

sql practice questions with solutions

SQL Practice Questions with Solutions: Sharpen Your SQL Skills

Are you ready to take your SQL skills to the next level? Landing that dream job or acing that crucial interview often hinges on demonstrating practical SQL proficiency. This comprehensive guide provides you with a treasure trove of SQL practice questions with solutions, covering a range of complexities to solidify your understanding and boost your confidence. Whether you're a beginner just starting your SQL journey or a seasoned developer looking to refresh your knowledge, this post has something for you. We'll cover everything from basic SELECT statements to more advanced concepts like joins, subqueries, and aggregate functions. Let's dive in!

Section 1: Basic SQL Practice Questions with Solutions

These introductory questions focus on fundamental SQL commands and concepts. They're perfect for beginners building a strong foundation.

Question 1: Retrieving Data with SELECT

You have a table called `Customers` with columns `CustomerID`, `FirstName`, `LastName`, and `City`. Write a query to retrieve all customer names and their cities.

Solution:

```
``sql
SELECT FirstName, LastName, City
FROM Customers;
``
```

Question 2: Filtering Data with WHERE

Using the same `Customers` table, write a query to retrieve only the customers from 'London'.

Solution:

```
``sql
SELECT
FROM Customers
WHERE City = 'London';
```

```

### Question 3: Ordering Data with ORDER BY

Retrieve all customers, ordered alphabetically by last name.

Solution:

```
```sql
SELECT
FROM Customers
ORDER BY LastName;
```
```

### Question 4: Using Wildcard Characters with LIKE

Find all customers whose last names start with 'S'.

Solution:

```
```sql
SELECT
FROM Customers
WHERE LastName LIKE 'S%';
```
```

## Section 2: Intermediate SQL Practice Questions with Solutions

These questions introduce more complex SQL concepts, requiring a deeper understanding of database manipulation.

### Question 5: Joining Tables

You have two tables: `Orders` (OrderID, CustomerID, OrderDate) and `Customers` (CustomerID, FirstName, LastName). Write a query to retrieve the order details along with the customer's name for each order.

Solution:

```
```sql
SELECT o.OrderID, o.OrderDate, c.FirstName, c.LastName
FROM Orders o
JOIN Customers c ON o.CustomerID = c.CustomerID;
```
```

### Question 6: Using Aggregate Functions

Calculate the total number of orders placed.

Solution:

```
``sql
SELECT COUNT() AS TotalOrders
FROM Orders;
``
```

### Question 7: Grouping Data with GROUP BY

Find the number of orders placed by each customer.

Solution:

```
``sql
SELECT CustomerID, COUNT() AS OrderCount
FROM Orders
GROUP BY CustomerID;
``
```

### Question 8: Subqueries

Find customers who have placed more than 2 orders.

Solution:

```
``sql
SELECT c.FirstName, c.LastName
FROM Customers c
WHERE c.CustomerID IN (SELECT CustomerID FROM Orders GROUP BY CustomerID HAVING
COUNT() > 2);
``
```

## Section 3: Advanced SQL Practice Questions with Solutions

These challenging questions test your understanding of advanced SQL techniques, perfect for honing your expertise.

### Question 9: Using CASE Statements

Categorize orders into 'High Value' (order total > \$1000), 'Medium Value' (\$500-\$1000), and 'Low Value' (< \$500). Assume you have an `OrderTotals` table with `OrderID` and `TotalAmount` columns.

Solution:

```
``sql
SELECT OrderID, TotalAmount,
CASE
WHEN TotalAmount > 1000 THEN 'High Value'
WHEN TotalAmount BETWEEN 500 AND 1000 THEN 'Medium Value'
ELSE 'Low Value'
END AS OrderCategory
FROM OrderTotals;
``
```

Question 10: Self Joins

You have an `Employees` table with `EmployeeID`, `ManagerID`, and `EmployeeName`. Write a query to retrieve each employee's name and their manager's name.

Solution:

```
``sql
SELECT e.EmployeeName AS Employee, m.EmployeeName AS Manager
FROM Employees e
LEFT JOIN Employees m ON e.ManagerID = m.EmployeeID;
``
```

Question 11: Window Functions

Find the running total of sales for each day, assuming you have a `Sales` table with `SaleDate` and `SalesAmount`.

Solution:

```
``sql
SELECT SaleDate, SalesAmount, SUM(SalesAmount) OVER (ORDER BY SaleDate) AS RunningTotal
FROM Sales;
``
```

## Conclusion

Mastering SQL is a crucial skill for anyone working with databases. These practice questions, ranging from beginner to advanced levels, provide a solid foundation and a path to improvement. Consistent practice is key—so revisit these questions, explore additional resources, and continue challenging yourself with new scenarios. The more you practice, the more proficient you'll become!

## FAQs

1. What are the best resources for learning SQL beyond these practice questions?

Many online resources exist, including interactive platforms like Codecademy, Khan Academy, and SQLZoo, offering structured learning paths and practical exercises. Online documentation for specific database systems (like MySQL, PostgreSQL, or SQL Server) is also invaluable.

1. Are there any SQL practice platforms with automated feedback?

Yes, platforms like HackerRank, LeetCode, and StrataScratch offer SQL challenges with automated evaluation, providing immediate feedback on your solutions.

1. How can I improve my SQL query performance?

Optimizing SQL queries involves understanding indexing, query optimization techniques (like using appropriate joins and avoiding full table scans), and analyzing query execution plans. Database-specific tools can help in this process.

1. What are some common SQL interview questions I should prepare for?

Common SQL interview questions often involve joins, subqueries, aggregate functions, window functions, and optimization. Preparing for these by practicing similar queries will significantly enhance your interview performance.

1. Where can I find real-world datasets to practice SQL on?

Numerous public datasets are available online, from sites like Kaggle, UCI Machine Learning Repository, and data.gov. Working with these datasets provides valuable practical experience.

## Additional Resources

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