Agenda

- Triggers
- Codd's Rule
- Normalization
- Functions
- Python Connectivity

Triggers

- Trigger is MySQL program (PSM syntax). It's execution is triggered (caused) by some event -- DML operation on a table.
    - BEFORE INSERT
    - AFTER INSERT
    - BEFORE UPDATE
    - AFTER UPDATE
    - BEFORE DELETE
    - AFTER DELETE
- If multiple rows are INSERT/UPDATE/DELETE, then trigger will be executed once "for each row".
- The affected rows can be accessed using NEW and OLD keywords.
    - INSERT --> NEW row
    - DELETE --> OLD row
    - UPDATE --> NEW and OLD row
- It is never called explicitly by the user.
- It cannot have arguments or return value.
- It's output is not printed console.

Functions

- 1. DETERMINISTIC
    - If input is same, output will remain same ALWAYS.
    - Internally MySQL cache input values and corresponding output.
    - If same input is given again, directly output may return to speedup execution.
- 2. NOT DETERMINISTIC
    - Even if input is same, output may differ.
    - Output also depend on current date-time or state of table or database settings
    - These functions cannot be speedup.

```
-- Q. write a function for find exp/age of person in year & months.

DROP FUNCTION IF EXISTS EXPERIENCE;
DELIMITER $$
```

```
CREATE FUNCTION EXPERIENCE(p_date DATE)
RETURNS CHAR(40)
NOT DETERMINISTIC
BEGIN
    DECLARE v_mon INT;
    DECLARE v_year INT;
    SET v_year = TIMESTAMPDIFF(YEAR, p_date, NOW());
    SET v_mon = TIMESTAMPDIFF(MONTH, p_date, NOW()) % 12;
    RETURN CONCAT(v_year, ' y ', v_mon, ' m ');
END;
$$
DELIMITER ;
```