Database Systems

Fall 2020

LAB – 03

The objective of this lab is to:

- Numeric,
- Date and Date Conversion
- Group functions.
- Revision based queries

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Instructions:

- Work on this lab individually. Discussion is not allowed.
- Evaluation of tasks will be conducted in lab.
- Anyone caught being indulged in the act of plagiarism would be awarded an "F" grade in this lab.
- Evaluation will be considered final and you cannot debate for the marks. So, focus on performing the tasks when the time is given to you.
- **Allowed time: 1 hour and 30 minutes**
- Best of Luck!

Note: You will be using following tables in your lab tasks.

- EMP (EMPNO, ENAME, JOB, SAL, HIREDATE, COMM, MGR, DEPTNO)
- DEPT (DEPTNO, DNAME, LOC)
- PUCIT (STD_NAME)

- **Perform the following tasks**

Task 01: [20 Marks]

1. Extract the First name, Middle Name, Last Name from the table PUCIT and display in the following format **(4 Marks)**

STD_NAME	First Name	Middle Name	Last Name
Muhammad Usman Khan	Muhammad	Usman	Khan
Hafiz Ghulam Murtaza	Hafiz	Ghulam	Murtaza

Hafiz Mohsin Yaseen	Hafiz	Mohsin	Yaseen

Query:

```
Select std_name ,substr(std_name,0,instr(std_name, ' ')) as "First Name" ,
substr(std_name, instr(std_name,' '), instr(std_name, ' ',1,2)- instr(std_name,' ')) as "Middle Name",
substr(std_name, instr(std_name, ' ',1,2)) as "Last Name"
from pucit
```

Screenshot:

STD_NAME	First Name	Middle Name	Last Name
Muhammad Usman Khan	Muhammad	Usman	Khan
Hafiz Ghulam Murtaza	Hafiz	Ghulam	Murtaza
Hafiz Mohsin Yaseen	Hafiz	Mohsin	Yaseen
Malik Ibrar Hussain	Malik	Ibrar	Hussain
Ali Haider Khan	Ali	Haider	Khan
Khawaja Ali Quli	Khawaja	Ali	Quli
Khan Buhadur Khan	Khan	Buhadur	Khan
Abu Baker Siddique	Abu	Baker	Siddique
Ch. Ejaz Ashraf	Ch.	Ejaz	Ashraf

2. Display the ename, sal, stars using the EMP table. The stars column should display the ename with trailing stars equal to the number of digits of the sal of the employee. (2 marks)

ENAME	SAL	Asterisk Formatted Str
SMITH	800	SMITH***
ALLEN	1600	ALLEN****

Query:

```
Select ename , sal,rpad(ename,length(ename)+length(sal), '*') as "Asterisk Formatted Str"
from emp
```

Screenshot:

ENAME	SAL	Asterisk Formatted Str
SMITH	800	SMITH***
ALLEN	1600	ALLEN****
WARD	1250	WARD****
JONES	2975	JONES****
MARTIN	1250	MARTIN****
BLAKE	2850	BLAKE****
CLARK	2450	CLARK****
SCOTT	3000	SCOTT****

3. Display the count of A and T in the ename of employees, and sum of their count.

ENAME	Count Of A's	Count Of J's	Count of A's and J's
SMITH	0	0	0
ALLEN	1	0	1
JAMES	1	1	2

Query:

```
Select ename , length(ename) - length(replace(ename, 'A','')) as " Count Of A's",
length(ename) - length(replace(ename, 'J','')) as " Count Of J's" ,
length(ename) - length(replace(ename, 'A',''))  + length(ename) - length(replace(ename,
'J','')) as "Count of A's and J's"
 from emp
```

Screenshot:

ENAME	Count Of A's	Count Of J's	Count of A's and J's

SMITH	0	0	0
ALLEN	1	0	1
WARD	1	0	1
JONES	0	1	1
MARTIN	1	0	1
BLAKE	1	0	1
CLARK	1	0	1
SCOTT	0	0	0
KING	0	0	0
TURNER	0	0	0
ADAMS	2	0	2
JAMES	1	1	2
FORD	0	0	0

4. List all the employees hired in leap years.
   (A leap year is exactly divisible by 4 except for century years (years ending with 00). The century year is a leap year only if it is perfectly divisible by 400.)

   Query:
   Select ename, hiredate from emp
   where (MOD(to_number(substr(hiredate,-4)),4) = 0 and
   MOD(to_number(substr(hiredate,-4)),100) <> 0) or MOD(to_number(substr(hiredate,-4)),400) = 0
   Screenshot:

ENAME	HIREDATE
SMITH	12/17/1980

5. Display the names, job and commission of all the employees who are Clerk, Analyst or Salesman. **(Using single condition)**

Query:

Select ename, job, comm from emp
where initcap(job) not in ('Clerk','Analyst', 'Salesman')

Screenshot:

ENAME	JOB	COMM
JONES	MANAGER	-
BLAKE	MANAGER	-
CLARK	MANAGER	-
KING	PRESIDENT	-

6. Display the employees who joined in the month having at least one ‘a’ letter in it.

ENAME	HIREDATE	Joining Month
ALLEN	02/20/1981	february
WARD	02/22/1981	february

Query:

Select ename, hiredate, to_char(hiredate, 'month') as "Joining Month" from emp where to_char(hiredate, 'month') like '%a%'

Screenshot:

ENAME	HIREDATE	Joining Month
ALLEN	02/20/1981	february
WARD	02/22/1981	february
JONES	04/02/1981	april
BLAKE	05/01/1981	may

7. Display the first half of the ‘ename’. (If the length of ename is odd display half+1)

e.g.; if ename is SMITH then ‘First Half Name’ is SMI

First Half Name
SMI
ALL

Query:

Select substr(ename, 0, ceil(length(ename)/2)) "First Half Name" from emp

Screenshot:

First Half Name
SMI
ALL
WA
JON
MAR
BLA
CLA
SCO
KI
TUR
ADA

8. List the salary of the employee in the following format: (Salary: ‘$99,999’;) (Hint: using to_char function)
   Query:
   Select ename, to_char(sal, '$99,999') as "Formatted Salary" from emp
   Screenshot:

ENAME	Formatted Salary
SMITH	$800
ALLEN	$1,600
WARD	$1,250
JONES	$2,975
MARTIN	$1,250
BLAKE	$2,850
CLARK	$2,450
SCOTT	$3,000
KING	$5,000
TURNER	$1,500
ADAMS	$1,100
JAMES	$950

9. Increase the hiredate of each employee by 3 months and then display the last date of modified date.
   (Output should be in the following format)

EMPNO	ENAME	Modified Month	Last Day
7369	SMITH	03/17/1981	03/31/1981
7499	ALLEN	05/20/1981	05/31/1981

Query:

Select empno, ename, add_months(hiredate, 3) "Modified Month",

last_day(add_months(hiredate,3)) as "Last Day" from emp

Screenshot:

EMPNO	ENAME	Modified Month	Last Day
7369	SMITH	03/17/1981	03/31/1981
7499	ALLEN	05/20/1981	05/31/1981
7521	WARD	05/22/1981	05/31/1981
7566	JONES	07/02/1981	07/31/1981
7654	MARTIN	12/28/1981	12/31/1981
7698	BLAKE	08/01/1981	08/31/1981
7782	CLARK	09/09/1981	09/30/1981
7788	SCOTT	03/09/1983	03/31/1983
7839	KING	02/17/1982	02/28/1982
7844	TURNER	12/08/1981	12/31/1981
7876	ADAMS	04/12/1983	04/30/1983
7900	JAMES	03/03/1982	03/31/1982

Task 02: (Group Functions) [20 Marks]

1. Write a query to display job and the number of people with the same job.

JOB	No. of Employees
CLERK	3
SALESMAN	4

Query:

Select distinct job , count(job) as "No. of Employees" from emp

group by job

Screenshot:

JOB	No. of Employees
CLERK	3
SALESMAN	4
ANALYST	2
MANAGER	3
PRESIDENT	1

2. List down maximum, minimum and average salaries of employees
   Query:
   Select max(sal) as "Maximum Salary" , min(sal) as "Minimum Salary" , round(avg(sal),2) as "Avg Salary" from emp
   Screenshot:

Maximum Salary	Minimum Salary	Avg Salary
5000	800	2132.69

3. Find the average salaries of all jobs excluding manager
   Query:
   Select job, round(avg(sal),2) from emp
   where lower(job) not like 'manager'
   group by job
   Screenshot:

JOB	ROUND(AVG(SAL),2)
CLERK	950
SALESMAN	1400
ANALYST	3000

4. Find the number of the employees in dept 30.
   Query:
   Select count(*) from emp

where deptno = 30
Screenshot:

COUNT(*)
6

5. Show total no. of jobs in each department
   Query:
   Select deptno ,count(distinct job) as "Number of jobs"
   from emp
   group by deptno
   Screenshot:

DEPTNO	Number of jobs
30	3
10	2
20	3

6. Find the total salary given to job ‘Manager’.
   Query:
   Select sum(sal) from emp
   where job like 'MANAGER'
   Screenshot:

SUM(SAL)
8275

7. List sum of the salary of employees who was not hired in 1981.
   Query:
   Select sum(sal) as "Sum of Employee's Salary" from emp
   where to_char(hiredate,'yyyy') not like '%1981'
   Screenshot:

Sum of Employee's Salary

4900

8. Write a query to display the next Monday of the current month.
   Query:

   Select next_day(sysdate, 'Monday') as "Next Monday" from dual

   Screenshot:

Next Monday
03/28/2022