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1. Database optimization involves optimizing only the data retrieval statements that are executed against a database.

- a. True
- b. False

Answer:

b. False

2. Which of the following guidelines should you follow when optimizing SQL select statements? Select all that apply.

- a. Use OUTER JOIN instead of INNER JOIN wherever possible.
- b. Avoid using leading wildcards in predicates.
- c. Avoid using trailing wildcards in predicates.
- d. Avoid using unnecessary columns in the SELECT clause.
- e. Use INNER JOIN instead of OUTER JOIN wherever possible.

Answer:

b. Avoid using leading wildcards in predicates.

c. Avoid using unnecessary columns in the SELECT clause.

d. Use INNER JOIN instead of OUTER JOIN wherever possible.

3. Identify the key characteristics of a Primary Index. Select all that apply.

1 point

- a. A Primary Index is created using the CREATE INDEX syntax.
- b. A Primary Key is also known as a Non-Clustered index.
- c. A Primary Key is also known as a Clustered index.
- d. A Primary Index is created automatically when a table is created.

Answer:

c. A Primary Key is also known as a Clustered index.

d. A Primary Index is created automatically when a table is created.

4. The following query is executed on a table named Clients that contains the fields ClientID, FullName and ContactNumber.

```
SELECT ContactNumber
```

```
FROM Clients
```

```
WHERE FullName='Client Name here';
```

On which field within the table should a Secondary Index be created to optimize this query?

- a. FullName
- b. ContactNumber
- c. ClientID

Answer:

a. FullName.

5. What keyword must be added before the following query to view its MySQL query execution plan?

```
_____ SELECT *
```

```
FROM Orders
```

```
WHERE ClientID='Cl1';
```

Answer:

EXPLAIN.

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OrderID	ClientID	ProductID	Quantity	Cost	Date
1	Cl1	P1	10	500.00	2020-09-01
2	Cl2	P2	5	100.00	2020-09-05
3	Cl3	P3	20	800.00	2020-09-03
4	Cl4	P4	15	150.00	2020-09-07
5	Cl3	P3	10	450.00	2020-09-08
6	Cl2	P2	5	800.00	2020-09-09
7	Cl1	P4	22	1200.00	2020-09-10
8	Cl3	P1	15	150.00	2020-09-10
9	Cl1	P1	10	500.00	2020-09-12
10	Cl2	P2	5	100.00	2020-09-13
12	Cl1	P1	10	500.00	2022-09-01
13	Cl2	P2	5	100.00	2022-09-05
14	Cl3	P3	20	800.00	2022-09-03
15	Cl4	P4	15	150.00	2022-09-07
16	Cl3	P3	10	450.00	2022-09-08
17	Cl2	P2	5	800.00	2022-09-09
18	Cl1	P4	22	1200.00	2022-09-10
19	Cl3	P1	15	150.00	2022-09-10
20	Cl1	P1	10	500.00	2022-09-12
21	Cl2	P2	5	100.00	2022-09-13
22	Cl2	P1	10	500.00	2021-09-01
23	Cl2	P2	5	100.00	2021-09-05
24	Cl3	P3	20	800.00	2021-09-03
25	Cl4	P4	15	150.00	2021-09-07
26	Cl1	P3	10	450.00	2021-09-08
27	Cl2	P1	20	1000.00	2022-09-01
28	Cl2	P2	10	200.00	2022-09-05
29	Cl3	P3	20	800.00	2021-09-03

Question 1

In the first task, you optimized the following SELECT query to extract data from the **Orders** table:

```
SELECT * FROM Orders;
```

What action did you take to optimize this query?

- a. You reduced the number of rows by adding filter criteria.
- b. You added an index to the OrderID column.
- c. You added an index to the ProductID column.
- d. You rewrote the query to avoid the use of *.

Answer:

d. You rewrote the query to avoid the use of *.

2.

Question 2

In the second task, you helped Lucky Shrub retrieve the order placed by the client with the ID of Cl1. You performed this task by creating an index on the Orders table to help optimize the following query:

```
SELECT *  
  
FROM Orders  
  
WHERE ClientID='Cl1';
```

On which column in the Orders table did you create the index?

- a. ClientID column
- b. OrderID column
- c. Quantity column
- d. ProductID column

Answer:

a. ClientID column.

3.

Question 3

In the second task, you reviewed a query EXPLAIN plan before optimizing the query. The plan indicated NULL values in the **possible_keys** and **keys** columns. This suggests that there is no index in the targeted table which can be used to perform the search.

- a. True
- b. False

Answer:

a. True.

4.

Question 4

In the third task you performed three steps on the Orders table and then rewrote the SELECT query to use a trailing wildcard.

In the third task, Lucky Shrub used the following SELECT query, which contains a leading wildcard, to find the details of the employee whose last name is 'Tolo':

SELECT *

FROM Employees

WHERE FullName LIKE '%Tolo';

You helped to optimize this query by replacing the leading wildcard with a trailing wildcard. Why is the use of a trailing wildcard a more optimal approach?

- a. A trailing wild card provides more accurate results when the SQL query is executed.
- b. With a trailing wild card, MySQL can make use of an index created on the column to which the wildcard is assigned.
- c. A trailing wildcard needs to match a smaller number of rows when compared to a leading wildcard.
- d. A trailing wild card takes less time to identify matches when compared to a leading wildcard.

Answer:

b. With a trailing wildcard, MySQL can make use of an index created on the column to which the wildcard is assigned.