

# Coder Girl T-SQL Problem Set 3 Solution

In this problem set, you will get a chance to explore functions and expressions. Most of the time, your queries will retrieve columns from the tables. In many cases, you will combine the columns with other columns or with some of the built-in functions available with SQL Server. T-SQL has so many functions that you can use, the help page found at <https://msdn.microsoft.com/en-us/library/ms174318.aspx> lists them by category such as string functions and date and time functions.

Here are a couple of examples,

LEFT([LastName],3) – Retrieves the first, or left, 3 characters of the LastName column

DATEADD(day,3,[OrderDate]) – Adds 3 days to the OrderDate column

This problem set also covers working with NULLs. A NULL means that no value has been entered for a column in a particular row. It actually means “unknown.” For example, imagine you are filling in an online form and the phone number is optional. If you don’t fill in the phone number, the company’s database ends up with NULL in the phone number column. That doesn’t mean that you do not have a phone number, it just means that it’s not entered in the database.

You cannot compare anything to NULL. Even if they compared a million phone numbers to your entry, maybe even your number is in the list, they cannot tell if one of the numbers is correct. It is important to understand the implications of NULL in formulas and when filtering.

Be sure to watch the videos about [NULLs](#) and about working with [functions](#) before working on these exercises.

## Exercise 1

1.1 You are asked to generate a list of all persons who do not have a middle name on file. Please query the Person.Person table for all persons with no middle name stored in the table.

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```
SELECT BusinessEntityID, FirstName, MiddleName, LastName
FROM Person.Person
WHERE MiddleName IS NULL;
```

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1.2 Create a list of all products including the ProductID, Name, Color and Size where the product has a size or color filled in.

---

```
SELECT ProductID, Name, Color, Size
FROM Production.Product
WHERE Color IS NOT NULL OR Size IS NOT NULL;
```

---

--Another way you could write it

```
SELECT ProductID, Name, Color, Size
FROM Production.Product
WHERE ISNULL(Color,Size) IS NOT NULL;
```

---

1.3 Return a list of SalesOrderIDs from the Sales.SalesOrderDetail table that has a carrier tracking number filled in.

---

```
SELECT SalesOrderID, CarrierTrackingNumber
FROM Sales.SalesOrderDetail
WHERE CarrierTrackingNumber IS NOT NULL;
```

---

## Exercise 2

2.1 You are asked to generate a list of all persons in the database for a Holiday card list. Please query the Person.Person table for all persons with the name formatted as "Lastname, Firstname Middlename" and order the results by Lastname in ascending order.

---

```
SELECT LastName + ', ' + FirstName + ISNULL(' ' + MiddleName, '') AS FullName
FROM Person.Person
ORDER BY LastName;
```

```
SELECT CONCAT(LastName, ', ', FirstName, ' ' + MiddleName) AS FullName
FROM Person.Person
ORDER BY LastName;
```

---

2.2 You are working on a report with descriptions of products. List the product ID, the product name and a description in this format: "color – size – style" Be sure to account for NULL values so that extra dashes are not shown. Only return rows where the color is filled in.

---

```
SELECT ProductID, Name,
       Color + ISNULL(' - ' + Size, '') + ISNULL(' - ' + Style, '') AS Description
FROM Production.Product
WHERE Color IS NOT NULL;
```

```
SELECT ProductID, Name, CONCAT(Color, ' - ' + Size, ' - ' + Style) AS Description
FROM Production.Product
WHERE Color IS NOT NULL;
```

---

2.3 List two functions you can use to replace NULL values.

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COALESCE or ISNULL

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2.4 List two ways to concatenate strings.

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Use the plus sign (+) or use the new CONCAT function

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## Exercise 3

3.1 The SUBSTRING function returns a part of a string based on what you specify. Use the help page found at <https://msdn.microsoft.com/en-us/library/ms187748.aspx> to learn how to use SUBSTRING. Write a query that returns characters 3 through 5 of the product names.

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The SUBSTRING function takes three arguments: a value, a starting point, and the number of characters to return.

```
SELECT ProductID, Name, SUBSTRING(Name, 3,3) AS PartOfName
FROM Production.Product;
```

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3.2 The CHARINDEX function returns a number, the position where a string is found within another string. The help page is found at <https://msdn.microsoft.com/en-us/library/ms186323.aspx>. Use the CHARINDEX function to return the position of the letter “a” in all the last names in the Person.Person table.

---

```
SELECT LastName, CHARINDEX('a',LastName) AS PositionOfA
FROM Person.Person;
```

---

3.3 You can combine, also called nest, functions. See if you can use the SUBSTRING and CHARINDEX functions to return everything after the “-” in the ProductNumber column of the Production.Product table.

---

```
SELECT ProductNumber,
       SUBSTRING(ProductNumber,CHARINDEX('-',ProductNumber) +1,10) AS AfterDash
FROM Production.Product;
```

---

3.4 You may have noticed that the ProductNumber column has a fixed format. What is another way you could have accomplished the same thing with one function instead of two?

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```
SELECT ProductNumber, SUBSTRING(ProductNumber,4,10) AS AfterDash
FROM Production.Product;
```

---

3.5 Write a query that returns the FirstName and LastName columns from the Person.Person table in upper case. Use the help found at <https://msdn.microsoft.com/en-us/library/ms181984.aspx> to figure out which function to use.

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```
SELECT UPPER(FirstName) AS FirstName, UPPER(LastName) AS LastName
FROM Person.Person;
```

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