1)

```
jehad@jehad-MacBookPro:~$ mysql -h 127.0.0.1 -P 3306 -u root -p'new_password' --ssl-mode=DISABLED
mysql: [Warning] Using a password on the command line interface can be insecure.
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 74
Server version: 8.0.41-0ubuntu0.24.04.1 (Ubuntu)

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owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql> show triggers from Company \G
*************************** 1. row ***************************
             Trigger: capitalize_names_before_insert
               Event: INSERT
               Table: EMPLOYEE
           Statement: BEGIN
    SET NEW.fname = CONCAT(UCASE(LEFT(NEW.fname, 1)), SUBSTRING(NEW.fname, 2)),
        NEW.lname = CONCAT(UCASE(LEFT(NEW.lname, 1)), SUBSTRING(NEW.lname, 2));
END
              Timing: BEFORE
             Created: 2025-04-03 15:45:42.72
            sql_mode: IGNORE_SPACE,ONLY_FULL_GROUP_BY,STRICT_TRANS_TABLES,NO_ZERO_IN_DATE,NO_ZERO_DATE,ERROR_FOR_DIVISION_BY_ZERO,NO_ENGINE_SUBSTITUTION
             Definer: root@localhost
character_set_client: utf8mb4
collation_connection: utf8mb4_unicode_ci
  Database Collation: utf8mb4_0900_ai_ci
1 row in set (0.02 sec)

mysql>
```

▷ Run | ◻ Select

```
INSERT INTO EMPLOYEE(fname, minit, lname, ssn, bdate, address, sex, salary, super_ssn, dno)
VALUES
('jehad', 'M', 'hamad', '12332121', '2005-01-06', NULL, 'M', 45000, NULL, 1)
```

| fname varchar(20	minit varchar(1	lname varchar(25	ssn varchar(9	bdate date	address varchar(50)	sex varchar(1	salary int	super_ss varchar(9)	dno int
Jehad	M	Hamad	12332121	2005-01-06	(NULL)	M	45000	(NULL)	1
John	B	Smith	123456789	1965-01-09	731 Fondren, Houston, TX	M	30000	333445555	5
Franklin	T	Wong	333445555	1955-12-08	638 Voss, Houston, TX	M	40000	888665555	5
Joyce	A	English	453453453	1972-07-31	5631 Rice, Houston, TX	F	25000	333445555	5
Ramesh	K	Narayan	666884444	1962-09-15	975 Fire Oak, Humble, TX	M	38000	333445555	5
James	E	Borg	888665555	1937-11-10	450 Stone, Houston, TX	M	55000	(NULL)	1
Jennifer	S	Wallace	987654321	1941-06-20	291 Berry, Bellaire, TX	F	43000	888665555	4
Ahmad	V	Jabbar	987987987	1969-03-29	980 Dallas, Houston, TX	M	25000	987654321	4
Alicia	J	Zelaya	999887777	1968-01-19	3321 Castle, Spring, TX	F	25000	987654321	4

2)

```
DELIMITER //
  ▷ Run | 🗋 Select
CREATE TRIGGER bdate_before_insert
BEFORE INSERT ON DEPENDENT
FOR EACH ROW
BEGIN
    IF NEW.bdate > CURDATE() THEN
        SIGNAL SQLSTATE '45000'
        SET MESSAGE_TEXT = 'Invalid birthdate! Cannot be in the future.';
    END IF;
END
DELIMITER ;
  ▷ Run
DELIMITER //
  ▷ Run | 🗋 Select
CREATE TRIGGER bdate_before_update
BEFORE Update ON DEPENDENT
FOR EACH ROW
BEGIN
    IF NEW.bdate > CURDATE() THEN
        SIGNAL SQLSTATE '45000'
        SET MESSAGE_TEXT = 'Invalid birthdate! Cannot be in the future.';
    END IF;
END
DELIMITER ;   20ms
```

```
  ▷ Run | 🗋 Select
UPDATE `DEPENDENT`   Invalid birthdate! Cannot be in the future.
SET bdate = '2025-12-12'
WHERE essn = 123456789;   17ms
```

```
  ▷ Run | 🗋 Select
INSERT INTO DEPENDENT(essn, dependent_name, sex, bdate, relationship)  Invalid birthdate Insertion! Cannot be in the future.
VALUES
('333445555', 'Sophia', 'F', '2025-12-12', 'Daughter');   6ms
```

3)

```
▷ Run
DELIMITER //

▷ Run | ⬚ Select
CREATE TRIGGER update_salary_trigger
AFTER UPDATE ON WORKS_ON
FOR EACH ROW
BEGIN
    -- Declare a local variable
    SET @total_hours = (
        SELECT SUM(phours)
        FROM WORKS_ON
        WHERE essn = NEW.essn
    );

    -- If total hours exceed 50, increase the salary
    IF @total_hours > 50 THEN
        UPDATE EMPLOYEE
        SET salary = salary * 1.10  -- Increase salary by 10%
        WHERE ssn = NEW.essn;
    END IF;
END  42ms

▷ Run
DELIMITER ;
```

Before

		* fname varchar(20	minit varchar(1	* lname varchar(25	* ssn varchar(9	bdate date	address varchar(50)	sex varchar(1	* salary int	super_ss varchar(9)	dno int
☐	>	Jehad	M	Hamad	12332121	2005-01-06	(NULL)	M	45000	(NULL)	1
☐	>	John	B	Smith	123456789	1965-01-09	731 Fondren, Houston, TX	M	30000	333445555	5
☐	>	Franklin	T	Wong	333445555	1955-12-08	638 Voss, Houston, TX	M	40000	888665555	5
☐	>	Joyce	A	English	453453453	1972-07-31	5631 Rice, Houston, TX	F	25000	333445555	5
☐	>	Ramesh	K	Narayan	666884444	1962-09-15	975 Fire Oak, Humble, TX	M	38000	333445555	5
☐	>	James	E	Borg	888665555	1937-11-10	450 Stone, Houston, TX	M	55000	(NULL)	1
☐	>	Jennifer	S	Wallace	987654321	1941-06-20	291 Berry, Bellaire, TX	F	43000	888665555	4
☐	>	Ahmad	V	Jabbar	987987987	1969-03-29	980 Dallas, Houston, TX	M	25000	987654321	4
☐	>	Alicia	J	Zelaya	999887777	1968-01-19	3321 Castle, Spring, TX	F	25000	987654321	4

		* essn varchar(9	* pno int	phours float(5,1)
☐	>	123456789	1	32.5
☐	>	123456789	2	7.5
☐	>	333445555	2	10.0
☐	>	333445555	3	10.0
☐	>	333445555	10	10.0
☐	>	333445555	20	10.0
☐	>	453453453	1	20.0
☐	>	453453453	2	20.0
☐	>	666884444	3	40.0
☐	>	888665555	20	(NULL)
☐	>	987654321	20	15.0
☐	>	987654321	30	20.0
☐	>	987987987	10	35.0
☐	>	987987987	30	5.0
☐	>	999887777	10	10.0
☐	>	999887777	30	30.0

After

```
▷ Run | 🗋 Select
UPDATE `WORKS_ON`
SET phours = 30
WHERE essn = '333445555' AND pno = 20;  AffectedRows: 1  18ms
```

		* fname varchar(20	minit varchar(1	* lname varchar(25	* ssn varchar(9	bdate date	address varchar(50)	sex varchar(1	* salary int	super_ss varchar(9)	dno int
	>	Jehad	M	Hamad	12332121	2005-01-06	(NULL)	M	45000	(NULL)	1
	>	John	B	Smith	123456789	1965-01-09	731 Fondren, Houston, TX	M	30000	333445555	5
	>	Franklin	T	Wong	333445555	1955-12-08	638 Voss, Houston, TX	M	44000	888665555	5
	>	Joyce	A	English	453453453	1972-07-31	5631 Rice, Houston, TX	F	25000	333445555	5
	>	Ramesh	K	Narayan	666884444	1962-09-15	975 Fire Oak, Humble, TX	M	38000	333445555	5
	>	James	E	Borg	888665555	1937-11-10	450 Stone, Houston, TX	M	55000	(NULL)	1
	>	Jennifer	S	Wallace	987654321	1941-06-20	291 Berry, Bellaire, TX	F	43000	888665555	4
	>	Ahmad	V	Jabbar	987987987	1969-03-29	980 Dallas, Houston, TX	M	25000	987654321	4
	>	Alicia	J	Zelaya	999887777	1968-01-19	3321 Castle, Spring, TX	F	25000	987654321	4

>	333445555	2	10.0
>	333445555	3	10.0
>	333445555	10	10.0
>	333445555	20	30.0

4)

```sql
CREATE TRIGGER insert_salary_trigger
AFTER INSERT ON WORKS_ON
FOR EACH ROW
BEGIN
    -- Declare a local variable
    SET @total_hours = (
        SELECT SUM(phours)
        FROM WORKS_ON
        WHERE essn = NEW.essn
    );

    -- If total hours exceed 50, increase the salary
    IF @total_hours > 50 THEN
        UPDATE EMPLOYEE
        SET salary = salary * 1.10  -- Increase salary by 10%
        WHERE ssn = NEW.essn;
    END IF;
END   27ms
```

Before

fname varchar(20)	minit varchar(1)	lname varchar(25)	ssn varchar(9)	bdate date	address varchar(50)	sex varchar(1)	salary int	super_ss varchar(9)	dno int
Jehad	M	Hamad	12332121	2005-01-06	(NULL)	M	45000	(NULL)	1
John	B	Smith	123456789	1965-01-09	731 Fondren, Houston, TX	M	30000	333445555	5
Franklin	T	Wong	333445555	1955-12-08	638 Voss, Houston, TX	M	40000	888665555	5
Joyce	A	English	453453453	1972-07-31	5631 Rice, Houston, TX	F	25000	333445555	5
Ramesh	K	Narayan	666884444	1962-09-15	975 Fire Oak, Humble, TX	M	38000	333445555	5
James	E	Borg	888665555	1937-11-10	450 Stone, Houston, TX	M	55000	(NULL)	1
Jennifer	S	Wallace	987654321	1941-06-20	291 Berry, Bellaire, TX	F	43000	888665555	4
Ahmad	V	Jabbar	987987987	1969-03-29	980 Dallas, Houston, TX	M	25000	987654321	4
Alicia	J	Zelaya	999887777	1968-01-19	3321 Castle, Spring, TX	F	25000	987654321	4

Employee jehad

Properties | DATA | Log | ER | Monitor

```sql
SELECT * FROM `WORKS_ON` where essn = '12332121' LIMIT 100
```

Search Results ... ↓ Export ▷ ◎ Cost: 6ms ‹ 1 › Total 0

essn varchar(9)	pno int	phours float(5,1)

After (But not before trigger is triggered)

```
-- Insert enough records to trigger salary update
▷ Run | 🗋 Select
INSERT INTO WORKS_ON (essn, pno, phours) VALUES
('12332121', 1, 15),
('12332121', 2, 20);  AffectedRows: 2  10ms
💡
```

fname varchar(20)	minit varchar(1)	lname varchar(25)	ssn varchar(9)	bdate date	address varchar(50)	sex varchar(1)	salary int	super_ss varchar(9)	dno int
Jehad	M	Hamad	12332121	2005-01-06	(NULL)	M	45000	(NULL)	1
John	B	Smith	123456789	1965-01-09	731 Fondren, Houston, TX	M	30000	333445555	5
Franklin	T	Wong	333445555	1955-12-08	638 Voss, Houston, TX	M	44000	888665555	5
Joyce	A	English	453453453	1972-07-31	5631 Rice, Houston, TX	F	25000	333445555	5
Ramesh	K	Narayan	666884444	1962-09-15	975 Fire Oak, Humble, TX	M	38000	333445555	5
James	E	Borg	888665555	1937-11-10	450 Stone, Houston, TX	M	55000	(NULL)	1
Jennifer	S	Wallace	987654321	1941-06-20	291 Berry, Bellaire, TX	F	43000	888665555	4
Ahmad	V	Jabbar	987987987	1969-03-29	980 Dallas, Houston, TX	M	25000	987654321	4
Alicia	J	Zelaya	999887777	1968-01-19	3321 Castle, Spring, TX	F	25000	987654321	4

```
SELECT * FROM `WORKS_ON` WHERE essn = '12332121' LIMIT 100
```

📌 | Search Results | ⚙ ⑧ + + 🗑 ↻ ↻ ↑ | ↓ Export | ▷ 👁 Cost: 5

essn varchar(9)	pno int	phours float(5,1)
12332121	1	15.0
12332121	2	20.0

Nothing should have changed as i don't have more than 50 hours

After (trigger is triggered)

```
▷ Run
INSERT INTO WORKS_ON (essn, pno, phours) VALUES
('12332121', 3, 18);  AffectedRows: 1  19ms  -- This one should push total over 50 and trigger the salary update
```

```
SELECT * FROM `EMPLOYEE` LIMIT 100
```

📌 | Search Results | ⚙ ⑧ + + 🗑 ↻ ↻ ↑ | ↓ Export | ▷ 👁 Cost: 9ms < 1 > Total 9

fname varchar(20)	minit varchar(1)	lname varchar(25)	ssn varchar(9)	bdate date	address varchar(50)	sex varchar(1)	salary int	super_ss varchar(9)	dno int
Jehad	M	Hamad	12332121	2005-01-06	(NULL)	M	49500	(NULL)	1

```
SELECT * FROM `WORKS_ON` WHERE essn = '12332121' LIMIT 100
```

📌 | Search Results | ⚙ ⑧ + + 🗑 ↻ ↻ ↑ | ↓ Export | ▷ 👁 Cost: 6ms < 1 > T

Execute SQL

essn varchar(9)	pno int	phours float(5,1)
12332121	1	15.0
12332121	2	20.0
12332121	3	18.0