

Time: 60 minutes

Section C1+C2

Problem 1: Procedure (20 Marks)

First, create and populate the following table:

```
CREATE TABLE TEMP_EMPLOYEES (  
    EMPLOYEE_ID VARCHAR2(10),  
    NAME VARCHAR2(100),  
    EMAIL VARCHAR2(50),  
    MANAGER_ID NUMBER(4,0),  
    MANAGER_CRED VARCHAR2(20)  
);
```

```
INSERT INTO TEMP_EMPLOYEES (EMPLOYEE_ID, NAME, EMAIL, MANAGER_ID)  
SELECT EMPLOYEE_ID, FIRST_NAME || ' ' || LAST_NAME, EMAIL, MANAGER_ID  
FROM HR.EMPLOYEES;
```

Write a Procedure named **POPULATE_CREDS** that takes two integers **MIN_EMP_COUNT** and **MIN_JOB_COUNT** as inputs. It populates (using UPDATE/SET) the Manager Credentials (**MANAGER_CRED**) for only ELIGIBLE managers.

The Manager Credential of a manager is determined as the first two letters of their email, followed by two asterisks, followed by the last two letters of the email, followed by a hyphen and then the number of employees they manage. For example, if a manager has an email like “MMORALES” and he manages 42 employees, his **MANAGER_CRED** will be “MM**ES-42”.

The managers ELIGIBLE for credentials are determined as follows:

- If the manager has served at least **MIN_JOB_COUNT** number of different jobs (including the current one) in the company, then he is eligible.
- If the manager has served less than **MIN_JOB_COUNT** jobs (including the current one) in the company, but currently he manages no less than **MIN_EMP_COUNT** employees, then he is also eligible.
- Otherwise, the manager is ineligible and should not get a credential.

Write the procedure to update credentials for eligible managers as described above.

Problem 2: Trigger (20 Marks)

Write a trigger to update the DEPARTMENT_ID field when an employee transfers from one job to another. The trigger should only be invoked when the JOB_ID column is updated in the TEMP_EMPLOYEES Table.

Trigger 1:

The trigger should first validate the update in the JOB_ID field. The company has the following policies to validate changes in JOB_ID.

- Case 1: If the new JOB_ID is of higher rank than the current JOB_ID, then the change is valid. The rank of a JOB_ID is calculated based on the maximum salary of all employees in the JOB_ID.
- Case 2: If the new JOB_ID is of a lower rank, then the change should be allowed only for employees who have served less than five years in the company.

If the change is valid, then the update can be allowed. In this case, the DEPARTMENT_ID column should be automatically updated to the DEPARTMENT_ID of the new JOB_ID. The new DEPARTMENT_ID should be retrieved from the map table as discussed below.

If the change is not valid, then the trigger should throw an exception so that the query results in an error.

Hints: You won't be able to use update statements inside triggers. First, create a TEMP_EMPLOYEES table that is a copy of the EMPLOYEES table (SQL given below). Then write your trigger on the TEMP_EMPLOYEES table. To avoid the “mutating” trigger issue, all your PL/SQL statements should perform validation checks on the original EMPLOYEES table (instead of TEMP_EMPLOYEES table).

```
DROP TABLE TEMP_EMPLOYEES
```

```
CREATE TABLE TEMP_EMPLOYEES AS SELECT * FROM EMPLOYEES;
```

```
SELECT * FROM TEMP_EMPLOYEES;
```

```
CREATE TABLE DEPARTMENT_JOB_MAP_TABLE AS  
SELECT DISTINCT JOB_ID, DEPARTMENT_ID FROM EMPLOYEES WHERE  
DEPARTMENT_ID IS NOT NULL order by DEPARTMENT_ID;
```

```
SELECT * FROM DEPARTMENT_JOB_MAP_TABLE;
```

```
--UPDATE JOB_ID
UPDATE TEMP_EMPLOYEES
SET JOB_ID = 'MK_MAN'
WHERE EMPLOYEE_ID = 198;
```

```
--- LOG CHECK
SELECT * FROM LOG_TEMP_EMPLOYEES_UPDATE_JID
```

```
--UPDATE JOB_ID
UPDATE TEMP_EMPLOYEES
SET JOB_ID = 'AD_VP'
WHERE EMPLOYEE_ID = 200
```

```
--- LOG CHECK
SELECT * FROM LOG_TEMP_EMPLOYEES_UPDATE_JID
```

```
--UPDATE JOB_ID
UPDATE TEMP_EMPLOYEES
SET JOB_ID = 'AD_ASST'
WHERE EMPLOYEE_ID = 101
```

```
--- LOG CHECK
SELECT * FROM LOG_TEMP_EMPLOYEES_UPDATE_JID
```

```
--UPDATE JOB_ID
UPDATE TEMP_EMPLOYEES
SET JOB_ID = 'SA_REP'
WHERE EMPLOYEE_ID = 178
```

```
--- LOG CHECK
SELECT * FROM LOG_TEMP_EMPLOYEES_UPDATE_JID
```