1. What is a data type? Why do we have data types?
   * A data type is used to define values to be returned from the query. It specifies the type of data that the object can hold.

Reference:

<https://docs.microsoft.com/en-us/sql/t-sql/data-types/data-types-transact-sql?view=sql-server-ver15>

1. What is a collation? Name four elements of a collation.
   * A Collation refers to a set of rules that determine how data is sorted and compared within the database. The four elements of collation are: Language support, sort order, case sensitivity, and accent sensitivity.

Reference:

<https://www.databasejournal.com/features/mssql/article.php/3302341/SQL-Server-and-Collation.htm>

1. How would you strip whitespace from a string? For example, suppose you had “ Dave ” but wanted only “Dave”.
   * You can use the TRIM() function to remove the spaces from the string. BY default, it removes the leading and trailing spaces from a string.

Reference:

<https://www.w3schools.com/sql/func_sqlserver_trim.asp>

1. Suppose you wanted to make a list of every college and university that was called an Institute from the college table. Write the query.

SELECT institution FROM CollegeTable;

1. How would you find out the index of the first space in a string? For example, the index of the first space in “International Space Station” would be 7.
   * To find the index of a string you can use the function CHARINDEX() which searches for one character expression inside a second character expression, returning the starting position of the first expression if found.

Reference:

<https://docs.microsoft.com/en-us/sql/t-sql/functions/charindex-transact-sql?view=sql-server-ver15>

1. How would you select just the first name in a list of the presidents. First names can be an arbitrary length, from “Cal” to “Benjamin.”
   * SELECT LEFT (fullname, CHARINDEX(' ', fullname)) FROM Presidents
   * To only retrieve the first word of the full name which is the first name.

Reference:

<https://www.quora.com/How-do-I-write-an-SQL-query-where-i-can-retrieve-first-name-only-of-a-name-with-both-first-and-last-name-connected-in-an-ORACLE-SQL-Example-Column-named-Member-John-Doe>

1. Payments are due exactly 30 days from the date of the last function. Write a select query that calculates the date of the next payment. Pretend we want to update a column in a database that contains the date of the next payment. We will do this when we write UPDATE queries.

SELECT \*

FROM dbo.Customers

WHERE DATEDIFF(MONTH, NextPayment, GETDATE()) > 30;

* + This is to query whether when is the next payment date to let the dba know when does a customer need to pay again after 30 days.

1. Suppose your son or daughter wants to run a query every day that tells them the number of days until their 16th birthday. Write a select query that does this.
   * SELECT \* FROM birthday WHERE DATEDIFF(day, BirthDate, @today) AS Countdown

Running this query would help you countdown the number of days remaining from the date today and their birthday.

Reference:

<https://www.w3schools.com/sql/func_sqlserver_datediff.asp>

1. What function returns the current date? This is very useful in a table that maintains a log of events, such as user logins.
   * DECLARE @today date = GETDATE();