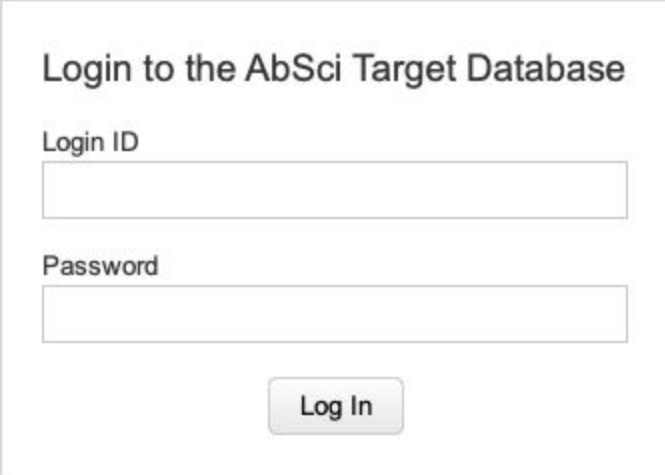


Scope of work

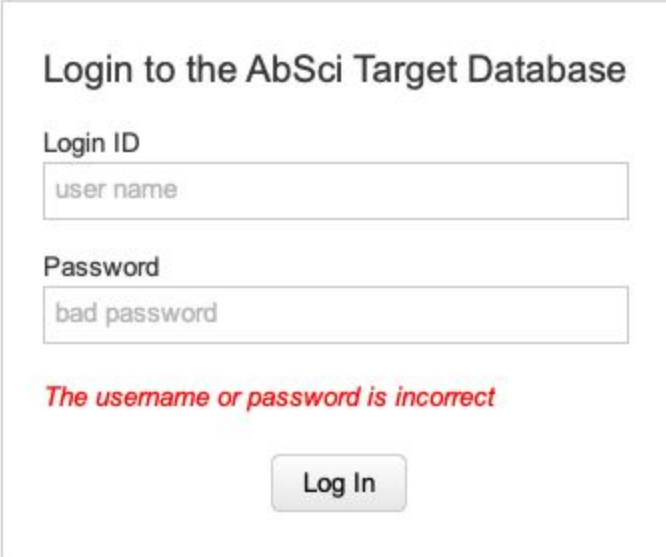
We're seeking a simple web application that is written with Angular5/6 that consumes a REST service. The code shall contain inline documentation and Angular tests and reside in a private GitHub repository we create and maintain. Any code generated for this project will be owned by AbSci. Here are the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

1. Login screen where users provide Windows credentials.



The login screen features a title "Login to the AbSci Target Database" at the top. Below the title are two input fields: "Login ID" and "Password". A "Log In" button is positioned at the bottom center of the form.

Unsuccessful authentication should show this:

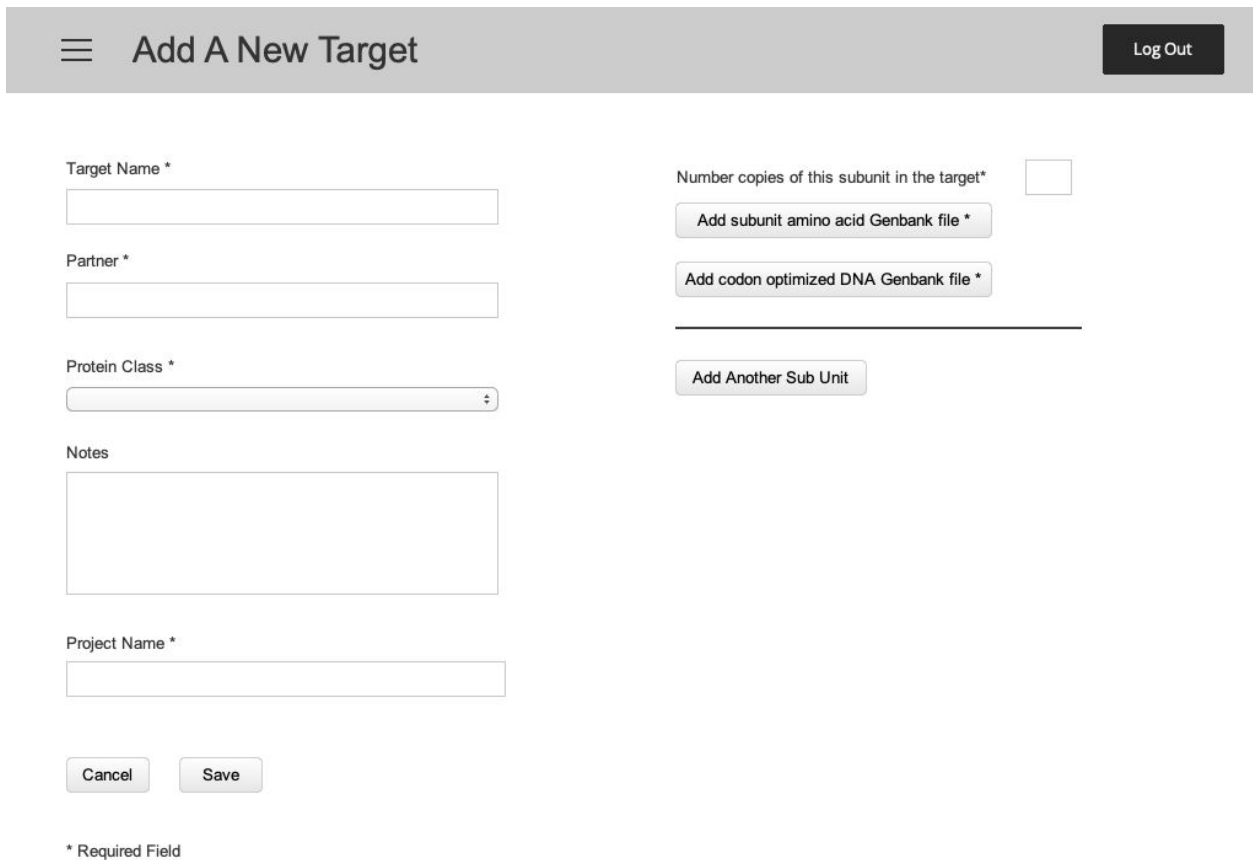


The unsuccessful authentication screen displays the same title "Login to the AbSci Target Database". The "Login ID" field contains the placeholder text "user name" and the "Password" field contains "bad password". A red error message, "The username or password is incorrect", is shown below the input fields. A "Log In" button is located at the bottom center.

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.

Target Name *

Partner *

Protein Class *

Notes

Project Name *

Cancel

Save

* Required Field

Number copies of this subunit in the target*

Add subunit amino acid Genbank file *

Add codon optimized DNA Genbank file *

Number copies of this subunit in the target*

×

Add subunit amino acid Genbank file *

Add codon optimized DNA Genbank file *

Add Another Sub Unit

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:

Add Sub Unit Interactions For Target

Log Out

Target

XYZ Target

Sub Unit Interactions

Add New Interaction

Sub Unit Name	Copy #	Interaction Type	Sub Unit Name	Copy #	
					×
					×

Post Translation Modifications

Add New PTM

Sub Unit Name	Residue number	Sub Unit Name	Residue number	Post Translational Modification	
					×
					×
					×
					×

Cancel

Save

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:

Sub Unit Name	Copy #	Interaction Type	Sub Unit Name	Copy #	
HC	1	Covalent	HC	1	×

But this is allowed:

Sub Unit Name	Copy #	Interaction Type	Sub Unit Name	Copy #	
HC	1	Covalent	HC	2	×

The Post Translation Modifications can allow entries that contain the same subunit or different subunits. As above, new rows can be added by clicking the “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 Modifications

Add New PTM

Sub Unit Name	Residue number	Sub Unit Name	Residue number	Post Translational Modification
<div style="border: 1px solid #ccc; padding: 2px; display: inline-block;">HC ▾</div>	<div style="border: 1px solid #ccc; padding: 2px; display: inline-block;">23</div>	<div style="border: 1px solid #ccc; padding: 2px; display: inline-block;">HC ▾</div>	<div style="border: 1px solid #ccc; padding: 2px; display: inline-block;">67</div>	<div style="border: 1px solid #ccc; padding: 2px; display: inline-block;">Disulfide bond ▾</div> ✗
<div style="border: 1px solid #ccc; padding: 2px; display: inline-block;">HC ▾</div>	<div style="border: 1px solid #ccc; padding: 2px; display: inline-block;">4</div>	<div style="border: 1px solid #ccc; padding: 2px; display: inline-block;">LC ▾</div>	<div style="border: 1px solid #ccc; padding: 2px; display: inline-block;">5</div>	<div style="border: 1px solid #ccc; padding: 2px; display: inline-block;">Disulfide bond ▾</div> ✗
<div style="border: 1px solid #ccc; padding: 2px; display: inline-block;">LC ▾</div>	<div style="border: 1px solid #ccc; padding: 2px; display: inline-block;">6</div>	<div style="border: 1px solid #ccc; padding: 2px; display: inline-block;">HC ▾</div>	<div style="border: 1px solid #ccc; padding: 2px; display: inline-block;">9</div>	<div style="border: 1px solid #ccc; padding: 2px; display: inline-block;">Glycosylation ▾</div> ✗

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:

Target and Sub Units Registered

Log Out

Target Name

xyz

Partner

abc

Protein Class

FAB

Notes

Project Name

projec x

Number copies of this subunit in the target

1

Subunit name

HGX

Amino acid sequence

MTSRRSVKSQPREVPKDEYEDLYTPSSGMASPDSPDTSRRGALQTRSRORGE...
VRFVQYDSDYALYGGSSSEDDHPEVPRTRRPVSGAIVSGRPARAPPPAGSG...
GAGRTPTTAPRAPRTORVATKAPAPAAETTRGRKSAQPSALPDAPASTAPTRS...
KTPAQGLARKLHFSTAPPNPDPFWTPRVAGFNKRVCVAVGRLAAMHARMAAVQL...
WDMSPRPTDEDLNEELGITRVTVCCKNLLQRAVELVNPQVQDVDAATATRGR...
SAASRPTPRAPARSASRRPRPVE

DNA sequence

GGCAGATTCCTCCCTAGACCCGCCCGCACCATGGTCAGGCATGCCCTCCTCA...
TCGCTGGGCACAGCCAGAGGTATAAACAGTGTGGAGGCTGGCGGGGAG...
GCCAGCTGAGTCTTGAGCAGCAGCCAGCCAGCCAGCCAGCAGCAGCATGAGA...
GCCCTCACACTCCTCGCCCTATTGGCCCTGGCCCGACCTTGCATCGCTGGCC...
AGGCAGGTGAGTGCCCTCCACCTCCCTCAGGCTCGCATTCAGTGGGGGCTGA...
GAGGAGGAGCAGCAGTGGCCACCTCTTCTCACCCCTTTGGCTGGCAGTCCCT...
TTGCAGTCTAACACACTTGTTCAGGCTCAATCCATTGGCCAGCTCGCC...
TTGCAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGG...
ATGAGGCTCCTGGGATGAGCTGGGTGAACAGGCTCCCTTTCTTGCAGG...
TGCGAAGCCAGCGGTGCAGAGTCCAGCAAGGTGCGAGGTATGAGGATGAGCC...
TGATGGGTTCCTGGACCTCCCTCTCACCTGGTCCCTCAGTCTCATTCCTCC...
CACTCCTGCCACCTCCTGTCTGGCCATCAGGAAGGCCAGCCTGCTCCCTCC...
TGATCCTCCCAACCCAGAGCCACCTGATGCTGCTCCCTCTGCTCCACAGCT...
TTGTGTCGAAGCAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAG...
TATCAATGGCTGGGGTGAGAGAAAGGAGAGAGCTGGGCAAGGCCCTGCCTCT...
CCGGGATGGCTGTGGGGGAGCTGCAGCAGGAGGAGGAGGAGGAGGAGGAGGAG...
GTGGGGGTACAGGAGCAGCTGCTGCTGGTGGGACCTGGAGGCCCATGTGTAG...
GGAGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAG...
CTCAGAGCCCGAGTCCCTACCCGATCCCTGGAGGCCAGGAGGAGGAGGAGGAG...
GTGAGCTCAATCCGAGCTGAGCAGGTTGGCTGACACATCGGCTTTCAGGA...
GGCTATCGGCTCTTACGGCCGGCTGAGGAGGAGGAGGAGGAGGAGGAGGAGGAG...
CCGGCAACCCAGTCTGCTCCTCTCCAGGACCTCTTCTTCTGCTTCCCTT...
GCCCTTGGCTGAGCTCCAGCCCTATGATGTGGGTCCCATC

Sub Unit Interactions

Sub Unit Name	Copy #	Interaction Type	Sub Unit Name	Copy #
sample text	sample text	sample text	sample text	sample text
sample text	sample text	sample text	sample text	sample text

Post Translation Modifications

Sub Unit Name	Residue number	Sub Unit Name	Residue number	Post Translational Modification
sample text	sample text	sample text	sample text	sample text
sample text	sample text	sample text	sample text	sample text
sample text	sample text	sample text	sample text	sample text

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