Questions for a New Developer (updated: 06/28/2022)

General Questions

1. How do you calculate the Health Ratio for a Retail Tenant?
2. Explain what a Cap Rate is and how it is used in Real Estate Transactions?
3. In SQL, Explain the difference between the following terms and explain how you would use each of these in a query:
    a. Inner Join
    b. Outer Join
    c. Left Join
    d. Right Join
    e. Outer Apply
4. In SQL there is a concept called a Cursor. Some hate them, some love them. Explain when you can use them, and other solutions.
5. Pick three (3) of Datex's clients and tell us about them (from at least two different portfolio types).
6. What are some core KPI's that Datex Clients use and how are they used?
7. What is IRR and how does it apply to Real Estate?
8. What is the difference between Java and JavaScript?
9. What is a UDF in SQL?
    a. Explain the different types.
    b. Why are they used?

Technical Application Test

- Please show your work, including URLs of any/all resources used to answer the question(s).
- Use comments to explain your thought process, discuss nuances, etc.
- Do not rely on any 3rd party libraries, except jQuery (if you like).
- If you require clarification on any particular aspects of a question, please include your question(s) in your answer. The questions you ask may be valuable to this assessment in and of themselves.

1. An HTML report retrieves more than 10,000 rows of data from an internal API for a particular set of parameters, and is already filtered down to its most specific contexts. This data is rendered into a table dynamically using templating in JavaScript. Each row contains not only text output, but includes dynamic client-side interactivity such as column-specific drilldown modals, commenting, etc. The large dataset is causing performance issues on initial load times, user experience due to high client-side memory usage, etc. Describe different strategies you could use to alleviate this issue, including **at least**:
    a. One (1) Client-side solution
    b. One (1) Server-side solution
    c. Note: Feel free to answer as many as you can think of, the pros/cons/nuances of your different solutions, which ones you would choose for what situations and why, etc.
2. In Javascript, why does if("false") evaluate as true?
3. You're building a single page application that has a <table> of different financial metrics about a property, dropdowns that filter the data client-side, and the ability to drill down from aggregate to more detailed views of the data.
    a. Test: Mock up a generic state tracking framework in JavaScript (or pseudocode) that:
        i. Tracks the state of dropdown filters
        ii. Tracks drilldown state and activation / entry context
        iii. Tracks and displays intra-drilldown traversal (drilldown within drilldown) state as breadcrumbs
        iv. Manages URL updates with every state change, so that the user can use the Back and Forward buttons in their browser to traverse report states, as well as share a link to the specific view state on the page (parameters, filters, drill-down, etc).
    b. Note: Do not force a reload of the page, route, partials, etc. when the state changes; assume that all relevant data is retrieved on page load, or is retrieved asynchronously on certain user events such as drilldown. Your goal should be to mock the kind of objects and functions necessary to track every aspect of the user's specific view state.
4. Write a C# function that converts a list of any object type into a DataTable.

5. Given a table “users” with columns “Id” (identity integer primary key) and “Name” (varchar):
    a. Test: Write a SQL stored procedure that inserts a new record into the table and returns the value of the identity column "Id" generated by the insert statement, regardless of query scope, connection, triggers, concurrent executions, etc.
6. Given a data set with columns “Id,” “Name,” “Role, and “StartDate,” where while “Id” and “Name” are unique, there may be multiple rows with the same “Role” value:

Id	**Name**	**Role**	**StartDate**
1	Alice	Graphic Artist	1978-02-01
2	Bob	Developer	1978-02-01
3	Ada	Developer	1815-12-10
4	Leonardo	Data Analyst	1170-11-23
5	Benoit	Data Analyst	1924-11-20
6	Maurits	Graphic Artist	1898-06-17
7	Alan	Engineer	1912-06-23
8	Satoshi	Engineer	2009-01-09

    a. Test: Write a SQL query that returns all columns of the subset of rows, where each row represents the most recent “StartDate” for each “Role.”