

Extra Credit Assignment 1 COMSW4111

UNI: jc4833

Name: Jiahe Chen

Screenshot of Code:

```
1 DROP DATABASE `db_extra1`;
2 CREATE SCHEMA `db_extra1`;
3 SET SQL_SAFE_UPDATES = 0;
4 use `db_extra1`;
5 DROP TABLE IF EXISTS `db_extra1`.`employee`;
6 CREATE TABLE `db_extra1`.`employee` (
7   `first_name` VARCHAR(32) NOT NULL,
8   `last_name` VARCHAR(32) NOT NULL,
9   `email` VARCHAR(45) NOT NULL,
10  `created` TIMESTAMP NOT NULL DEFAULT CURRENT_TIMESTAMP,
11  `user_id` VARCHAR(45),
12  UNIQUE INDEX `email_UNIQUE` (`email` ASC),
13  PRIMARY KEY (`user_id`));
14
15 DROP TABLE IF EXISTS `db_extra1`.`user_prefix_count`;
16 CREATE TABLE `db_extra1`.`user_prefix_count` (
17   `prefix` VARCHAR(40) NOT NULL,
18   `max_value` INT NOT NULL,
19   PRIMARY KEY (`prefix`));
20
21 -- DEFINE TRIGGER `insert_employee`
22 DROP TRIGGER IF EXISTS `insert_employee`;
23 DELIMITER $$
24 CREATE TRIGGER `insert_employee`
25 BEFORE INSERT ON `employee` FOR EACH ROW
26 BEGIN
27   DECLARE num INT;
28   DECLARE prefix VARCHAR(91);
29   SET prefix=CONCAT(NEW.first_name, ".", NEW.last_name);
30   IF EXISTS(SELECT * FROM user_prefix_count WHERE prefix=prefix) THEN
31     SELECT max_value INTO num FROM user_prefix_count WHERE prefix=prefix;
32     UPDATE user_prefix_count SET max_value=num+1 WHERE prefix=CONCAT(NEW.first_name,".",NEW.last_name);
33   ELSE
34     INSERT INTO user_prefix_count VALUES(CONCAT(NEW.first_name,".",NEW.last_name),1);
35   END IF;
36
37   SET NEW.user_id = (SELECT generate_user_id(NEW.first_name,NEW.last_name));
38 END $$
39 DELIMITER ;
40
41 -- DEFINE FUNCTION generate_user_id
42 DROP FUNCTION IF EXISTS `generate_user_id`;
43 DELIMITER $$
44 CREATE FUNCTION `generate_user_id`(first_name VARCHAR(45), last_name VARCHAR(45)) RETURNS VARCHAR(45) CHARSET utf8
45 BEGIN
46   DECLARE pre VARCHAR(91);
47   DECLARE num INT;
48   DECLARE new_user_id VARCHAR(45);
49   SET pre = CONCAT(first_name,".",last_name);
50   SELECT max_value INTO num FROM user_prefix_count WHERE prefix=pre;
51   SET new_user_id = CONCAT(pre,".",num);
52   RETURN new_user_id;
53 END$$
54 DELIMITER ;
55
56 -- DEFINE TRIGGER `update_employee`
57 DROP TRIGGER IF EXISTS `update_employee`;
58 DELIMITER $$
59 CREATE TRIGGER `update_employee`
60 BEFORE UPDATE ON `employee` FOR EACH ROW
61 BEGIN
62   IF NOT NEW.user_id = OLD.user_id THEN
63     SIGNAL SQLSTATE VALUE '45000' SET MESSAGE_TEXT = 'You can not update user_id column';
64   ELSEIF NOT NEW.created = OLD.created THEN
65     SET NEW.created=OLD.created;
66   END IF;
67 END $$
68 DELIMITER ;
```

Test 1:

Loading the data should result in the following format because of the generated columns and triggers (note: your dates will be the day and time you load the data).

Code:

```
70 • -- insert initial data (test 1)
71 • INSERT INTO employee(first_name, last_name, email) VALUES ('Candie', 'MacPake', 'cmacpake6@spiegel.de');
72 • INSERT INTO employee(first_name, last_name, email) VALUES ('Carling', 'Bockman', 'cbockman5@cam.ac.uk');
73 • INSERT INTO employee(first_name, last_name, email) VALUES ('Chrissy', 'Weatherup', 'cweatherup2@theguardian.com');
74 • INSERT INTO employee(first_name, last_name, email) VALUES ('Cloris', 'Edards', 'cedards4@springer.com');
75 • INSERT INTO employee(first_name, last_name, email) VALUES ('Diannne', 'Aickin', 'daickin9@domainmarket.com');
76 • INSERT INTO employee(first_name, last_name, email) VALUES ('Dougy', 'Snoxill', 'dsnoxill1@scribd.com');
77 • INSERT INTO employee(first_name, last_name, email) VALUES ('Dulciana', 'Cambell', 'dcambell8@i2i.jp');
78 • INSERT INTO employee(first_name, last_name, email) VALUES ('Jared', 'Melarkey', 'jmelarkey3@google.co.jp');
79 • INSERT INTO employee(first_name, last_name, email) VALUES ('Joice', 'Tomsen', 'jtomsen7@slideshare.net');
80 • INSERT INTO employee(first_name, last_name, email) VALUES ('Juana', 'Gatesman', 'jgatesman0@chron.com');
81 • SELECT * FROM employee;
```

Screenshot:

Result Grid

Filter Rows:

Edit:

Export/Import:

first_name	last_name	email	created	user_id	
Candie	MacPake	cmacpake6@s...	2017-11-14 10:30:04	Candie.MacPake.1	
Carling	Bockman	cbockman5@c...	2017-11-14 10:30:04	Carling.Bockman.1	
Chrissy	Weatherup	cweatherup2@...	2017-11-14 10:30:04	Chrissy.Weatherup.1	
Cloris	Edards	cedards4@spri...	2017-11-14 10:30:04	Cloris.Edards.1	
Diannne	Aickin	daickin9@dom...	2017-11-14 10:30:04	Diannne.Aickin.1	
Dougy	Snoxill	dsnoxill1@scri...	2017-11-14 10:30:04	Dougy.Snoxill.1	
Dulciana	Cambell	dcambell8@i2i.jp	2017-11-14 10:30:04	Dulciana.Cambell.1	
Jared	Melarkey	jmelarkey3@g...	2017-11-14 10:30:04	Jared.Melarkey.1	
Joice	Tomsen	jtomsen7@slid...	2017-11-14 10:30:04	Joice.Tomsen.1	
Juana	Gatesman	jgatesman0@c...	2017-11-14 10:30:04	Juana.Gatesman.1	
NULL	NULL	NULL	NULL	NULL	

Test 2:

Execute an update to set "Dougy Snoxill" first name to "Douglas", and set the created time to the current time. The resulting tuple, should be

Code:

```
84 • UPDATE employee SET first_name='Douglas' WHERE first_name='Dougy' AND last_name='Snoxill';
85 • SELECT * FROM employee;
```

Screenshot:

Result Grid					
Filter Rows:		Search		Export:	
first_name	last_name	email	created	user_id	
Candie	MacPake	cmacpake6@spiegel.de	2017-11-14 10:30:04	Candie.MacPake.1	
Carling	Bockman	cbockman5@cam.ac.uk	2017-11-14 10:30:04	Carling.Bockman.1	
Chrissy	Weatherup	cweatherup2@theguardian.com	2017-11-14 10:30:04	Chrissy.Weatherup.1	
Cloris	Edards	cedards4@springer.com	2017-11-14 10:30:04	Cloris.Edards.1	
Diannne	Aickin	daickin9@domainmarket.com	2017-11-14 10:30:04	Diannne.Aickin.1	
Douglas	Snoxill	dsnoxill1@scribd.com	2017-11-14 10:30:04	Dougy.Snoxill.1	
Dulciana	Cambell	dcambell8@i2i.jp	2017-11-14 10:30:04	Dulciana.Cambell.1	
Jared	Melarkey	jmelarkey3@google.co.jp	2017-11-14 10:30:04	Jared.Melarkey.1	
Joice	Tomsen	jtomsen7@slideshare.net	2017-11-14 10:30:04	Joice.Tomsen.1	
Juana	Gatesman	jgatesman0@chron.com	2017-11-14 10:30:04	Juana.Gatesman.1	

Test 3:

Attempt to INSERT a tuple with a duplicate email. This should fail.

Code:

```
88 • INSERT INTO employee(first_name, last_name, email) VALUES ('Test', 'Fail', 'jgatesman0@chron.com');
```

Screenshot:

76 10:31:21 INSERT INTO emp... Error Code: 1062. Duplicate entry 'jgatesman0@chron.com' for key 'email_UNIQUE' 0.001 sec

Test 4:

Attempt to update Douglas Snoxill's user ID. This should fail.

Code:

```
91 • UPDATE employee SET user_id='hackeruserid' WHERE first_name='Candie' AND last_name='MacPake';
```

Screenshot:

77 10:32:38 UPDATE employee... Error Code: 1644. You can not update user_id column 0.000 sec

Test 5:

Insert John Smith's information, then delete some, and then insert other John Smith's information.

Code:

```
94 • INSERT INTO employee(first_name, last_name, email) VALUES ('John', 'Smith', 'js1@statcounter.com');
95 • INSERT INTO employee(first_name, last_name, email) VALUES ('John', 'Smith', 'js2@statcounter.com');
96 • INSERT INTO employee(first_name, last_name, email) VALUES ('John', 'Smith', 'js3@statcounter.com');
97 • INSERT INTO employee(first_name, last_name, email) VALUES ('John', 'Smith', 'js4@statcounter.com');
98 • INSERT INTO employee(first_name, last_name, email) VALUES ('John', 'Smith', 'js5@statcounter.com');
99 • DELETE FROM employee WHERE email='js2@statcounter.com';
100 • DELETE FROM employee WHERE email='js4@statcounter.com';
101 • INSERT INTO employee(first_name, last_name, email) VALUES ('John', 'Smith', 'js@statcounter.com');
102 • SELECT * FROM employee;
```

Screenshot:

first_name	last_name	email	created	user_id
Candie	MacPake	cmacpake6@s...	2017-11-14 10:30:04	Candie.MacPa...
Carling	Bockman	cbockman5@c...	2017-11-14 10:30:04	Carling.Bockm...
Chrissy	Weatherup	cweatherup2@...	2017-11-14 10:30:04	Chrissy.Weathe...
Cloris	Edards	cedards4@spri...	2017-11-14 10:30:04	Cloris.Edards.1
Diannne	Aickin	daickin9@dom...	2017-11-14 10:30:04	Diannne.Aickin.1
Douglas	Snoxill	dsnoxill1@scri...	2017-11-14 10:30:04	Dougy.Snoxill.1
Dulciana	Cambell	dcambell8@i2i.jp	2017-11-14 10:30:04	Dulciana.Camb...
Jared	Melarkey	jmelarkey3@g...	2017-11-14 10:30:04	Jared.Melarkey.1
John	Smith	js1@statcount...	2017-11-14 10:33:22	John.Smith.1
John	Smith	js3@statcount...	2017-11-14 10:33:24	John.Smith.3
John	Smith	js5@statcount...	2017-11-14 10:33:25	John.Smith.5
John	Smith	js@statcounter...	2017-11-14 10:33:27	John.Smith.6
Joice	Tomsen	jtomsen7@slid...	2017-11-14 10:30:04	Joice.Tomsen.1
Juana	Gatesman	jgatesman0@c...	2017-11-14 10:30:04	Juana.Gatesm...