Using mySQL Triggers to Reflect a Bank's Risk Framework

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Background:

Bank's Risk Framework:
-In order for a loanee to qualify for an **unsecured loan**, they must have a credit score of 700 or above.

Bank's Problem:
-There is currently **no process in place to flag unsecured loans for people with credit scores of 700 or below.** The Data Analyst must create an alert system that notifies the branch manager of a loan that does not meet the requirements of the Bank's Risk Framework.

Bank's Solution:
Ask the Data Analyst is to **create a process that flags a loan** from Branch 23 so they meet the Bank's risk framework. The risk framework says you cannot give an unsecured loan to a loanee without a credit score of 700 or above.

Step 1: Understanding the database.

Let's take a look at a sample database.

Code for database creation:

```
CREATE TABLE loan1 (
  loannumber INT PRIMARY KEY,
  name VARCHAR(40),
  loanrequest DATE,
  secured INT,
  loan_amount INT,
  interest_rate INT,
  creditscore INT,
  branch_id INT);

INSERT INTO loan1 VALUES(1, 'John', '2020-9-28', 1, 10000, 12, 610, 23);

INSERT INTO loan1 VALUES(2, 'Jane', '2020-9-21', 0, 40000, 9, 804, 23);

INSERT INTO loan1 VALUES(3, 'Tom', '2020-9-17', 0, 60000, 11, 810, 23);

SELECT*FROM loan1;
```

We have the primary key (loan number), name of loanee, when the loan was requested, secured or unsecured (1 denotes a secured loan), loan amount, credit score.

loannumber	name	loanrequest	secured	loan_amount	interest_rate	creditscore	branch_id
1	John	2020-09-28	1	10000	12	610	23
2	Jane	2020-09-21	0	40000	9	804	23
3	Tom	2020-09-17	0	60000	11	810	23

Step 2: Creating the Alert System

Our alert system is contained in this table, invalid loans.

```
CREATE TABLE invalid_loans (message VARCHAR(100));
```

Now we add the trigger. If an unsecured loan is processed for someone with a credit score below 700, the alert system is notified. That's what I told mySQL to do via the code below.

Code for trigger:

```
CREATE
    TRIGGER badloan7 BEFORE INSERT
    ON loan1
    FOR EACH ROW BEGIN
    IF NEW.creditscore < 700 AND NEW.secured = 0 THEN
        INSERT INTO invalid_loans VALUES('Alert branch manager: loan goes against risk framework');
    ELSE
            INSERT INTO invalid_loans VALUES('Success: valid loan');
    END IF;
    END$$
```

Example:

Mary has a 514 credit score, but she was approved for an unsecured loan worth $8000.

Code to add Mary to our loan database:

```
INSERT INTO loan1 VALUES(4, 'Mary', '2020-9-30', 0, 8000, 11, 514, 23);
```

Did our alert system catch the loan outside of the bank's risk framework? Let's check.

Code to check the alert system:

```
42  SELECT * FROM invalid_loans
```

Success

1 rows

message
Alert branch manager: loan goes against risk framework

Conclusion:

This simple trigger automates the loan approval process. We told SQL to update our "alert system" table using an IF statement. The trigger is scalable as well. If the bank's risk framework changes, the trigger can be easily updated to reflect the changes (we could add a requirement for a maximum amount based on the credit score, for example).