Week 3 Homework - Katrina Ying

**Version 2 - please refer to this version since I updated the code based on the announcement and discussion. Thank you!**

**Tasks:**

1. **Every employee should make at least $55K. Please define the table of Employees according to this constraint.**

Inserted test data into the employee table.

```
8   /* Task 1 - salary amount and CREATE the Emp table */
9   CREATE TABLE Emp (
10      eid INTEGER PRIMARY KEY,
11      ename VARCHAR(255),
12      age INTEGER,
13      salary REAL CHECK (salary >= 55000)
14  );
15
16  -- populate the employee table --
17  INSERT INTO Emp (eid, ename, age, salary) VALUES
18  (1, 'John Watson', 45, 70000),
19  (2, 'Manny Johnson', 19, 80000),
20  (3, 'Stan Wong', 33, 55000),
21  (4, 'Veronika Sullivan', 63, 950000);
22
23  -- Show Emp table so far --
24  SELECT * FROM Emp
25  ORDER BY Salary ASC;
```

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content:

| eid | ename | age | salary |
|---|---|---|---|
| 3 | Stan Wong | 33 | 55000 |
| 1 | John Watson | 45 | 70000 |
| 2 | Manny Johnson | 19 | 80000 |
| 4 | Veronika Sullivan | 63 | 950000 |
| NULL | NULL | NULL | NULL |

Emp 1

Also inserted some test data to show the department table

```
27      /* Create the Dept Table */
28      CREATE TABLE Dept (
29          did INTEGER PRIMARY KEY,
30          budget REAL,
31          managerid INTEGER,
32          FOREIGN KEY (managerid) REFERENCES Emp(eid)
33          );
34
35      -- Insert some test data into DEPT to show the table
36      INSERT INTO Dept (did, budget, managerid) VALUES
37      (1, 8000, 1),
38      (2, 750000, 2);
39
40      SELECT * FROM Dept;
41
```

Result Grid | Filter Rows: | Edit: | Export/Impor

| did | budget | managerid |
|---|---|---|
| 1 | 8000 | 1 |
| 2 | 750000 | 2 |
| NULL | NULL | NULL |

2. **All managers should be above the age of 30. Please define the table of DEPT according to this constraint.**

```
44
45      DELIMITER //
46      CREATE TRIGGER check_manager_age
47      BEFORE INSERT ON Dept
48      FOR EACH ROW
49      BEGIN
50          DECLARE manager_age INTEGER;
51          -- get age of manager
52          SELECT age INTO manager_age
53          FROM Emp
54          WHERE eid = NEW.managerid;
55          -- see if manager is less than 25 years old
56          IF manager_age <= 25 THEN
57              SIGNAL SQLSTATE '45000'
58              SET MESSAGE_TEXT = 'Whoops! Managers need to be older than 30';
59          END IF;
60      END;
61      //
62      DELIMITER ;
```

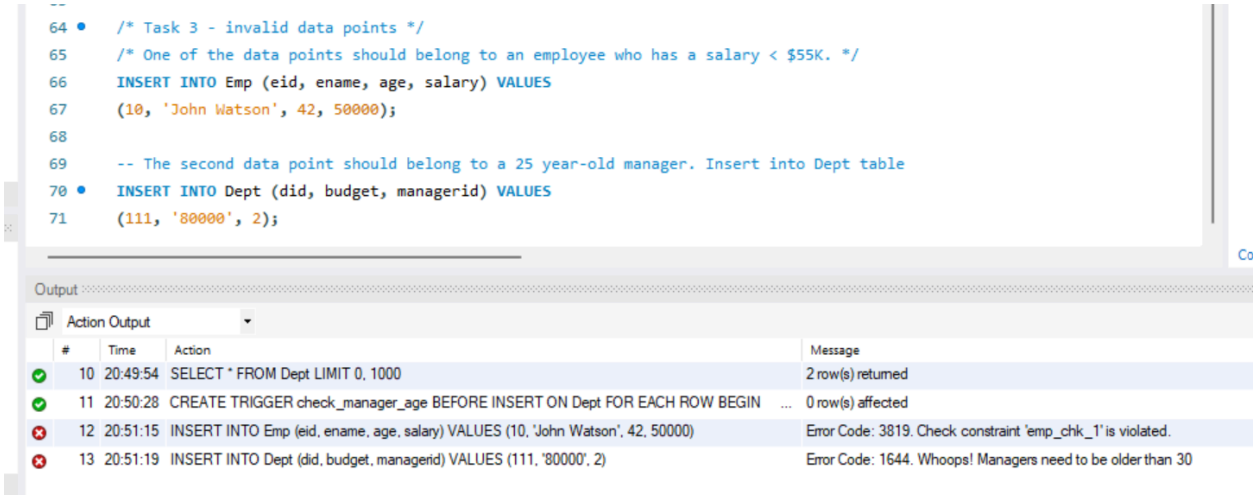
Output

Action Output

| # | Time | Action |
|---|---|---|
| 8 | 20:49:53 | CREATE TABLE Dept ( did INTEGER PRIMARY KEY, budget REAL, managerid INTEGER, ... |
| 9 | 20:49:54 | INSERT INTO Dept (did, budget, managerid) VALUES (1, 8000, 1), (2, 750000, 2) |
| 10 | 20:49:54 | SELECT * FROM Dept LIMIT 0, 1000 |
| 11 | 20:50:28 | CREATE TRIGGER check_manager_age BEFORE INSERT ON Dept FOR EACH ROW BEGIN ... |

3. **Attempt to insert two invalid data points into the employee and Dept table. One of the data points should belong to an employee who has a salary < $55K. The second data point should belong to a 25 year-old manager.**

Here, the first error shows that the check constraint in the employee table is violated. The second error is because the the manager id, #2, references an employee called “Manny” who is only 19 years old. Since all managers need to be older than 30, this calls the trigger to display the error message.



```
64 •  /* Task 3 - invalid data points */
65    /* One of the data points should belong to an employee who has a salary < $55K. */
66    INSERT INTO Emp (eid, ename, age, salary) VALUES
67    (10, 'John Watson', 42, 50000);
68
69    -- The second data point should belong to a 25 year-old manager. Insert into Dept table
70 •  INSERT INTO Dept (did, budget, managerid) VALUES
71    (111, '80000', 2);
```

Output

Action Output

| # | Time | Action | Message |
|---|---|---|---|
| 10 | 20:49:54 | SELECT * FROM Dept LIMIT 0, 1000 | 2 row(s) returned |
| 11 | 20:50:28 | CREATE TRIGGER check_manager_age BEFORE INSERT ON Dept FOR EACH ROW BEGIN ... | 0 row(s) affected |
| 12 | 20:51:15 | INSERT INTO Emp (eid, ename, age, salary) VALUES (10, 'John Watson', 42, 50000) | Error Code: 3819. Check constraint 'emp_chk_1' is violated. |
| 13 | 20:51:19 | INSERT INTO Dept (did, budget, managerid) VALUES (111, '80000', 2) | Error Code: 1644. Whoops! Managers need to be older than 30 |