

## GROUP 5

### DELIVERABLE 3

1. Create 3 SQL queries (Test with good and bad data. Show any success messages and errors)
  - 1.1 To insert data into a new row into an existing table.

#### Successful Execution:

```
INSERT INTO activity_master values(9,'golfing',1,10);
INSERT INTO activity_master values(9,'golfing',2,15);
INSERT INTO activity_master values(9,'golfing',3,20);
```

The screenshot displays a SQL IDE interface. The top pane shows a script with the following SQL commands:

```
1 ##### Successful Insert #####
2 • SELECT * FROM activity_master WHERE activity_id = 9;
3
4 • INSERT INTO activity_master values(9,'golfing',1,10);
5 • INSERT INTO activity_master values(9,'golfing',2,15);
6 • INSERT INTO activity_master values(9,'golfing',3,20);
7
8 • SELECT * FROM activity_master WHERE activity_id = 9;
```

The bottom pane shows the 'Result Grid' with a table structure:

activity_id	activity_name	intensity	calories_burned_per_minute
9	golfing	1	10
9	golfing	2	15
9	golfing	3	20

Below the result grid, the 'Action Output' tab is selected, showing a log of executed actions:

#	Time	Action	Message
1	10:32:00	SELECT * FROM activity_master WHERE activity_id = 9 LIMIT 0, 1000	0 row(s) returned
2	10:32:00	INSERT INTO activity_master values(9,'golfing',1,10)	1 row(s) affected
3	10:32:00	INSERT INTO activity_master values(9,'golfing',2,15)	1 row(s) affected
4	10:32:00	INSERT INTO activity_master values(9,'golfing',3,20)	1 row(s) affected
5	10:32:00	SELECT * FROM activity_master WHERE activity_id = 9 LIMIT 0, 1000	3 row(s) returned

```

1 ##### Successful Insert #####
2 • SELECT * FROM activity_master WHERE activity_id = 9;
3
4 • INSERT INTO activity_master values(9,'golfing',1,10);
5 • INSERT INTO activity_master values(9,'golfing',2,15);
6 • INSERT INTO activity_master values(9,'golfing',3,20);
7
8 • SELECT * FROM activity_master WHERE activity_id = 9;

```

activity_id	activity_name	intensity	calories_burned_per_minute
9	golfing	1	10
9	golfing	2	15
9	golfing	3	20
NULL	NULL	NULL	NULL

activity\_master 1    activity\_master 2 ×

Output

Action Output

#	Time	Action	Message
✓ 2	10:32:00	INSERT INTO activity_master values(9,'golfing',1,10)	1 row(s) affected
✓ 3	10:32:00	INSERT INTO activity_master values(9,'golfing',2,15)	1 row(s) affected
✓ 4	10:32:00	INSERT INTO activity_master values(9,'golfing',3,20)	1 row(s) affected
✓ 5	10:32:00	SELECT * FROM activity_master WHERE activity_id = 9 LIMIT 0, 1000	3 row(s) returned

### **Failed Execution:**

(The same script when run again fails with error Primary Key violation)

```

INSERT INTO activity_master values(9,'golfing',1,10);
INSERT INTO activity_master values(9,'golfing',2,15);
INSERT INTO activity_master values(9,'golfing',3,20);

```

```

10 ##### Failed Insert #####
11 ## The same queries when run again throw error for Primary Key violation
12 • SELECT * FROM activity_master WHERE activity_id = 9;
13
14 • INSERT INTO activity_master values(9,'golfing',1,10);
15 • INSERT INTO activity_master values(9,'golfing',2,15);
16 • INSERT INTO activity_master values(9,'golfing',3,20);
17
18

```

activity\_master 3 ×

Output

Action Output

#	Time	Action	Message
✓ 1	10:35:05	SELECT * FROM activity_master WHERE activity_id = 9 LIMIT 0, 1000	3 row(s) returned
✗ 2	10:35:05	INSERT INTO activity_master values(9,'golfing',1,10)	Error Code: 1062. Duplicate entry '9-1' for key 'activity_master.PRIMARY'

### Failed Insert with bad data

```

##### Failed Insert due to bad data #####
INSERT INTO activity_master values('ten','dance',1,10);

```

```

25 ##### Failed Insert due to bad data #####
26 • INSERT INTO activity_master values('ten','dance',1,10);
27

```

Output

Action Output

#	Time	Action	Message
✗ 1	11:01:58	INSERT INTO activity_master values('ten','dance',1,10)	Error Code: 1366. Incorrect integer value: 'ten' for column 'activity_id' at row 1

## 1.2 To Update data in a existing row in a table.

### Successful Execution:

```

##### Successful Update #####
# Before Update
SELECT activity_id, activity_name, intensity, calories_burned_per_minute AS
cal_mins_before_update
FROM activity_master
WHERE activity_id = 9 AND intensity = 3;

UPDATE activity_master
SET calories_burned_per_minute = 30

```

WHERE activity\_id = 9 AND intensity = 3;

# After Update

```
SELECT activity_id, activity_name, intensity, calories_burned_per_minute AS  
cal_mins_before_update  
FROM activity_master  
WHERE activity_id = 9 AND intensity = 3;
```

```
1 ##### Successful Update #####  
2 # Before Update  
3 • SELECT activity_id, activity_name, intensity, calories_burned_per_minute AS cal_mins_before_update  
4 FROM activity_master  
5 WHERE activity_id = 9 AND intensity = 3;  
6  
7 • UPDATE activity_master  
8 SET calories_burned_per_minute = 30  
9 WHERE activity_id = 9 AND intensity = 3;  
10
```

Result Grid				
Filter Rows: [ ] Edit: [ ] Export/Import: [ ] Wrap Cell Content: [ ]				
activity_id	activity_name	intensity	cal_mins_before_update	
9	golfing	3	20	
NULL	NULL	NULL	NULL	

activity_master 4				
Output				
Action Output				
#	Time	Action	Message	
✓ 1	10:41:27	SELECT activity_id, activity_name, intensity, calories_burned_per_minut...	1 row(s) returned	

```
6  
7 • UPDATE activity_master  
8 SET calories_burned_per_minute = 30  
9 WHERE activity_id = 9 AND intensity = 3;  
10  
11 # After Update  
12 • SELECT activity_id, activity_name, intensity, calories_burned_per_minute AS cal_mins_after_update  
13 FROM activity_master  
14 WHERE activity_id = 9 AND intensity = 3;
```

Result Grid				
Filter Rows: [ ] Edit: [ ] Export/Import: [ ] Wrap Cell Content: [ ]				
activity_id	activity_name	intensity	cal_mins_after_update	
9	golfing	3	30	
NULL	NULL	NULL	NULL	

activity_master 6				
Output				
Action Output				
#	Time	Action	Message	
✓ 1	10:44:13	UPDATE activity_master SET calories_burned_per_minute = 30 WHERE...	0 row(s) affected Rows matched: 1 Changed: 0 Warnings: 0	
✓ 2	10:44:13	SELECT activity_id, activity_name, intensity, calories_burned_per_minut...	1 row(s) returned	

## Failed Execution:

### Update failure due to Foreign Key Constraint Violation

```
UPDATE activity_master
SET intensity = 4
WHERE activity_id = 9 AND intensity = 3;
```

```
29 ##### Failed Update #####
30 • UPDATE activity_master
31   SET intensity = 4
32   WHERE activity_id = 9 AND intensity = 3;
33
```

Output

#	Time	Action	Message	Duration / Fetch
1	10:46:00	UPDATE activity_master SET intensity = 4 WHERE activity_id = 9 ...	Error Code: 1452. Cannot add or update a child row: a foreign key constraint fails (f...	0.000 sec

### Update failure due to Bad Data (Incorrect Data Type)

##### Failed Insert due to bad data #####

```
UPDATE activity_master
SET activity_id = 'nine'
WHERE activity_id = 9 AND intensity = 3;
```

```
27 ##### Failed Update #####
28 • UPDATE activity_master
29   SET activity_id = 'nine'
30   WHERE activity_id = 9 AND intensity = 3;
31
32
```

Output

#	Time	Action	Message
1	11:00:38	UPDATE activity_master SET activity_id = 'nine' WHERE...	Error Code: 1366. Incorrect integer value: 'nine' for column 'activity_id' at row 1

## 1.3 To Delete data a row in a existing table.

### Successful Execution:

##### Successful Delete #####

# Before Delete

```
SELECT * FROM activity_master WHERE activity_id = 9;
```

DELETE FROM activity\_intensity\_master WHERE activity\_id = 9;

# After Delete

SELECT \* FROM activity\_master WHERE activity\_id = 9;

```
1 ##### Successful Delete #####
2 # Before Delete
3 • SELECT * FROM activity_master WHERE activity_id = 9;
4
5 • DELETE FROM activity_intensity_master WHERE activity_id = 9;
6
7 # After Delete
8 • SELECT * FROM activity_master WHERE activity_id = 9;
9
```

Result Grid				
Filter Rows:				
Edit: Export/Import: Wrap Cell Content:				
	activity_id	activity_name	intensity	calories_burned_per_minute
▶	9	golfing	1	10
	9	golfing	2	15
	9	golfing	3	30
*	NULL	NULL	NULL	NULL

activity\_master 9 x

Output

Action Output

#	Time	Action	Message
✓ 1	10:50:55	SELECT * FROM activity_master WHERE activity_id = 9 LIMIT 0, 1...	3 row(s) returned

```
5 • DELETE FROM activity_master WHERE activity_id = 9;
6
7 # After Delete
8 • SELECT * FROM activity_master WHERE activity_id = 9;
9
10
```

Result Grid				
Filter Rows:				
Edit: Export/Import: Wrap Cell Content:				
	activity_id	activity_name	intensity	calories_burned_per_minute
*	NULL	NULL	NULL	NULL

activity\_master 10 x

Output

Action Output

#	Time	Action	Message
✓ 1	10:52:30	DELETE FROM activity_master WHERE activity_id = 9	3 row(s) affected
✓ 2	10:52:34	SELECT * FROM activity_master WHERE activity_id = 9 LIMIT 0, 1...	0 row(s) returned

## Failed Execution:

##### Failed Delete #####  
# Delete fails due to Foreign Key Violation

DELETE FROM activity\_master WHERE activity\_id = 1;

```
24 ##### Failed Delete #####
25 • DELETE FROM activity_master WHERE activity_id = 1;
26
```

Output			
Action Output			
#	Time	Action	Message
1	10:54:23	DELETE FROM activity_master WHERE activity_id = 1	Error Code: 1451. Cannot delete or update a parent row: a foreign key constraint fails ('fitbit', 'a...

# Delete fails due to Bad data

DELETE FROM activity\_master WHERE activity\_id = `1`;

```
--
24 ##### Failed Delete #####
25 • DELETE FROM activity_master WHERE activity_id = `1`;
26
```

Output			
Action Output			
#	Time	Action	Message
1	10:56:12	DELETE FROM activity_master WHERE activity_id = `1`	Error Code: 1054. Unknown column '1' in 'where clause'

2. Create 1 function that returns a Value. The function should accept at least 1 parameter. Test the function (show any success and errors)

## Create Script

```
USE `fitbit`;
DROP function IF EXISTS `total_calories_burned`;
```

```
DELIMITER $$
USE `fitbit` $$
```

```
CREATE FUNCTION total_calories_burned(activity_id INT, intensity INT, minutes INT)
RETURNS DECIMAL(10,2)
DETERMINISTIC
```

BEGIN

-- Step 1: Declare output variable

DECLARE calories\_per\_minute DECIMAL(10,2);

-- Step 2: Query the database to get calories\_burned\_per\_minute

SELECT calories\_burned\_per\_minute

INTO calories\_per\_minute FROM activity\_master

WHERE activity\_id = activity\_id AND intensity = intensity ;

-- Step 3: Calculate total\_calories\_burned

RETURN minutes \* calories\_per\_minute;

END\$\$

DELIMITER ;

The screenshot shows a database IDE interface. At the top, the 'Name' field is set to 'total\_calories\_burned'. Below it, the 'DDL' tab is active, displaying the following SQL code:

```
4 DECLARE calories_per_minute DECIMAL(10,2);
5
6 -- Step 2: Query the database to get calories_burned_per_minute
7 SELECT calories_burned_per_minute
8 INTO calories_per_minute FROM activity_master
9 WHERE activity_id = activity_id AND intensity = intensity ;
10
11 -- Step 3: Calculate total_calories_burned
12 RETURN minutes * calories_per_minute;
13 END
```

At the bottom right of the DDL editor, there are 'Apply' and 'Revert' buttons. Below the editor, the 'Output' tab is selected, showing a table with the following data:

#	Time	Action	Message	Duration / Fetch
1	11:11:30	Apply changes to total_calories_burned	Changes applied	

### Successful Execution:

##### Successful call for function `total\_calories\_burned` #####  
SELECT total\_calories\_burned(3, 2, 30);



```

1 ##### Successful call for function `total_calories_burned` #####
2 • SELECT total_calories_burned(3, 2, 30);
3
4
5
6
7

```

Result Grid

	total_calories_burned(3, 2, 30)
▶	300.00

Result 15 x

Output

Action Output

#	Time	Action	Message
✓ 1	11:23:48	SELECT total_calories_burned(3, 2, 30) LIMIT 0, 1000	1 row(s) returned

### Failed Execution:

##### Failed call for function `total\_calories\_burned` #####  
*# Failure due to missing input parameter*  
 SELECT total\_calories\_burned( 2, 30);

```

1 ##### Failed call for function `total_calories_burned` #####
2 #Failure due to missing input parameter
3 • SELECT total_calories_burned( 2, 30);
4

```

Output

Action Output

#	Time	Action	Message
✗ 1	11:25:35	SELECT total_calories_burned( 2, 30) LIMIT ...	Error Code: 1318. Incorrect number of arguments for FUNCTION fitbit.total_calories_burned; expected 3, g...

3. Create 1 stored procedure that returns a aggregate result (sum, min, max, etc.) given some other Data provided. Test the procedure (show any success and errors)

### Create Script

```
CREATE DEFINER='root'@'localhost' PROCEDURE `getDetailsByDeviceId`(IN dev_id INTEGER)
BEGIN

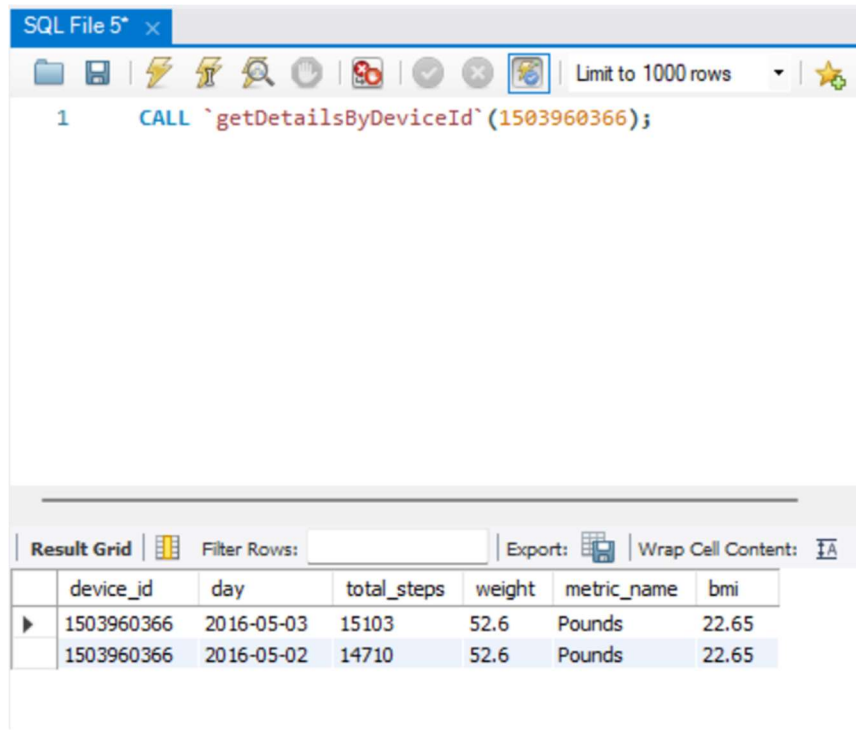
SELECT
    steps.device_id,
    DATE(steps.activityminute) AS day,
    sum(steps.steps) AS total_steps,
    CASE
        WHEN wt.metric_id =1 THEN ROUND(wt.weightpounds,2)
        ELSE ROUND(wt.weightkg,2)
    END AS weight,
    wm.metric_name,
    ROUND(wt.bmi,2) AS bmi
FROM steps_mins AS steps
INNER JOIN weightloginfo AS wt ON steps.device_id = wt.device_id AND DATE(steps.activityminute) =
DATE(wt.date)
INNER JOIN weight_metric AS wm ON wt.metric_id = wm.id
GROUP BY steps.device_id, DATE(steps.activityminute), wt.metric_id,
wt.weightpounds,wt.weightkg,wm.metric_name, wt.bmi
HAVING steps.device_id = dev_id;

END
```

### Successful Execution:

##### Execute Stored Procedure #####

```
CALL `getDetailsByDeviceId`(1503960366);
```



SQL File 5\* x

Limit to 1000 rows

```
1 CALL `getDetailsByDeviceId`(1503960366);
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content: |

	device_id	day	total_steps	weight	metric_name	bmi
▶	1503960366	2016-05-03	15103	52.6	Pounds	22.65
	1503960366	2016-05-02	14710	52.6	Pounds	22.65

### Failed Execution:

##### Execute Stored Procedure #####

```
CALL `getDetailsByDeviceId`(`1503960366`);
```

```
CALL `getDetailsByDeviceId`();
```

SQL File 5\* x

Limit to 1000 rows

```
1
2 ##### Failure due to passing text as input parameter instead of expected integer
3 • CALL `getDetailsByDeviceId`('1503960366');
```

Output

Action Output

#	Time	Action	Message	Duration / Fetch
1	01:46:54	CALL `getDetailsByDeviceId`('1503960366')	Error Code: 1054. Unknown column '1503960366' in field list	0.000 sec

SQL File 5\* x

Limit to 1000 rows

```
1
2 ##### Failure for no input parameter since the stored procedure expects device id as input
3 • CALL `getDetailsByDeviceId`();
```

Output

Action Output

#	Time	Action	Message	Duration / Fetch
1	01:48:17	CALL `getDetailsByDeviceId`()	Error Code: 1318. Incorrect number of arguments for PROCEDURE fitbit.getDetailsByDeviceId; expected 1, got 0	0.016 sec