# Integrated project: Maji Ndogo part 3 [MCQ] (Version: 0)

#### **TEST**

## Correct Answer

(L) Answered in 25.61666666667 Minutes

## Question 1/10

The following query results in 2,698 rows of data being retrieved, but the auditor\_report table only has 1,620 rows. Analyse the query and select the reason why this discrepancy occurs. Hint: Think about the type of relationship between our tables.

#### **SELECT**

auditorRep.location\_id,

visitsTbl.record id,

Empl\_Table.employee\_name,

auditorRep.true\_water\_source\_score AS auditor\_score,

wq.subjective\_quality\_score AS employee\_score

FROM auditor\_report AS auditorRep

JOIN visits AS visitsTbl

ON auditorRep.location\_id = visitsTbl.location\_id

JOIN water\_quality AS wq

ON visitsTbl.record\_id = wq.record\_id

JOIN employee as Empl\_Table

ON Empl\_Table.assigned\_employee\_id = visitsTbl.assigned\_employee\_id;

The <b>auditor_report</b> table has duplicate
location_id values causing more rows to
be retrieved than expected.

	The <b>employee</b> table has duplicate
	assigned_employee_id values leading to
	duplicate rows in the result set.

	The water_quality table has incorrect
	record_id values causing an incorrect join
	with the visits table.



The visits table has multiple records for each **location\_id**, which when joined with **auditor\_report**, results in multiple records for each **location\_id**.

#### **Explanation:**

The visits table has multiple records for each location\_id, which when joined with auditor\_report, results in multiple records for each location\_id." is correct. This scenario leads to more rows being retrieved due to the one-to-many relationship between the auditor\_report table and the visits table.

The statement "The auditor\_report table has duplicate location\_id values causing more rows to be retrieved than expected." is incorrect because the auditor\_report table does not have duplicate location\_id values.

The statement "The employee table has duplicate assigned\_employee\_id values leading to duplicate rows in the result set." is incorrect because there is no information provided about duplicate assigned\_employee\_id values in the employee table.

The statement "The water\_quality table has incorrect record\_id values causing an incorrect join with the visits table." is incorrect because there is no information provided about incorrect record\_id values in the water\_quality table.

## Question 2/10

```
WITH Incorrect_records AS ( — This CTE fetches all of the records with wrong scores SELECT auditorRep.location_id, visitsTbl.record_id, Empl_Table.employee_name,
```

auditorRep.true\_water\_source\_score AS auditor\_score,

What is the function of **Incorrect\_records** in the following query?

wq.subjective\_quality\_score AS employee\_score FROM auditor\_report AS auditorRep

JOIN visits AS visitsTbl

ON auditorRep.location\_id = visitsTbl.location\_id

JOIN water\_quality AS wq

ON visitsTbl.record\_id = wq.record\_id

JOIN employee as Empl Table

ON Empl\_Table.assigned\_employee\_id = visitsTbl.assigned\_employee\_id

WHERE visitsTbl.visit\_count =1 AND auditorRep.true\_water\_source\_score != wq.subjective\_quality\_score)

#### **SELECT**

```
employee_name, count(employee_name)
```

# FROM Incorrect\_records GROUP BY Employee\_name;

Incorrect\_records serves as a temporary result set to store aggregated data of records with different scores between auditor and employee for the main query.

Incorrect\_records creates a new
permanent table in the database, storing
the records with different scores between
auditor and employee for further analysis.

Incorrect\_records acts as a persistent storage structure, saving the records with different scores between auditor and employee in an intermediate result in the database for future queries.



Incorrect\_records filters and organises records with different scores between auditor and employee, preparing a tailored dataset for the main query.

#### **Explanation:**

The statement "Incorrect\_records filters and organises records with discrepant scores between auditor and employee, preparing a tailored dataset for the main query." is correct. Incorrect\_records identifies records where there's a discrepancy between the auditor and employee scores and organises this data for use in the main query.

The statement "Incorrect\_records serves as a temporary result set to store aggregated data for the main query." is incorrect because Incorrect\_records doesn't aggregate data; it selects and filters data based on specified conditions.

The statement "Incorrect\_records acts as a persistent storage structure, saving the intermediate results in the database for future queries." is incorrect because CTEs do not persist data beyond the execution of the query they are defined in. They are temporary result sets that exist only during the execution of the query.

The statement "Incorrect\_records creates a new permanent table in the database, storing the records with discrepant scores for further analysis."

is incorrect because CTEs do not create permanent tables in the database; they serve as temporary result sets for organising and filtering data within a query.

## Question 3/10

•	Question 3/10	
In the suspect_list CTE, a subquery is used. What type of subquery is it, and what is its purpose in the		
; I	suspect_list AS ( SELECT employee_name, number_of_mistakes FROM error_count WHERE number_of_mistakes > (SELECT AVG(number_of_mistakes) FROM error_count))	
	The subquery is a table subquery used to create a temporary table for data filtering.	
	The subquery is a scalar subquery used to calculate the average number_of_mistakes for comparison.	
	The subquery is a multi-row subquery used to fetch a list of employee_name with above-average number_of_mistakes.	
	The subquery is a correlated subquery used to compare each number_of_mistakes to the average number_of_mistakes.	
	Explanation:	
	The subquery is a scalar subquery that calculates the average number_of_mistakes, which is then used for comparison in the WHERE clause of the suspect_list CTE.	
	The subquery is a correlated subquery is	

The subquery is a multi-row subquery ... is incorrect. The subquery is not a multi-row subquery and does not fetch a list of employee\_name.

incorrect. The subquery is not correlated as it doesn't reference any columns from the outer

query.

The subquery is a table subquery... is incorrect.

The subquery is not a table subquery and does not

## Question 4/10

A colleague proposed the following CTE as an alternative to the suspect\_list we used previously, but it does not give the desired results. What will be the result of this subquery?

suspect\_list AS ( SELECT ec1.employee name, ec1.number of mistakes FROM error\_count ec1 WHERE ec1.number\_of\_mistakes >= ( SELECT AVG(ec2.number\_of\_mistakes) FROM error count ec2 WHERE ec2.employee\_name = ec1.employee\_name))



The subquery is a multi-row subquery that calculates the average mistakes for every employee\_name.

The subquery is a table subquery designed to produce a virtual table capturing average mistakes for each employee name.

The subquery is a scalar subquery that calculates a single average number of mistakes for all employees.



The subquery is a correlated subquery that returns all of the employees that made

#### **Explanation:**

The subquery is a scalar subquery that calculates a single average number of mistakes for all employees ... is incorrect because the subquery is a correlated query that returns a single value per row.

The subquery is a multi-row subquery that calculates the average mistakes for every employee\_name ... is incorrect because the subquery is a correlated query that returns a single value per row that returns a single value per row. Subqueries that are used with comparison operators must be scalar values.

The subquery is a table subquery designed to produce a virtual table capturing average mistakes for each employee\_name ... is incorrect because the subquery is a correlated query that returns a single value per row.

## Question 5/10

How is the relationship between the employee table and the visits table represented in the ERD?

employee has a 1-to-many relationship with visits.
employee has a many-to-many relationship with visits.
employee has a 1-to-1 relationship with visits.
There is no direct relationship between the employee table and the visits table.

### **Explanation:**

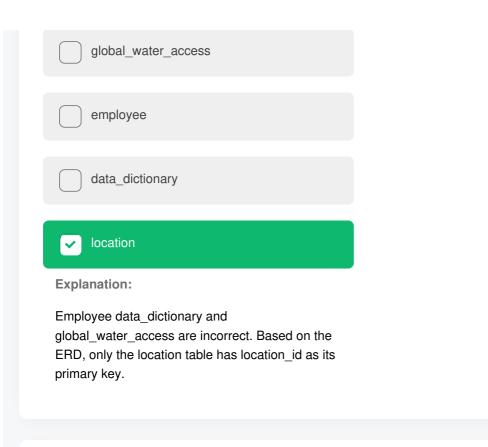
employee has a 1-to-1 relationship with visits is incorrect. The ERD shows the assigned\_employee\_id in the visits table as a foreign key, which means multiple visits can be assigned to one employee.

employee has a many-to-many relationship with visits is incorrect. The ERD does not show a junction table between these two tables, which is characteristic of many-to-many relationships.

There is no direct relationship between the employee table and the visits table is incorrect. The assigned\_employee\_id in the visits table is a direct reference to the employee table.

## Question 6/10

Which table contains the location\_id as its primary key?



## Question 7/10

How would you modify the Incorrect\_records CTE to join the well\_pollution data? WITH Incorrect\_records AS ( **SELECT** auditorRep.location\_id, visitsTbl.record\_id, Empl\_Table.employee\_name, auditorRep.true\_water\_source\_score AS auditor\_score, wq.subjective\_quality\_score AS employee\_score, auditorRep.statements AS statements FROM auditor report AS auditorRep JOIN visits AS visitsTbl ON auditorRep.location\_id = visitsTbl.location\_id JOIN water\_quality AS wq ON visitsTbl.record\_id = wq.record\_id JOIN employee as Empl\_Table ON Empl\_Table.assigned\_employee\_id = visitsTbl.assigned\_employee\_id WHERE visitsTbl.visit\_count =1 AND auditorRep.true\_water\_source\_score != wq.subjective\_quality\_score);



JOIN well\_pollution

JOIN well_pollution ON water_quality.subjective_quality_score = well_pollution.subjective_quality_score
JOIN well_pollution ON auditorRep.location_id = well_pollution.location_id

#### **Explanation:**

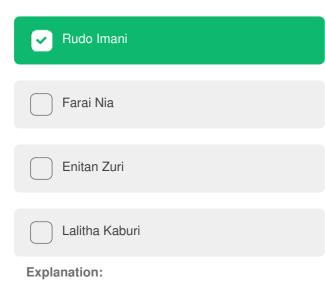
auditorRep.location\_id = well\_pollution.location\_id ... is incorrect. The location\_id doesn't directly connect to the well\_pollution table.

visitsTbl.record\_id = well\_pollution.record\_id ... is incorrect. The record\_id in the visits table is a unique identifier for visits, not a reference to water sources. The record\_id doesn't match anything in the well\_pollution table.

water\_quality.subjective\_quality\_score = well\_pollution.subjective\_quality\_score ... is incorrect. This suggests joining on a value attribute rather than a key, which can lead to incorrect relationships. It's essential to discern between actual keys and data attributes when designing joins.

## Question 8/10

Which employee just avoided our classification of having an above-average number of mistakes? Hint: Use one of the queries we used to aggregate data from Incorrect\_records.



Lalitha Kaburi is one of the suspects, with 7 mistakes

Rudo Imani has 5 mistakes

Farai Nia has 4 mistakes

Enitan Zuri has 4 mistakes

## Question 9/10

Which of the following "suspects" is connected to the following civilian statement:

"Suspicion coloured villagers' descriptions of an official's aloof demeanour and apparent laziness. The reference to cash transactions casts doubt on their motives."

Malachi Mavuso
Zuriel Matembo
× Bello Azibo
Lalitha Kaburi

#### **Explanation:**

There are some statements that are similar, for example:

Suspicion and unease coloured the villagers' accounts of an official's haughty behaviour and potential corruption. The mention of cash changing hands added to their apprehension. That would trap students who manually search the list.

## Question 10/10

Consider the provided SQL query. What does it do?

#### **SELECT**

auditorRep.location\_id,
visitsTbl.record\_id,

 $auditor Rep. true\_water\_source\_score\ AS\ auditor\_score,$ 

wq.subjective\_quality\_score AS employee\_score,

wq.subjective\_quality\_score - auditorRep.true\_water\_source\_score AS score\_diff

FROM auditor\_report AS auditorRep

JOIN visits AS visitsTbl

ON auditorRep.location\_id = visitsTbl.location\_id

JOIN water\_quality AS wq

ON visitsTbl.record\_id = wq.record\_id

WHERE (wq.subjective\_quality\_score - auditorRep.true\_water\_source\_score) > 9;

The query retrieves the auditor records
where the auditor found all of the records
with incorrect scores.

The query retrieves the location\_id,
record\_id, and water scores, and
calculates a difference in scores between
the employee's scores and the auditor's
scores.

The query retrieves the auditor records
where employees assigned very high
scores to very poor water sources.

The query retrieves the location\_id,
record\_id, and water scores by JOINING

record\_id, and water scores by JOINING
the water\_quality and visits table, and then
calculates a difference in scores between
the employee's scores and the auditor's
scores.

#### **Explanation:**

The query retrieves records of locations and their associated visits, focusing on instances where the difference between the employee's subjective water quality score and the auditor's true water source score is greater than 9.

The query retrieves the auditor records where the auditor found all of the records with incorrect scores. The query will only give the incorrect records, where the difference in score > 9. If the scores only differ by 9 or below, it won't be in the results set.

The query retrieves the location\_id, record\_id, and water scores, and calculates a difference ... is incorrect. While it explains the technical details of the query, it does not recognise the filter.

The query retrieves the location\_id, record\_id, and water scores by JOINING ... is incorrect. While it explains in detail that a JOIN occurs, and a calculation of values, it does not mention that a comparison is made to identify very incorrect scores.

