COMP5112 Lab 9: SQL part II

Please check the login procedure of SQL*Plus in "Lab 8" if you have forgotten about it.

Question 1.

In this question, we will use the tables mentioned in the Appendix (which are the same as the tables used in Lab 8).

Write SQL query statements by filling in the blanks for the following tasks.
Execute your SQL query statements, and find the result.
You are not allowed to use the following keywords: JOIN, VIEW.

(a) Retrieve the person names whose salaries are higher than someone's salary in the 'ConsProd' department.

```
SELECT fname, lname
FROM employees
WHERE salary > SOME (____________________);
```

(b) For each employee, retrieve the employee CPR number, the department number, and the maximum salary in this department.

```
SELECT fname, cpr, employees.dno DepartmentNumber, max_salary MaxSalary
FROM employees, (_____________________________) max_sal_tab
WHERE employees.dno = max_sal_tab.dno;
```

(c) For each department whose average salary is more than 27K, retrieve the department name and the number of male employees working for that department.

```
SELECT d.dname, COUNT(*) AS male_cnt
FROM employees e, departments d
WHERE d.dnumber = e.dno AND e.sex = 'M' AND e.dno IN
        (_____________________________)
GROUP BY d.dname;
```

(d) For each department, output the department number and the number of employees whose salaries are higher than the department's average

SELECT employees.dno DepartmentNumber, COUNT(*)
FROM employees,
_____
WHERE _____
GROUP BY employees.dno;

Question 2.

The movie theater is split into rows with 20 seats each. For example, the chairs in the first row are numbered 0 to 19, the chairs in the second row 20 to 39, etc.

To keep track of available seats, we use the table `reservation` with schema `Reservation(No, Available)`.

- `No` reflects the chair number, and Available is either `'Y'` (if the chair is available) or `'N'` (if the chair is unavailable anymore).

Hint: in questions (b1)-(e), you may use the previous solution as the hint for the next question.

(a) **Write** a SQL statement to create the reservation table.
Then, load the table by using `reservation.sql`

(b1) **Write** a SQL to output the available chair numbers and their rows.

(b2) **Write** a SQL to output the unavailable chair numbers and their rows.

(c) **Write** a SQL to output the minimum sequential available chair numbers, rows, and the chair numbers itself for each available chair numbers
Example: suppose each row has four chairs and the row information:

0, 'Y'	1, 'Y'	2, 'Y'	3, 'N'
4, 'N'	5, 'Y'	6, 'Y'	7, 'Y'
8, 'Y'	9, 'N'	10, 'Y'	11, 'N'

The output is:

Chair Numbers	Min Seq Avail Chair No	Row
0	0	0
1	0	0
2	0	0
5	5	1
6	5	1
7	5	1
8	8	2
10	10	2

Hint: you may use the unavailable chair numbers to represent the minimum sequential available chair numbers

(d) **Write** a SQL to output the available chair intervals in each row.
Example: consider the example in (c). The output is:

First	Last	Row
0	2	0
5	7	1
8	8	2
10	10	2

(e) **Write** a SQL to find the longest interval of available seats in each row.
Example: the output of the example in (c) is the same as (d) because both intervals in row 2 have length 1, the maximum number in row 2.
Expected output:

First	Last	Row
7	9	0
20	27	1
40	44	2
71	75	3
86	93	4
109	112	5
133	137	6
143	146	7
148	151	7
171	177	8
188	199	9

First	Last	Row
208	214	10
225	229	11
241	245	12
260	269	13
295	299	14
306	310	15
322	325	16
350	352	17
357	359	17
360	365	18
390	397	19

22 rows selected.

Appendix. Tables

We will reuse the following five tables as in "Lab 8".

Table name: Employees

FNAME	MINIT	LNAME	CPR	BDATE	ADDRESS	SEX	SALARY	DNO
Lars	T	Andersen	123	1955-12-10	Klarup	M	15,000	12
Kristian	C	Bohr	456	1965-10-05	Tylstrup	M	18,000	11
Charlotte	F	Kierkegaard	789	1975-08-06	Vejgaard	F	14,000	11
Uffe	J	Bajers	111	1960-09-07	Gistrup	M	30,000	12
Hans	U	Brahe	222	1970-04-02	Svenstrup	M	20,000	10
Helle	O	Dreyer	333	1950-01-08	Uttrup	F	35,000	10
Peter	P	Nielsen	987	1973-05-30	Lundby	M	23,000	12
Niels	A	Thorvaldsen	654	1953-02-27	Vodskov	M	32,000	11
Tina	C	Jacobsen	321	1963-11-16	Nytorv	F	26,000	12

Table name: Departments

DNAME	DNUMBER	MGRCPR	MGRSTARTDATE
ConsProd	10	333	1994-10-01
InduProd	11	654	1995-05-01
Research	12	111	1990-06-15

Table name: Projects

PNAME	PNUMBER	PLOCATION	DNUM
MobilePhone	1	Nørresundby	10
InteractiveTV	2	Nørresundby	12
MmedMonitor	3	Aarhus	11
PalmTop	4	Aalborg	10
MobileOffice	5	Aarhus	11

Table name: Locations

DNBR	DLOCATION
10	Aalborg
10	Nørresundby
11	Aarhus
12	Nørresundby
12	Frederikshavn

Table name: Allocations

ECPR	PNO	HOURS
123	3	27
456	3	12
789	4	35
111	1	15
111	2	5
222	5	30
333	3	20
333	5	20
987	4	25
654	2	30
321	1	15
321	2	10