
SELECT SUM(sold*scost) FROM software WHERE dev_in = 'c';
```

- 9) Display the details of software developed by Ramesh?**

```
SELECT *FROM software WHERE name ='ramesh';
```

- 10) How many programmers studied at SABHARI.**

```
SELECT COUNT(name) FROM studies where splace = 'sabhari';
```

11) Display the details of PACKAGES whose sales crossed the 20000 mark.

```
SELECT *FROM software WHERE (sold*scost)>20000;
```

12) Find out the number of copies which should be sold in order to recover the development cost of each package.

```
SELECT ROUND(dcost / scost) AS Copies_To_Sell FROM software;
```

13) What is the price of the costliest software developed in BASIC?

```
SELECT MAX(scost) FROM software WHERE dev_in = 'basic';
```

14) Display the details of packages for which development cost has been recovered.

```
SELECT * FROM software WHERE (sold*scost)>dcost;
```

15) How many packages were developed in dbase?

```
SELECT COUNT(title) FROM software WHERE dev_in = 'dbase';
```

16) How many programmers studies at paragathi?

```
SELECT COUNT(name) FROM studies WHERE splace = 'paragathi';
```

17) How many programmers paid 5000 to 10000 for their course?

```
SELECT COUNT(name) FROM studies WHERE ccost BETWEEN 5000 and 10000;
```

18) What is the average course fee?

```
SELECT AVG(ccost) FROM studies;
```

19) Display the details of programmers knowing c?

```
SELECT * FROM programmer WHERE prof1 = 'c' OR prof2 = 'c';
```

20) How many programmers know either Cobol or Pascal?

```
SELECT COUNT(name) FROM programmer WHERE prof1 = 'COBOL' OR prof2 =  
'PASCAL' OR prof2 = 'PASCAL' OR prof2 = 'COBOL';
```

21) How many programmers don't know Pascal & C?

```
SELECT COUNT(name) FROM programmer WHERE prof1 != 'PASCAL' AND prof2  
!= 'C' AND prof1 != 'C' AND prof2 != 'PASCAL';
```

22) How old is the oldest male programmers?

```
SELECT MAX(TIMESTAMPDIFF(YEAR, dob, CURDATE())) AS male_age  
FROM programmer WHERE sex = 'm';
```

23) What is the average age of female programmers?

```
SELECT AVG(TIMESTAMPDIFF(YEAR, dob, CURDATE())) AS avg_age FROM  
programmer WHERE sex = 'f';
```

24) Calculate the experience in years for each programmers and display along with the names in descending order?

```
SELECT name,TIMESTAMPDIFF(YEAR, doj, CURDATE()) AS experience FROM  
programmer ORDER BY experience DESC;
```

25) Who are the programmers who celebrate their birthday during the current month?

```
SELECT name, dob FROM programmer WHERE MONTH(dob) =  
MONTH(CURDATE());
```

26) How many female programmers are there?

```
SELECT COUNT(sex) FROM programmer WHERE sex like 'f';
```

27) What are the languages known by the male programmers?

```
SELECT prof1,prof2 FROM programmer WHERE sex='m';
```

28) What is the Average salary?

```
SELECT AVG(salary) FROM programmer;
```

29) How many people draw 2000 to 4000?

```
SELECT COUNT(name) FROM programmer WHERE salary BETWEEN 2000 AND  
4000;
```

30) 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')
```

31) How many Female programmers knowing C are above 24 years of age?

```
SELECT COUNT(*) FROM programmer WHERE sex = 'f' AND  
TIMESTAMPDIFF(YEAR, dob, CURDATE()) > 24 AND ('C' IN (prof1, prof2));
```

32) Who are the programmers who will be celebrating their Birthday within a week?

```
SELECT * FROM programmer WHERE DAY(dob) BETWEEN DAY(CURDATE())  
AND DAY(CURDATE() + INTERVAL 7 DAY) AND MONTH(dob) =  
MONTH(CURDATE());
```

33) Display the details of those with less than a year's experience?

```
SELECT * FROM programmer WHERE TIMESTAMPDIFF(MONTH, doj,  
CURDATE()) < 12;
```

34) Display the details of those who will be completing 2 years of service this year?

```
SELECT * FROM programmer WHERE EXTRACT(YEAR FROM CURDATE()) -  
EXTRACT(YEAR FROM doj) = 2;
```

35) Calculate the amount to be recovered for those packages whose development cost has not been recovered?

```
SELECT SUM(scost - dcost) AS amount FROM software WHERE scost > dcost;
```

36) List the packages which have not been sold so far?

```
SELECT * FROM software WHERE sold=0;
```

37) Find out the cost of the software developed by Mary?

```
SELECT scost FROM software WHERE name='MARY';
```

38) Display the institute's names from the studies table without duplicates?

```
SELECT DISTINCT splace FROM studies;
```

39) How many different courses are mentioned in the studies table?

```
SELECT DISTINCT course FROM studies;
```

40) Display the names of the programmers whose names contain 2 occurrences of the letter A

```
SELECT name FROM programmer WHERE name LIKE '%A%A%';
```

41) Display the names of programmers whose names contain upto 5 characters?

```
SELECT name FROM programmer WHERE LENGTH(name)=5;
```

42) How many female programmers knowing COBOL have more than 2 years experience?

```
SELECT COUNT(*) AS female_cobol FROM programmer WHERE sex = 'f' AND  
TIMESTAMPDIFF(YEAR, doj, CURDATE()) > 2 AND ('COBOL' IN (prof1, prof2));
```

43) What is the length of the shortest name in the programmer table?

```
SELECT MIN(LENGTH(name)) FROM programmer;
```

44) What is the average development cost of a package developed in COBOL?

```
SELECT AVG(dcost) FROM software WHERE dev_in='COBOL';
```

45) Display the name, sex, dob (DD/MM/YY format), doj for all the programmers without using conversion function?

```
SELECT name, sex, DATE_FORMAT(dob, '%d/%m/%y') AS dob,  
DATE_FORMAT(doj, '%d/%m/%y') AS doj FROM programmer;
```

46) Who are the programmers who were born on the last day of the month?

```
SELECT name FROM programmer WHERE(LAST_day(dob)=DAY(dob));
```

47) What is the amount paid in salaries of the male programmers who do not know Cobol?

```
SELECT salary FROM programmer WHERE sex='m' AND (prof1!='COBOL' AND prof2!='COBOL');
```

48) Display the title, scost, dcost and difference between scost and dcost in descending order of difference?

```
SELECT title, scost, dcost, dcost-scost AS diff FROM software ORDER BY diff DESC;
```

49) Display the name, dob, doj of those month of birth and month of joining are same?

```
SELECT name FROM programmer WHERE EXTRACT(MONTH FROM dob) = EXTRACT(MONTH FROM doj);
```

50) Display the names of the packages whose names contain more than 1 word?

```
SELECT title FROM software WHERE title LIKE '% %';
```

Queries - II

1) Display THE NUMBER OF packages developed in EACH language.

```
SELECT dev_in AS language,COUNT(title) AS no_of_pack FROM software GROUP BY dev_in;
```

2) Display THE NUMBER OF packages developed by EACH person.

```
SELECT COUNT(title) FROM software GROUP BY name;
```

3) Display THE NUMBER OF male and female programmer.

```
SELECT COUNT(name) FROM programmer GROUP BY sex;
```

4) Display THE COSTLIEST packages and HIGEST selling developed in EACH language.

```
SELECT dev_in,MAX(scost),MAX(sold) FROM software GROUP BY dev_in;
```

5) Display THE NUMBER OF people BORN in EACH YEAR.

```
SELECT YEAR(dob) AS birth_year, COUNT(*) FROM programmer GROUP BY YEAR(dob) ORDER BY birth_year;
```

6) Display THE NUMBER OF people JOINED in EACH YEAR.

```
SELECT EXTRACT(YEAR FROM doj) AS joining_year,COUNT(*) AS  
num_people_join FROM programmer GROUP BY EXTRACT(YEAR FROM doj)  
ORDER BY joining_year;
```

7) Display THE NUMBER OF people BORN in EACH MONTH.

```
SELECT MONTH(dob) AS birth_month, COUNT(*) AS num_people_born FROM  
programmer GROUP BY MONTH(dob) ORDER BY birth_month;
```

8) Display THE NUMBER OF people JOINED in EACH MONTH.

```
SELECT MONTH(doj) AS join_month, COUNT(*) AS num_people_joined FROM  
programmer GROUP BY MONTH(doj) ORDER BY join_month;
```

9) Display the language wise COUNTS of prof1.

```
SELECT COUNT(prof1) FROM programmer GROUP BY prof1;
```

10) Display the language wise COUNTS of prof2.

```
SELECT COUNT(prof2) FROM programmer GROUP BY prof2;
```

11) Display THE NUMBER OF people in EACH salary group.

```
SELECT salary,COUNT(name) FROM programmer GROUP BY salary;
```

12) Display THE NUMBER OF people who studied in EACH institute.

```
SELECT splace,COUNT(name) FROM studies GROUP BY splace;
```

13) Display THE NUMBER OF people who studied in EACH course.

```
SELECT course ,COUNT(name) FROM studies GROUP BY course;
```

14) Display the TOTAL development COST of the packages developed in EACH language.

```
SELECT dev_in,SUM(dcost) AS total_cost FROM software GROUP BY dev_in;
```

15) Display the selling cost of the package developed in EACH language.

```
SELECT dev_in ,SUM(scost) FROM software GROUP BY dev_in;
```

16) Display the cost of the package developed by EACH programmer.

```
SELECT name,SUM(dcost) AS total_cost FROM software GROUP BY name;
```

17) Display the sales values of the package developed in EACH programmer.

```
SELECT name, SUM(scost*sold) FROM software GROUP BY name;
```

18) Display the NUMBER of packages developed by EACH programmer.

```
SELECT name,COUNT(title) AS total_pack FROM software GROUP BY name;
```

19) Display the sales COST of packages developed by EACH programmer language wise.

```
SELECT dev_in, SUM(scost) FROM software GROUP BY dev_in;
```

20) Display EACH programmers name, costliest package and cheapest packages developed by Him/Her.

```
SELECT name, MIN(dcost), MAX(dcost) FROM software GROUP BY name;
```

21) Display EACH language name with AVERAGE development cost, AVERAGE cost, selling cost and AVERAGE price per copy.

```
SELECT dev_in, AVG(dcost), AVG(scost), AVG(scost) FROM software GROUP BY dev_in;
```

22) Display EACH institute name with NUMBER of courses, AVERAGE cost per course.

```
SELECT splace, COUNT(course), AVG(ccost) FROM studies GROUP BY splace;
```

23) Display EACH institute name with NUMBER of students.

```
SELECT splace, COUNT(name) FROM studies GROUP BY splace;
```

24) Display names of male and female programmers.

```
SELECT name, sex FROM programmer ORDER BY sex;
```

25) Display the programmer's name and their packages.

```
SELECT name, title FROM software ORDER BY name;
```

26) Display the NUMBER of packages in EACH language.

```
SELECT COUNT(title), dev_in FROM software GROUP BY dev_in;
```

27) Display the NUMBER of packages in EACH language for which development cost is less than 1000.

```
SELECT COUNT(title), dev_in FROM software WHERE dcost < 1000 GROUP BY dev_in;
```

28) Display the AVERAGE difference BETWEEN scost and dcost for EACH language.

```
SELECT dev_in, AVG(dcost - scost) FROM software GROUP BY dev_in;
```

29) Display the TOTAL scost, dcost and amount TOBE recovered for EACH programmer for whose dcost HAS NOT YET BEEN recovered.

```
SELECT SUM(scost), SUM(dcost), SUM(dcost - scost) FROM software GROUP BY name HAVING SUM(dcost) > SUM(scost);
```

30) Display highest, lowest and average salaries for THOSE earning MORE than 2000.

```
SELECT MAX(salary), MIN(salary), AVG(salary) FROM programmer WHERE salary  
> 2000;
```

Queries - III

1) Who is the highest paid C programmer?

```
SELECT name FROM programmer WHERE prof1 ='C' or prof2 = 'C' ORDER BY salary  
DESC LIMIT 1;
```

2) Who is the highest paid female cobol programmer?

```
SELECT name FROM programmer WHERE sex = 'f' and prof1 = 'COBOL' or prof2 =  
'COBOL' ORDER BY salary DESC LIMIT 1;
```

3) Display the name of the HIGHEST paid programmer for EACH language (prof1)

```
SELECT DISTINCT name, salary, prof1 FROM programmer WHERE (salary,prof1) IN  
(SELECT MAX(salary),prof1 FROM programmer GROUP BY prof1);
```

4) Who is the LEAST experienced programmer?

```
SELECT name FROM programmer ORDER BY doj LIMIT 1;
```

5) Who is the MOST experienced programmer?

```
SELECT name FROM programmer ORDER BY doj DESC LIMIT 1;
```

6) Which language is known by ONLY ONE programmer?

```
SELECT language FROM (SELECT prof1 AS language FROM programmer UNION  
ALL SELECT prof2 AS language FROM programmer) AS language_know GROUP BY  
language HAVING COUNT(*) = 1;
```

7) Who is the YONGEST programmer knowing DBASE?

```
SELECT name FROM programmer WHERE prof1 = 'DBASE' OR prof2 = 'DBASE'  
ORDER BY dob ASC LIMIT 1;
```

8) Which institute has MOST NUMBER of students?

```
SELECT splace, COUNT(name) AS student_count FROM studies GROUP BY splace  
ORDER BY student_count DESC LIMIT 1;
```


9) Who is the above programmer?

```
SELECT p.name as programmer_name FROM programmer p INNER JOIN studies s ON  
p.name = s.name WHERE s.splace = (SELECT splace FROM studies GROUP BY splace  
ORDER BY COUNT(*) DESC LIMIT 1);
```

**10) Which female programmer earns MORE than 3000/- but DOES NOT know C, C++,
Oracle or Dbase?**

```
SELECT * FROM programmer WHERE sex = 'f' AND salary >3000 AND (prof1 NOT  
IN('C','C++','ORACLE','DBASE') OR prof2 NOT IN('C','C++','ORACLE','DBASE'));
```

11) Which is the COSTLIEST course?

```
SELECT course, ccost FROM studies WHERE ccost = (SELECT MAX(ccost) FROM  
studies);
```

12) Which course has been done by MOST of the students?

```
SELECT course, COUNT(*) AS students FROM studies GROUP BY course ORDER  
BY students DESC LIMIT 1;
```

13) Display name of the institute and course Which has below AVERAGE course fee?

```
SELECT splace,course FROM studies WHERE ccost < (SELECT AVG(ccost) FROM  
studies);
```

14) Which institute conducts COSTLIEST course?

```
SELECT splace FROM studies WHERE ccost = (SELECT MAX(ccost) FROM studies);
```

15) Which course has below AVERAGE number of students?

```
SELECT course FROM studies GROUP BY course HAVING COUNT(DISTINCT  
name) < ( SELECT AVG(course_count) FROM ( SELECT COUNT(DISTINCT name)  
AS course_count FROM studies GROUP BY course ) AS counts );
```

16) Which institute conducts the above course?

```
SELECT splace FROM studies WHERE course IN ( SELECT course FROM studies  
GROUP BY course HAVING COUNT(DISTINCT name) < ( SELECT  
AVG(course_count) FROM ( SELECT COUNT(DISTINCT name) AS course_count  
FROM studies GROUP BY course ) AS counts ) );
```

17) Display names of the course WHOSE fees are within 1000(+ or -) of the AVERAGE fee.

```
SELECT course FROM studies WHERE ccost < (SELECT AVG(ccost)+1000 FROM studies) AND ccost > (SELECT AVG(ccost)-1000 FROM studies);
```

18) Which package has the HIGEST development cost?

```
SELECT title,dcost FROM software WHERE dcost = (SELECT MAX(dcost) FROM software);
```

19) Which package has the LOWEST selling cost?

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

20) Who developed the package, which has sold the LEAST number of copies?

```
SELECT name,sold FROM software WHERE sold = (SELECT MIN(sold) FROM software);
```

21) Which language was used to develop the package WHICH has the HIGEST sales amount?

```
SELECT dev_in,scost FROM software WHERE scost = (SELECT MAX(scost) FROM software);
```

22) How many copies of the 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 ) );
```

23) Which is the COSTLIEAST package developed in PASCAL?

```
SELECT title FROM software WHERE dcost = (SELECT MAX(dcost) FROM software WHERE dev_in LIKE 'PASCAL');
```

24) Which language was used to develop the MOST NUMBER of package?

```
SELECT dev_in FROM software GROUP BY dev_in HAVING MAX(dev_in) = (SELECT MAX(dev_in) FROM software);
```

25) Which programmer has developed the HIGEST NUMBER of package?

```
SELECT name FROM software GROUP BY name HAVING MAX(name) = (SELECT MAX(name) FROM software);
```

26) Who is the author of the COSTLIEST package?

```
SELECT name,dcost FROM software WHERE dcost = (SELECT MAX(dcost) FROM software);
```

27) Display names of packages WHICH have been sold LESS THAN the AVERAGE number of copies?

```
SELECT title FROM software WHERE sold < (SELECT AVG(sold) FROM software);
```

28) Who are the female programmers earning MORE than the HIGEST paid male programmers?

```
SELECT name FROM programmer WHERE sex = 'f' AND salary > (SELECT(MAX(salary)) FROM programmer WHERE sex = 'm');
```

29) Which language has been stated as prof1 by MOST of the programmers?

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

30) Who are the authors of packages, WHICH have recovered MORE THAN double the development cost?

```
SELECT name FROM software WHERE sold*scost > 2*dcost;
```

31) Display programmer names and CHEAPEST package developed by them in EACH language?

```
SELECT name,title FROM software WHERE dcost IN (SELECT MIN(dcost) FROM software GROUP BY dev_in);
```

32) Who is the YOUNGEST male programmer born in 1965?

```
SELECT name FROM programmer WHERE sex = 'm' AND dob = (SELECT MIN(dob) FROM programmer WHERE sex = 'm' AND YEAR(dob) = 1965);
```

33) Display language used by EACH programmer to develop the HIGEST selling and LOWEST selling package.

```
SELECT name,dev_in FROM software WHERE sold IN (SELECT MAX(sold) FROM software GROUP BY name) UNION SELECT name,dev_in FROM software WHERE sold IN (SELECT MIN(sold) FROM software GROUP BY name);
```

34) Who is the OLDEST female programmer WHO joined in 1992.

```
SELECT name FROM programmer WHERE sex = 'f' AND YEAR(doj) = 1992 ORDER BY dob ASC LIMIT 1;
```

35) In WHICH year where the MOST NUMBER of programmer born?

```
SELECT YEAR(dob) AS birth_year, COUNT(*) AS num_programmers_born FROM  
programmer GROUP BY YEAR(dob) ORDER BY COUNT(*) DESC LIMIT 1;
```

36) In WHICH month did MOST NUMBRER of programmer join?

```
SELECT MONTH(doj) AS join_month, COUNT(*) AS programmers_joined FROM  
programmer GROUP BY MONTH(doj) ORDER BY COUNT(*) DESC LIMIT 1;
```

37) In WHICH language are MOST of the programmer's proficient?

```
SELECT prof1 AS language, COUNT(*) AS num_programmers FROM programmer  
GROUP BY prof1 ORDER BY COUNT(*) DESC LIMIT 1;
```

38) Who are the male programmers earning BELOW the AVERAGE salary of female programmers?

```
SELECT name FROM programmer WHERE sex = 'm' AND salary <  
(SELECT(AVG(salary))FROM programmer WHERE sex = 'f');
```

Queries - IV

1) Display the details of THOSE WHO are drawing the same salary.

```
SELECT name FROM programmer WHERE prof1 = 'C' or prof2='C' ORDER BY salary  
DESC LIMIT 1;
```

2) Display the details of software developed by male programmers earning MORE than 3000.

```
SELECT * FROM software WHERE dev_in IN (SELECT name FROM programmer  
WHERE salary>3000 AND sex='m');
```

3) Display details of packages developed in PASCAL by female programmers.

```
SELECT * FROM programmer ,software WHERE programmer.name=software.name  
and sex='f' AND dev_in='pascal';
```

4) Display the details of the programmer WHO joined BEFORE 1990.

```
SELECT * FROM programmer WHERE YEAR(doj)<90;
```

5) Display details of software developed in C by female programmers of PRAGATHI.

```
SELECT s.* FROM software s,studies st,programmer p WHERE s.name=st.name AND  
p.name=s.name AND sex='f' AND splace='pragathi';
```

- 6) Display NUMBER of packages NUMBER of copies sold and sales value of EACH programmer Institute-wise.**

```
SELECT studies.splace, COUNT(software.dev_in), COUNT(software.sold),  
SUM(software.sold*software.scost) FROM software,studies WHERE  
software.name=studies.name GROUP BY studies.splace;
```

- 7) Display details of software developed in DBASE by male programmers WHO belong to the institute on which MOST NUMBER OF programmer's studies.**

```
SELECT * FROM software JOIN programmer ON software.name = programmer.name  
JOIN studies ON programmer.name = studies.name JOIN (SELECT splace FROM studies  
GROUP BY splace ORDER BY COUNT(*) DESC LIMIT 1) AS most_studied_institute  
ON studies.splace = most_studied_institute.splace WHERE programmer.sex = 'm' AND  
software.dev_in = 'DBASE';
```

- 8) Display the details of the software that was developed by male programmers born BEFORE 1965 and female programmers born AFTER 1975.**

```
SELECT * FROM software JOIN programmer ON software.name = programmer.name  
WHERE (programmer.sex = 'm' AND programmer.dob < '1965-01-01') OR  
(programmer.sex = 'f' AND programmer.dob > '1975-12-31');
```

- 9) Display the details of the software that was developed in the language that is NOT the programmer's first proficiency.**

```
SELECT DISTINCT * FROM software, programmer WHERE software.name =  
programmer.name AND programmer.prof1 != software.dev_in;
```

- 10) Display details of software that was developed in the language which is NEITHER first NOR second proficiency of the programmer.**

```
SELECT * FROM programmer,software WHERE software.name=programmer.name  
AND (dev_in!=prof1 AND dev_in!=prof2);
```

- 11) Display details of software developed by male students of SABHARI.**

```
SELECT * FROM programmer,software,studies WHERE programmer.name =  
software.name AND software.name=studies.name AND sex='m' AND splace='sabhari';
```

- 12) Display the names of programmers WHO HAVE NOT developed any package.**

```
SELECT name FROM programmer WHERE name NOT IN(SELECT name FROM  
software);
```

13) What is the total cost of the software developed by the programmers by APPLE?

```
SELECT SUM(scost) FROM software s, studies st WHERE s.name=st.name AND  
splace='apple';
```

14) Who are the programmers WHO JOINED in the same day?

```
SELECT a.name,a.doj FROM programmer a, programmer b WHERE a.doj=b.doj AND  
a.name <> b.name;
```

15) Who are the programmers WHO HAVE THE SAME PROF2?

```
SELECT UNIQUE(a.name),a.prof2 FROM programmer a, programmer b WHERE  
a.prof2=b.prof2 AND a.name <> b.name;
```

16) Display the total sales values of software, institutes-wise.

```
SELECT st.splace AS institute_name, SUM(s.sold * s.scost) AS total_sales_value  
FROM software s JOIN programmer p ON s.dev_in = p.name JOIN Studies st ON  
p.name = st.name GROUP BY st.splace;
```

17) In which institutes did the person who developed the COSTLIEST package study?

```
SELECT st.splace AS institute_name FROM software s JOIN programmer p ON  
s.dev_in = p.name JOIN Studies st ON p.name = st.name WHERE s.scost = (SELECT  
MAX(scost) FROM software);
```

18) Which language listed in prof1 and prof2 HAS NOT BEEN used to develop any package?

```
SELECT DISTINCT language FROM (SELECT prof1 AS language FROM programmer  
UNION SELECT prof2 AS language FROM programmer) AS languages WHERE  
language NOT IN ( SELECT dev_in FROM software);
```

19) How much does the person WHO developed the HIGHEST selling package earn and WHAT course did he/she undergo?

```
SELECT p.name AS programmer_name, p.salary AS programmer_salary, st.course AS  
course_name FROM programmer p JOIN software s ON p.name = s.dev_in JOIN studies  
st ON p.name = st.name WHERE s.sold = (SELECT MAX(sold) FROM software);
```

20) How many months will it take for each programmer to recover the cost of the course underwent?

```
SELECT p.name AS programmer_name, st.course AS course_name, st.ccost AS  
course_cost, p.salary AS monthly_salary, ROUND(st.ccost / p.salary, 2) AS  
months_to_recover FROM programmer p JOIN studies st ON p.name = st.name;
```

21) Which is the COSTLIEST package developed by a person with under 3 year's experiences?

```
SELECT title FROM software WHERE scost = (SELECT MAX(scost) FROM software  
WHERE name IN (SELECT name FROM programmer WHERE  
TIMESTAMPDIFF(YEAR, doj, CURDATE()) < 3));
```

22) What is the AVERAGE salary for those WHOSE software's sales value is more than 50,000?

```
SELECT AVG(salary) FROM programmer p, software s WHERE p.name=s.name AND  
sold*scost>50000;
```

23) How many packages were developed by the students WHO studied in the institute that Charge the LOWEST course fee?

```
SELECT COUNT(s.name) FROM software s, studies st WHERE s.name=st.name  
GROUP BY s.name, ccost HAVING MIN(ccost)=(SELECT MIN(ccost) FROM studies);
```

24) How many packages were developed by the person WHO developed the CHEAPEST package? Where did he\she study?

```
SELECT COUNT(*) FROM programmer p, software s WHERE s.name=p.name  
GROUP BY dev_in HAVING MIN(dcost)=(SELECT MIN(dcost) FROM software);
```

25) How many packages were developed by female programmers earning MORE than the HIGHEST paid male programmer?

```
SELECT COUNT(dev_in) FROM programmer p, software s WHERE s.name=p.name  
AND sex='f' AND salary>(SELECT MAX(salary) FROM programmer p, software s  
WHERE s.name=p.name AND sex='m');
```

26) How many packages were developed by the MOST experienced programmers from BDPS?

```
SELECT COUNT(*) AS packages FROM software WHERE name IN (SELECT name
FROM programmer WHERE TIMESTAMPDIFF(YEAR, doj, CURDATE()) =
(SELECT MAX(TIMESTAMPDIFF(YEAR, doj, CURDATE())) FROM programmer
WHERE prof1 = 'bdps' OR prof2 = 'bdps'));
```

27) List the programmers (from software table) and institutes they studied, including those WHO DIDN'T develop any package.

```
SELECT programmer.name AS programmer, IFNULL (studies.splace, 'No Institute') AS
institute FROM programmer LEFT JOIN studies ON programmer.name = studies.name;
```

28) List each profit with the number of programmers having that prof1 and the number of packages developed in that prof1.

```
SELECT p.prof1 AS proficiency, COUNT(DISTINCT p.name) AS num_programmers,
COUNT(s.title) AS num_packages FROM programmer p LEFT JOIN software s ON
p.prof1 = s.dev_in GROUP BY p.prof1;
```

29) List programmer names (from programmer table) and number of packages EACH developed.

```
SELECT s.name, count(dev_in) FROM programmer p1, software s WHERE
p1.name=s.name GROUP BY s.name;
```

30) List all the details of programmers who have done a course at S.S.I.L.

```
SELECT * FROM programmer JOIN studies ON programmer.name = studies.name
WHERE studies.splace = 'S.S.I.L';
```