Questions for Privacy Center WebDev Candidates

Summary

This document contains a list of coding questions that must be answered by candidates applying for SDE positions.

You need to return the following to be considered for interview:

1. A copy of this document with the answer for Question 1 and Question 2b.

2. A zip file with the source code with the solutions for questions 2 and 3. You can use the Javascript/Typescript frameworks <u>Angular</u> or <u>React</u> for question 3. You <u>must</u> also include passing unit tests.

Question 1

You have the table CarSales that contains the information about car sales from a car dealer. It has the columns [CarMaker, CarModel, SalePriceInDollar, SaleDate]. Write a SQL query to get the total sale price per maker and model from the past 30 days.

Result Example:

CarMaker	CarModel	TotalSalePrice
Maker A	A Model X V6	100,000
Maker B	B Model Z V6	200,000
Maker C	C Model Y 4000	100,000

Answer:

```
SELECT
CarModel,
CarMaker,
SUM(TotalSalesPrice) AS totalSales
FROM dbo.Cars
WHERE
SalesDate >= DATEADD(day, -30, GETDATE())
GROUP BY
CarModel,
CarMaker;
```

Question 2

Scenario:

You need to develop a .NET library assembly (DLL) for a helper method to process a linked list, implemented as the static class LinkedListHelpers. You must provide a zip file with source code written in C#. You must also provide passing unit tests.

    a. Create a method that receives as input parameter the root node of a liked list and deletes the nodes with values that are repeated more than 2 times. Each node contains a character value from 'A' to 'Z'. The nodes in the list can come in any random order. You need to preserve the original order of the nodes. See the example below.

    Input:

    After calling the method:

    b. What is the time complexity and space complexity of your solution?

> Answer: Time Complexity: O(n) as it preserves an original order of elements
>
> Space Complexity: O(N) as the node is insignificant

Question 3

Develop a web page for a restaurant to show the menu list available at the restaurant. This page should be dynamic and should suggest various other available menu items as the user is picking a specific item. For example, let's say user is interested in having salad at restaurant. He is provided with various salad options and when the user chooses "Greek" salad option, we display her/him related other choices she/he might be interested (for example, Dressing or Bread, etc.). We also want to collapse the menu if the user unselects an item. For instance, let's say the user is interested in Salad and Soup but later decides against Salad. In that case, that option should be collapsed for better user experience (see Figure 5 and Figure 6 for the case the user unselects the Salad item and the menu item is collapsed).

Example of desired user experience:

Figure 1: initial page	Figure 2: the user selects Salad. The Salad menu expands automatically, and the user selects Greek. The suggested options ("You might also want") are displayed after the user selected Greek.	Figure 3: the user selects Dressing. Dressing options are then displayed automatically, and the user selects Blue Cheese.

Restaurant Menu

- ☐ Salad
- ☐ Entree
- ☐ Soup

Restaurant Menu

- ☑ Salad
    - ☐ Santa Fe
    - ☑ Greek
    - ☐ Asian

    You might also want:

    - ☐ Dressing
    - ☐ Bread
- ☐ Entree
- ☐ Soup

Restaurant Menu

- ☑ Salad
    - ☐ Santa Fe
    - ☑ Greek
    - ☐ Asian

    You might also want:

    - ☑ Dressing
        - ☐ Italian
        - ☑ Blue Cheese
        - ☐ Ranch
    - ☐ Bread
- ☐ Entree
- ☐ Soup

Figure 4: the user selects Soup and the soup options are displayed.	Figure 5: the user selects Minestrone soup. The suggested options are then displayed after the Minestrone soup was selected.	Figure 6: the user unselects the Salad. Then the Salad menu collapses.

Restaurant Menu

- ☑ Salad
    - ☐ Santa Fe
    - ☑ Greek
    - ☐ Asian

    You might also want:

    - ☑ Dressing
        - ☐ Italian
        - ☑ Blue Cheese
        - ☐ Ranch
    - ☐ Bread
- ☐ Entree
- ☑ Soup
    - ☐ Minestrone
    - ☐ Hot and sour
    - ☐ Miso

Restaurant Menu

- ☑ Salad
    - ☐ Santa Fe
    - ☑ Greek
    - ☐ Asian

    You might also want:

    - ☑ Dressing
        - ☐ Italian
        - ☑ Blue Cheese
        - ☐ Ranch
    - ☐ Bread
- ☐ Entree
- ☑ Soup
    - ☑ Minestrone
    - ☐ Hot and sour
    - ☐ Miso

    You might also want:

    - ☐ Bread

Restaurant Menu

- ☐ Salad
- ☐ Entree
- ☑ Soup
    - ☑ Minestrone
    - ☐ Hot and sour
    - ☐ Miso

    You might also want:

    - ☐ Bread

Use the following data as your Menu collection:

```
[
    {
      name: 'Salad',
      choices: [
        { name: 'Santa Fe' },
        { name: 'Greek' },
        { name: 'Asian' },
      ],
      related: [
        {
          name: 'Dressing',
          choices: [
            { name: 'Italian' },
            { name: 'Blue Cheese' },
            { name: 'Ranch' },
          ]
        },
        {
          name: 'Bread',
          choices: [
            { name: 'Italian' },
            { name: 'Flat' },
            { name: 'Sourdough' },
          ]
        }
      ]
    },
    {
      name: 'Entree',
      choices: [
        { name: 'Steak' },
        { name: 'Salmon' },
        { name: 'Rice' },
      ],
      related: [
      ]
    },
    {
      name: 'Soup',
      choices: [
        { name: 'Minestrone' },
        { name: 'Hot and sour' },
        { name: 'Miso' },
      ],
      related: [
        {
          name: 'Bread',
          choices: [
            { name: 'Breadsticks'}
          ]
        }
      ]
    }
];
```