Front End Development - Challenge

Context **2**

Challenge **3**

Add DSU 3

Add Site 4

View Sites 4

Saving Data & Retrieving Data 5

Your Solution **5**

Solution Evaluation **5**

Context

Electricity Exchange are provider of Virtual Power Plants on the National Grid. Within the Energy System we are known as a Demand Side Unit (DSU). Due to the nature of how DSU's interact with the grid, we actually operate a number of different DSU's.

A DSU is comprised of a number of sites that have signed up with us. Each site has one or more generators that we control. As part of the sign-up and testing process, sites must be assigned to a DSU. A site can only be part of a single DSU, and a DSU comprises of multiple sites.

To this end, we need to be able to provide an interface that allows a user to set up new sites, DSU's and assign sites to the DSU. Occasionally, sites will be moved from one DSU to another.

We are currently developing new metering systems and platforms that require that our clients input some information and associate their generators with some parameters. These platforms require the development of at least two distinct Client Portals.

This challenge is designed to reflect the type of processes we deal with and the type of work that the successful candidate can initially expect in the position.

We're not looking for a complex solution, we are more interested in how you approach the problem. We also want to give you some idea of the type of problems you'll come across in the position. The attached challenge is a simplistic implementation of what we're looking for, but it should provide you an opportunity to demonstrate your skills and your approach to design and development.

We generally ask that you submit your solution within a week, but that's not to say that this should take a week to implement - we realise that you live in the real world and have other demands on your time.

Challenge

Design and develop a website that gathers and stores data from the user. It should have a menu with the following entries:

Add DSU
Add Site
View Sites

When the user first loads the site, there should be a landing page with a short welcome message and a brief outline of the libraries, languages and technologies used to develop the site. It should also contain any assumptions that you have made when developing the site.

When a user clicks a link on the menu, the associated page should be inserted into the content area without a full page reload.

Add DSU

The Add DSU page should include a form that gathers the following information:

Add DSU Form		
Input Name	**Data Type**	**Restrictions**
DSU Name	Text	Required, 10 Characters Max
DSU Description	Text	Required, 20 Characters Max
Operations Cert	Number with 4 decimal places	Minimum of 0, no max value

The page should have a + button that adds a new form into the page that allows the user to add another DSU. The user should be able to add as many DSU's as they wish. The new forms should be added without any page reload.

If the user adds too many form elements, they should be able to remove an Add DSU form.

The user should be able to reset the page back to the default single form.

The user should be prompted to save changes if they try to leave the page without saving.

Add Site

The Add Site page should include a form that gathers the following information:

Add Site Form		
Input Name	**Data Type**	**Restrictions**
Site Name	Text	Required, 10 Characters Max
Site Description	Text	Required, 20 Characters Max
DSU	Drop Down	Required, List of DSU's entered in the Add DSU page

As per the Add DSU page, the user should be able to add as many sites as they want. If they want to add more sites, there should be a + button that inserts a new Add Site Form without a page reload.

The user should be able to remove any additional Add Site Forms.

The user should be able to reset the page back to a single form.

The user should be prompted to save changes if they try to leave the page without saving.

View Sites

The View Sites page should display a list of sites and their associated DSU's in a table. The following columns should be present:

- Site ID
- Site Description
- DSU ID
- DSU Description
- DSU Op Cert

The table should be sortable on Site Description and DSU Description.

Saving Data & Retrieving Data

The data should be saved via a REST API. The required API is available from the following location:

https://bitbucket.org/electricityexchange/front-end-api

This app is relatively simple and the README on the repository outlines how to install, start and use the API.

Your Solution

Your solution should contain the following:

- A Photoshop/ Gimp/ etc file with the initial design and layout of your site. (We do not expect that your implementation is a pixel perfect replica of your initial design, but your initial design should be reflected in the final output.)
- CSS/ SASS/ Less files with your own CSS styles. (You can use a Bootstrap/ Material Design etc. as a foundation, but if you do, please create your own template that overrides the base styles.)
- HTML-type files. No auto-generated templates or frameworks. We want to get an idea of your HTML knowledge. (No use of Angular, Vue, React, Ember etc.)
- All required libraries.
- Also include some notes on what type of system you'd expect this to run on: OS, HTTP server, etc.
- Be available on a git repo (GitHub, BitBucket, GitLab etc.)

Solution Evaluation

Submitted solutions will be evaluated based on the following criteria (the most important criteria being listed first):

1. Adherence to the provided specification.
2. System Integration - The website should work with the REST API as outlined above.
3. Visual Design - How the page is structured, how elements are spaced, the colors used, the font(s) used, etc.
4. Usability - Navigation should be simple and user interaction intuitive.
5. Originality of your solution.