

Database Systems Lab

BSCS F18 Afternoon

Lab 13A

Roll# BCSF18A036

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Instructions:

- You must complete all tasks individually. Absolutely **NO** collaboration is allowed.
- Any traces of plagiarism/cheating would result in an "F" grade in this course.
- Late submissions will **NOT** be accepted, in any case.

Submission Procedure:

- **Edit this file for solution.**
- You are required to submit PDF file.
- The file should contain the question, the query and the screen short of output after running the query.
- You have to submit your lab file on following email: dbscs18aft@gmail.com .
- The subject of the email should be **YourRollNumber_Lab_NumberCode**.
e.g. BCSF18A123_Lab_13.

Task 1

Create a trigger called updateSalary that increment the 10% of the salary to commission when salary is increased.

Ans. create or replace trigger updateSalary

```
before update on emp
for each row
BEGIN
if :new.sal > :old.sal then
:new.comm :=:old.comm+:new.sal * 10/100;
end if;
end;
```

The screenshot shows the APEX SQL Workshop interface. The top navigation bar includes 'APEX', 'App Builder', 'SQL Workshop', 'Team Development', and 'App Gallery'. The 'SQL Commands' tab is active, showing a schema of 'BCSF18A036'. The language is set to 'SQL' and the number of rows is '10'. The SQL command is as follows:

```
1 create or replace trigger updateSalary
2 before update on emp
3 for each row
4 BEGIN
5 if :new.sal > :old.sal then
6 :new.comm := :old.comm + :new.sal * 10/100;
7 end if;
8 end;
```

The 'Results' tab at the bottom shows the message: 'Trigger created.'

Task 2

Create a trigger called promoteEmployee that increase the Salary by 1000 when a clerk is promoting to manager.

Ans. create OR replace trigger promoteEmployee

```
before update on emp
for each row
begin
if :old.JOB='CLERK' AND :new.JOB='MANAGER' then
:new.SAL :=:old.SAL+1000;
end if;
end;
```

The screenshot shows the APEX SQL Workshop interface. The top navigation bar includes 'APEX', 'App Builder', 'SQL Workshop', 'Team Development', and 'App Gallery'. The 'SQL Commands' tab is active, showing a schema of 'BCSF18A036'. The language is set to 'SQL' and the number of rows is '10'. The SQL command is as follows:

```
1 create OR replace trigger promoteEmployee
2 before update on emp
3 for each row
4 begin
5 if :old.JOB='CLERK' AND :new.JOB='MANAGER' then
6 :new.SAL :=:old.SAL+1000;
7 end if;
8 end;
```

The 'Results' tab at the bottom shows the message: 'Trigger created.'

Task 3

Promote all Employees to manager whose name start with 'S' and job is "Clerk".

Ans. `update emp set JOB='MANAGER' WHERE ENAME like 'S%' And JOB='CLERK'`

After that:

`select * from emp`

EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO
7369	SMITH	MANAGER	7902	12/17/1980	1800	-	20
7499	ALLEN	SALESMAN	7698	02/20/1981	1600	300	30
7521	WARD	SALESMAN	7698	02/22/1981	1250	500	30
7566	JONES	MANAGER	7839	04/02/1981	2975	-	20
7654	MARTIN	SALESMAN	7698	09/28/1981	1250	1400	30
7698	BLAKE	MANAGER	7839	05/01/1981	2850	-	30
7788	SCOTT	ANALYST	7566	12/09/1982	3000	-	20
7839	KING	PRESIDENT	-	11/17/1981	5000	-	10
7844	TURNER	SALESMAN	7698	09/08/1981	1500	0	30
7876	ADAMS	CLERK	7788	01/12/1983	1100	-	20

Task 4

Create a view called SALARY_VU based on the employee last names, department names, salaries, and salary grades for all employees. Use the EMPLOYEES, DEPARTMENTS, and JOB_GRADES tables. Label the columns Employee, Department, Salary, and Grade, respectively. This view should not be editable.

Ans.

`create view SALARY_VU as select ENAME as Employee , DNAME as Department , SAL as Salary, GRADE from emp, dept, salgrade`

`where emp.DEPTNO=dept.DEPTNO AND SAL>LOSAL And SAL<HISAL`

The screenshot shows the APEX SQL Workshop interface. At the top, there's a navigation bar with 'APEX', 'App Builder', 'SQL Workshop', 'Team Development', and 'App Gallery'. Below this, the 'SQL Commands' tab is active, showing a schema dropdown set to 'BCSF18A036'. The SQL editor contains the following code:

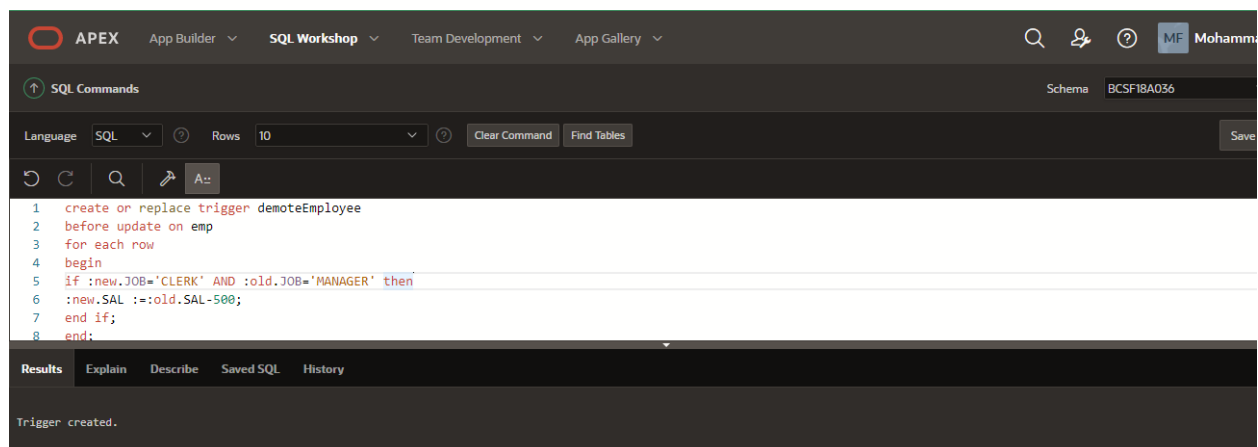
```
1 create view SALARY_VU as select ENAME as Employee , DNAME as Department , SAL as Salary, GRADE from emp, dept, salgrade
2 where emp.DEPTNO=dept.DEPTNO AND SAL>LOSAL And SAL<HISAL
3
```

Below the editor, there are tabs for 'Results', 'Explain', 'Describe', 'Saved SQL', and 'History'. The 'Results' tab is selected, showing the message 'View created.'

Task 5

Create a trigger called demoteEmployee that decrease the Salary by 500 when a manager is demoting to clerk.

Ans. create or replace trigger demoteEmployee
before update on emp
for each row
begin
if :new.JOB='CLERK' AND :old.JOB='MANAGER' then
:new.SAL :=:old.SAL-500;
end if;
end;



The screenshot shows the Oracle SQL Workshop interface. At the top, there's a navigation bar with 'APEX', 'App Builder', 'SQL Workshop', 'Team Development', and 'App Gallery'. Below this, the 'SQL Commands' tab is active, showing a schema 'BCSF18A036'. The 'Language' is set to 'SQL' and 'Rows' is set to '10'. The main area contains the following SQL code:

```
1 create or replace trigger demoteEmployee
2 before update on emp
3 for each row
4 begin
5 if :new.JOB='CLERK' AND :old.JOB='MANAGER' then
6 :new.SAL :=:old.SAL-500;
7 end if;
8 end;
```

Below the code, there are tabs for 'Results', 'Explain', 'Describe', 'Saved SQL', and 'History'. The 'Results' tab is selected, showing the message 'Trigger created.'

Task 6

Demote all Employees to clerk whose name start with 'S' and job is "Manager"

Ans. update emp set JOB='CLERK' WHERE ENAME like 'S%' And JOB='MANAGER'

After that:

```
select * from emp
```

APEX SQL Workshop Team Development App Gallery

Schema: BCSF18A036

Language: SQL Rows: 10 Clear Command Find Tables Save Run

1 select * from emp

EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO
7369	SMITH	CLERK	7902	12/17/1980	1300	-	20
7499	ALLEN	SALESMAN	7698	02/20/1981	1600		
7521	WARD	SALESMAN	7698	02/22/1981	1250		
7566	JONES	MANAGER	7839	04/02/1981	2975		
7654	MARTIN	SALESMAN	7698	09/28/1981	1250		
7698	BLAKE	MANAGER	7839	05/01/1981	2850		
7788	SCOTT	ANALYST	7566	12/09/1982	3000		
7839	KING	PRESIDENT	-	11/17/1981	5000		
7844	TURNER	SALESMAN	7698	09/08/1981	1500		

Snip saved to clipboard
Select here to mark up and share the image

Task 7

Disable the both triggers. And then Promote all Employees to manager whose name start with 'S' and job is "Clerk". Demote all Employees to clerk whose name start with 'B' and job is "Manager".

Ans. alter trigger promoteEmployee disable;

alter trigger demoteEmployee disable;

update EMP SET JOB='CLERK' where JOB='MANAGER' AND ENAME LIKE 'B%';

update EMP SET JOB='MANAGER' where JOB='CLERK' AND ENAME LIKE 'S%';

Task 8

Create a Procedure getTotalJobDays that takes employee name as parameter and returns the number of days since he was hired. Execute that procedure as well.

Ans. create or replace function getTotalJobDays(en

emp.ename%type)

return number is

num number;

begin

select round((sysdate-hiredate)) into num from emp where en = ename;

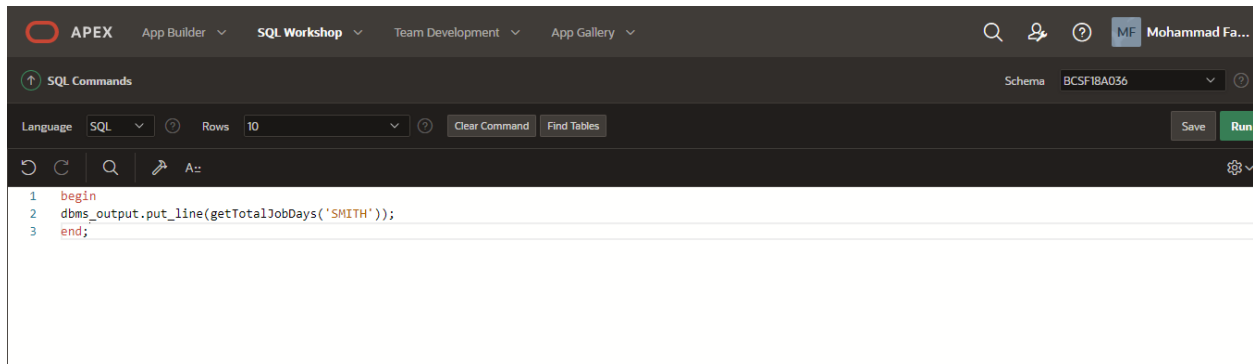
return num;

end;

Execute:

begin

```
dbms_output.put_line(getTotalJobDays('SMITH'));  
end;
```



Task 9

Drop all triggers you made in this lab.

Ans. drop trigger updateSalary

drop trigger promoteEmployee

drop trigger demoteEmployee

Task 10

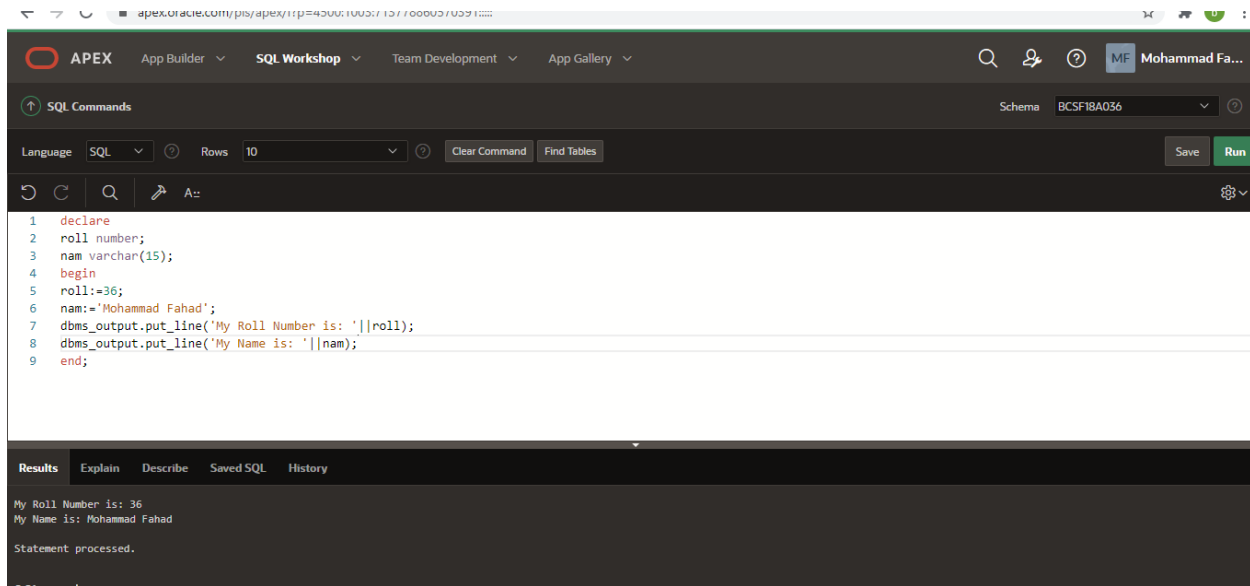
Declare two variables (1 number and 1 varchar) and store your roll number digits and your name respectively and display them on console as follows:

My Roll Number is: 12

My Name is: Muhammad Arslan Yousaf.

Ans. declare

```
roll number;  
nam varchar(15);  
begin  
roll:=36;  
nam:='Mohammad Fahad';  
dbms_output.put_line('My Roll Number is: '||roll);  
dbms_output.put_line('My Name is: '||nam);  
end;
```



The screenshot shows the APEX SQL Workshop interface. The top navigation bar includes 'APEX', 'App Builder', 'SQL Workshop', 'Team Development', and 'App Gallery'. The user is logged in as 'Mohammad Fa...'. The 'SQL Commands' section is active, showing a PL/SQL block with the following code:

```
1 declare
2   roll number;
3   nam varchar(15);
4   begin
5     roll:=36;
6     nam:='Mohammad Fahad';
7     dbms_output.put_line('My Roll Number is: '||roll);
8     dbms_output.put_line('My Name is: '||nam);
9   end;
```

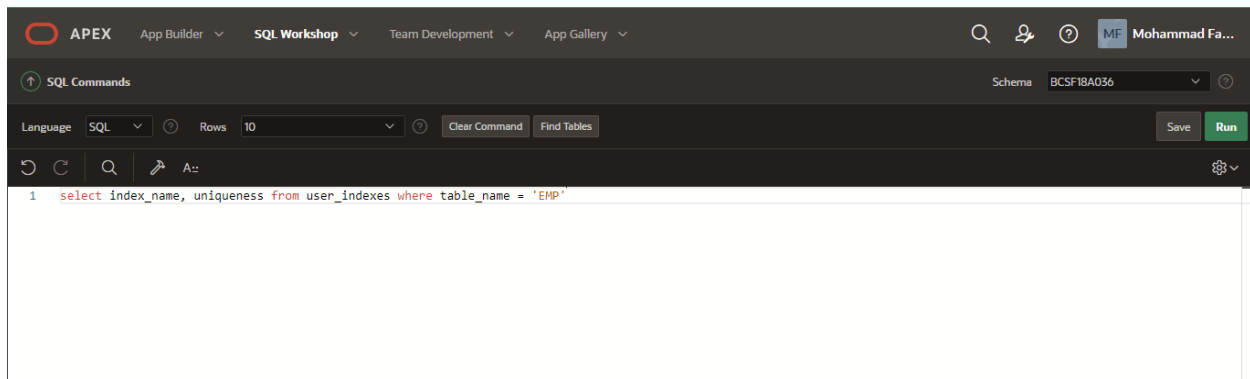
The 'Results' tab is selected, displaying the output of the execution:

```
My Roll Number is: 36
My Name is: Mohammad Fahad
Statement processed.
```

Task 11

Display the indexes and uniqueness that exist in the data dictionary for the EMP table.

Ans. `select index_name, uniqueness from user_indexes where table_name = 'EMP'`



The screenshot shows the APEX SQL Workshop interface with the 'SQL Commands' section active. The query entered is:

```
1 select index_name, uniqueness from user_indexes where table_name = 'EMP'
```

Task 12

Insert a new row using PL/SQL block in Employees Table by taking all inputs from user with appropriate message.

Ans. `declare`

```
eno emp.empno%type;
ena emp.ename%type;
jo emp.job%type;
mg emp.mgr%type;
hd emp.hiredate%type;
s emp.sal%type;
```

```

com emp.comm%type;
d emp.deptno%type;
begin
dbms_output.put_line('Enter EmpNo      : ');
eno:=: eno;
dbms_output.put_line('Enter EName      : ');
ena:=: ena;
dbms_output.put_line('Enter Job        : ');
jo:=: jo;
dbms_output.put_line('Enter MgrNo      : ');
mg:=:mg;
dbms_output.put_line('Enter HireDate : ');
hd:=:hd;
dbms_output.put_line('Enter Salary    : ');
s:=:s;
dbms_output.put_line('Enter Commision: ');
com:=:com;
dbms_output.put_line('Enter deptno    : ');
d:=:d;
insert into emp values(eno,ena,jo,mg,hd,s,com,d);
end;

```

The screenshot shows the APEX SQL Workshop interface. The top navigation bar includes 'APEX', 'App Builder', 'SQL Workshop', 'Team Development', and 'App Gallery'. The user is logged in as 'Mohammad Fa...'. The 'SQL Commands' tab is active, displaying the PL/SQL code from the previous block. The interface includes a search bar, a schema dropdown set to 'BCSF18A036', and buttons for 'Save' and 'Run'. The code editor shows the following SQL commands:

```

1 declare
2   eno emp.empno%type;
3   ena emp.ename%type;
4   jo  emp.job%type;
5   mg  emp.mgr%type;
6   hd  emp.hiredate%type;
7   s   emp.sal%type;
8   com emp.comm%type;
9   d   emp.deptno%type;
10 begin
11   dbms_output.put_line('Enter EmpNo      : ');
12   eno:=: eno;
13   dbms_output.put_line('Enter EName      : ');

```

At the bottom, there are tabs for 'Results', 'Explain', 'Describe', 'Saved SQL', and 'History'.

Good Luck 😊