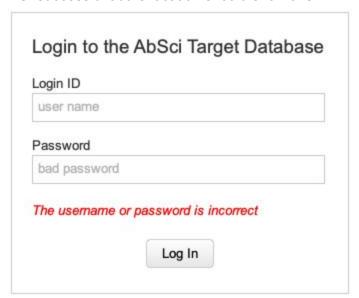
## Scope of work

We're seeking a simple web application that is written with Angular5/6 that consumes a REST service. The code shall contain inline documentation and Angular tests and reside in a private GitHub repository we create and maintain. Any code generated for this project will be owned by AbSci. Here are the screen designs for the app.

1. Login screen where users provide Windows credentials.



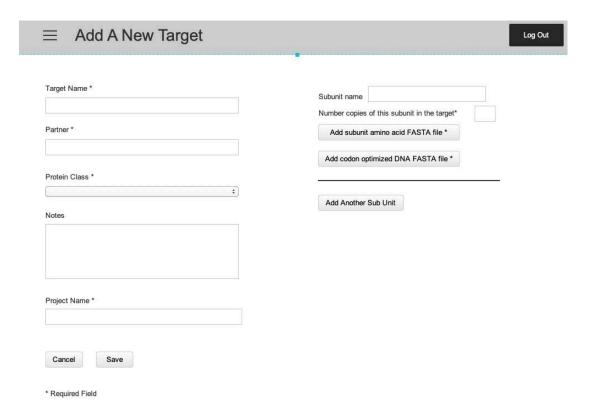
Unsuccessful authentication should show this:



2. Upon successful authentication this page is shown, which display a menu in the left corner with one menu item:



3. When the user selects the menu item, this screen is shown:



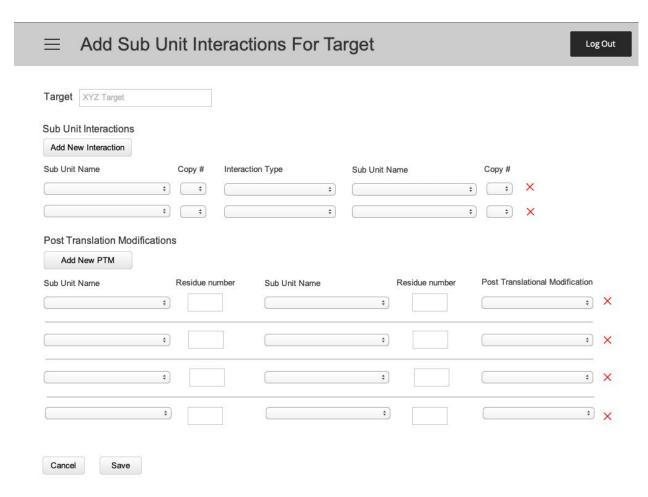
Clicking "Add Another Sub Unit" will reveal a new set of buttons and input text, as well as the option to delete it. At least one subunit, amino acid file, and codon optimized DNA file are required. The save button is only enabled once required information is provided.

## Add A New Target

| Target Name *    | Subunit name                                 |                |
|------------------|--|----------------|
|                  | Number copies of this subunit in the target* |                |
| Partner *        | Add subunit amino acid FASTA file *          |                |
|                  | Add codon optimized DNA FASTA file *         |                |
| Protein Class *  |  | <del>-</del> - |
| <b>*</b>         | Subunit name                                 | ×              |
| Notes            | Number copies of this subunit in the target* |                |
|                  | Add subunit amino acid FASTA file *          |                |
|                  | Add codon optimized DNA FASTA file *         |                |
| Project Name *   | Add Another Sub Unit                         |                |
|                  |  |                |
| Cancel Save      |  |                |
| * Required Field |  |                |

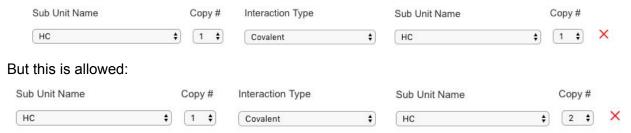
Upon submission, the data will be validated on the server and any submission errors will be returned to the client.

4. Once the user successfully saves the information, they are shown a screen for describing subunit interactions:



The Target field is filled out with the target name submitted on the previous page and is not editable.

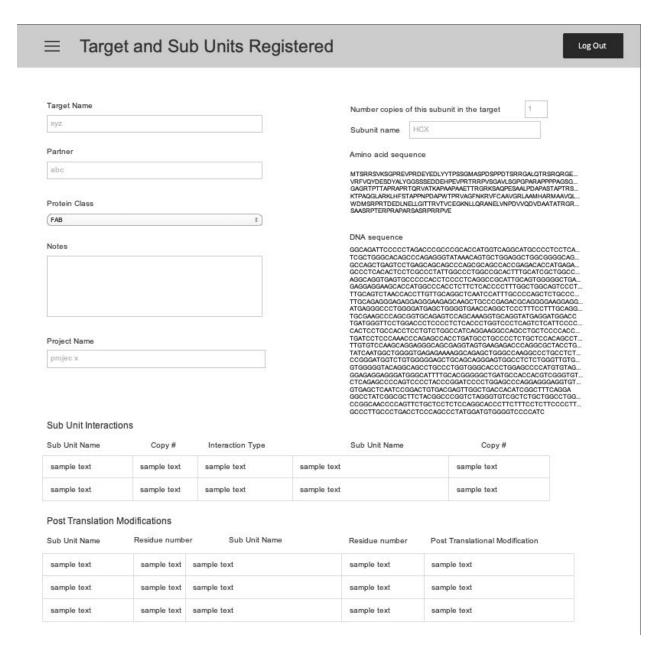
Two subunit interactions are provided by default, but the user can add more subunit interactions by clicking the "Add New Interaction" button. At least one row of this information is required if more than one subunit was specified on the previous page. This section describes interactions between subunits. So the front end can help with validation by preventing the user from creating a subunit interaction of the same copy # with itself. For example the following should be invalid:



The Post Translation Modifications can allow entries that contain the same subunit or different subunits. As above, new rows can be added by clicking he "Add New PTM" button. None of these rows are required as part of the submission. The residue number for each subunit in the row is a required number. The type of post translation modification must also be specified for each row. If the subunit name is the same, the residue numbers must differ. There is a logical way to restrict the residue numbers for each subunit. This would be based on the length of the subunits defined in the previous page and the REST service can provide the maximum value allowed for each subunit. Here's a snapshot of an acceptable set of entries for the PTM section.

| Post Translation Mod | ifications  |                |               |            |                |                                 |   |
|----------------------|-------------|----------------|---------------|------------|----------------|---------------------------------|---|
| Add New PTM          |             |                |               |            |                |                                 |   |
| Sub Unit Name        | F           | Residue number | Sub Unit Name |            | Residue number | Post Translational Modification |   |
| HC                   | <b>‡</b> ]  | 23             | HC            | <b>\$</b>  | 67             | Disulfide bond \$               | × |
| HC                   | <b>\$</b> ] | 4              | LC            | <b>‡</b> ) | 5              | Disulfide bond 💠                | × |
| LC                   | <b>\$</b>   | 6              | НС            | <b>\$</b>  | 9              | Glycosylation \$                | × |

Upon submission, the server will perform additional validation and pass back any errors so the user can make any corrections. If the submission is successful, the next page will show the successfully created data:



We will provide the JSON example data to be exchanged between the client and the server.