Task 8

Triggers, Views and Exceptions

Part 1 : Implementing Triggers

1. Prevent Insertion of underage students

```
CREATE TABLE students (
StudentID NUMBER PRIMARY KEY,
Name VARCHAR2(50),
Age NUMBER,
Department VARCHAR2(50)
Marks NUMBER
);
```

EXPECTED OUTPUT : Table Created

```
CREATE OR REPLACE TRIGGER prevent_underage_students
BEFORE INSERT ON students
FOR EACH ROW
BEGIN
  IF : NEW.Age < 18 THEN
    RAISE_APPLICATION_ERROR (-20001, 'Age must be 18 or above');
END IF;
END;
/
```

2. Create a log table

```
CREATE TABLE student login(
  Log ID NUMBER PRIMARY KEY,
  Student ID NUMBER,
  Action type VARCHAR2(20),
  Action Data TIMESTAMP DEFAULT SYSTEM STAMP
);
```

Part 2 : Creating Views

1. View for top students

```
CREATE OR REPLACE VIEW view_Top students AS
SELECT student ID, name, marks
FROM students
WHERE Marks > 80;
```

2. View for Department Summary

```
CREATE OR REPLACE VIEW View_Top students AS
SELECT Department, contact AS Total Students,
    ROUND(AVG(MARKS)) AS Average Marks
FROM students
GROUP BY Department;
```

Part 3 : Exception Handling

1. Procedure with exception handling for inserting student records.

```
CREATE OR REPLACE PROCEDURE Insert student (
P_student ID IN NUMBER,
P_name IN VARCHAR 2,
P_age IN number,
P_department IN VARCHAR 2,
P_marks IN NUMBER
);
IS BEGIN
INSERT INTO students (student Id, Name, Age, Department, M
VALUES (P_student ID, P_name, P_department, P_marks);
DBMS_OUTPUT.PUT_LINE ('Record Inserted Successfully');
EXCEPTION
        WHEN OTHERS THEN
            DBMS_OUTPUT.PUT_LINE('Error: ' || SQLERROR)
END;
/
```

2. Function to fetch student details with error handling.

```
CREATE OR REPLACE FUNCTION GetStudentDetails (p_student_ID IN
                    NUMBER)
RETURN VARCHAR2
IS
   student_info VARCHAR(255);
BEGIN
    SELECT 'Name': || Name || 'Age' || Age || ', Department' ||
           Department || ', Marks', || Marks
INTO student_info
FROM students
WHERE studentID = p_studentID;
RETURN student_info;
EXCEPTION
   WHEN NO_DATA_FOUND THEN
        RETURN 'student Not Found';

   WHEN OTHERS THEN
        RETURN 'Error: ' || SQLERRM;

   END;
/
```

Result : Thus the SQL query is executed and verified suc