TASK 7: Triggers, Views and Exceptions - University Context

Aim: To conduct events, views, and exceptions on CRUD operations for restricting phenomenon in a university information system.

## a) Create a trigger in PL/SQL that inserts a new record in exam\_result when a new exam is inserted

CREATE OR REPLACE TRIGGER insert\_exam\_result  
AFTER INSERT ON Exam  
FOR EACH ROW  
BEGIN  
 INSERT INTO exam\_result (ExamID, DeptID, Result)  
 VALUES (:new.ExamID, :new.DeptID, 'Pending'); -- Default value for Result  
END;  
/

## b) Create a view to display student details along with their department details

CREATE VIEW StudentDepartmentDetails AS  
SELECT  
 s.StudentID,  
 s.FName AS StudentName,  
 s.DeptID,  
 s.Email,  
 (SELECT d.Name FROM Department d WHERE d.DeptID = s.DeptID) AS DeptName,  
 (SELECT d.Dean FROM Department d WHERE d.DeptID = s.DeptID) AS DeptDean,  
 (SELECT d.Head FROM Department d WHERE d.DeptID = s.DeptID) AS DeptHead  
FROM Student s;

Example usage:

SELECT \* FROM StudentDepartmentDetails;

## c) Non-recursive PL/SQL procedure to retrieve even-numbered StudentIDs registered for any exam

CREATE OR REPLACE PROCEDURE GetEvenStudentIDsForExam(in\_exam\_id NUMBER, out\_even\_student\_ids SYS.ODCINUMBERLIST) AS  
BEGIN  
 out\_even\_student\_ids := SYS.ODCINUMBERLIST(); -- Initialize the collection  
  
 FOR student\_rec IN (SELECT StudentID FROM Student WHERE ExamID = in\_exam\_id AND MOD(StudentID, 2) = 0) LOOP  
 out\_even\_student\_ids.EXTEND;  
 out\_even\_student\_ids(out\_even\_student\_ids.COUNT) := student\_rec.StudentID;  
 END LOOP;  
END;  
/

Usage example:

DECLARE  
 exam\_id NUMBER := 456; -- Replace with the actual exam ID  
 even\_student\_ids SYS.ODCINUMBERLIST;  
BEGIN  
 GetEvenStudentIDsForExam(exam\_id, even\_student\_ids);  
 FOR i IN 1..even\_student\_ids.COUNT LOOP  
 DBMS\_OUTPUT.PUT\_LINE('Even StudentID: ' || even\_student\_ids(i));  
 END LOOP;  
END;  
/

Result:

Thus the Triggers, Views and Exceptions experiment was successfully completed and results are verified.