

Day 2. Jalview Course, EBI 22nd January 2013.

Supplementary exercises

Disorder prediction

1. Import the interleukin7.fa alignment from the Jalview tutorial directory in Penelope.
2. Apply the *Web Service -> Protein Disorder -> .. -> Disembl* protein disorder predictor
3. Use *Sequence ID popup -> Structure -> Discover PDB Ids* to retrieve all the PDB structures for the sequences
4. Open and align the structures
5. Compare the disorder predictions to the structure data
6. Apply the IUPred disorder prediction method
7. Use the **Per sequence** option in the *Colour -> colour by annotation* dialog to shade the sequences by the long and short disorder predictors
8. Do the two methods agree with the structure ?

Calculating T-COFFEE Reliability scores

1. Load the tcoffee_scores.fasta alignment into Jalview
2. Calculate a T-COFFEE score file for the alignment using the T-COFFEE COREX score server at <http://tcoffee.crg.cat/apps/tcoffee/do:core>
3. Locate the ascii score file on the results page – it's called 'sequence alignment in ascii format' (url should end in result.score_ascii)
 - a. Save this to your desktop
 - b. drag the file onto the alignment in Jalview
4. Toggle the T-COFFEE score colouring
5. Experiment with the Colour By Annotation dialog and export Annotation open in the file menu to see how Jalview handles T-COFFEE scores
6. Try uploading another file to the score server to calculate scores for your own sequences

Groovy Scripting and Jalview

1. Open the groovy console from the Desktop's Tools menu.

Load and experiment with the following scripts using the example alignment:

2. Printing the alignment's title

<http://www.jalview.org/examples/groovy/printtitle.groovy>

3. Generating CSV from annotation

<http://www.jalview.org/examples/groovy/annotationsascsv.groovy>

4. Parsing description strings as alignment annotation (using the 'Extract scores' function)

Example file:

http://www.compbio.dundee.ac.uk/user/ws-dev1/examples/scanps_out.blc

Script:

<http://www.jalview.org/examples/groovy/parseproperties.groovy>

6. Manipulating features programmatically

<http://www.jalview.org/examples/groovy/removeFeaturesByGroup.groovy>

7. Manipulating sequence IDs in alignment

Load some sequences from Uniprot using the sequence fetcher.

Try this script <http://www.jalview.org/examples/groovy/stripUniprotPrefixes.groovy>

Jalview Applet Tutorial

The Jalview applet, JalviewLite is a light-weight version of Jalview designed to run on a web page. It does not include any clients for on-line databases or web services, but otherwise provides the same core visualization and annotation capabilities as the Jalview desktop.

Exercise. The basic steps needed to display alignments with JalviewLite

1. Download and unzip the archive at <http://www.jalview.org/training/2012/EdinburghU/June/applet.zip> and copy the 'applet' directory on to your desktop.
2. Open the directory and drag the 'applettest.html' file onto a window of your web browser to view it.
 - a. You should see a jalview applet button – pressing it will open the applet to display the uniref50.fa alignment in the applet directory.
 - b. If you see a black box, try pressing <shift> + F5 to reload the page.
3. Now, open the applettest.html file in a text editor (Notepad will do)
 - a. The applet directory contains a newick tree file called 'ferredoxin.nw'. Search the applet parameters page at <http://www.jalview.org/examples/appletParameters.html> to find out the name of the applet parameter used to load a tree on to the alignment.
 - b. Add the parameter after the 'file' parameter in applettest.html like so:

```
<param name="file" value="uniref50.fa">  
<param name=".." value="ferredoxin.nw">
```
 - c. Now reload the page in your browser, and click the applet button.
4. Adding annotation to the alignment.
 - a. Examine the parameter web page to discover how to add the sequence feature file and alignment annotation file you generated in Exercise 28 and 30 in the manual.
 - b. Compare the Sequence Feature Settings dialog box in the JalviewLite and Jalview Desktop
5. JalviewLite and Javascript
 - a. Look over the jalview javascript API documented at <http://www.jalview.org/examples/jalviewLiteJs.html>
 - b. Try to create a JalviewLite launch button: <http://www.jalview.org/examples/javascriptLaunch.html>
 - c. JalviewLite supports callbacks, so you can have your own functions called when the user interacts with data shown in Jalview: http://www.jalview.org/examples/linkedapplets_ng.html

Part 3. Setting up the Jalview Yoxos Eclipse development environment

1. double click the jalviewDeveloper-www profile in penelope
2. wait a few minutes then click the 'I accept button' and OK
3. wait a few minutes more for the eclipse download to happen
4. If you want to do commits, then you'll need to get a username and password over at issues.jalview.org
5. Press ok for default eclipse workspace paths.
6. use your the username and password to log in to Jalview's git repository at source.jalview.org if you have one, otherwise you can hit cancel when it prompts you for username/password (If you hit ok then you'll need to set master password details .. don't worry - these machines will be wiped at the end of the day).
7. Wait a bit more - Jalview's git repository will be cloned automatically
8. Open git repository browser and Switch branches to Release_2_8_Branch to get the latest patched release branch in your desired repository.
9. Choose Import ..-> From Git -> Import Existing project -> From Local Repository -> pick the public or personal repository
10. Fix paths (some of the below may not be necessary)
 - i. Open builders - there's one invalid builder that you'll need to get rid of
 - ii. Open build path - VARNAv3.9-dev.jar reports being not found:
 - * first remove from project path.
 - * then add it again by right clicking after browsing to the 'lib' directory
 - iii. Fix the plugin.jar user library
 - * select plugin.jar in the build path and hit 'Edit ...'
 - * select 'user libraries ...' button.
 - * create a new user library called plugin.jar that links to the jalview 'plugin.jar' classpath entry
 - * select 'Add external jar' and locate plugin.jar on your system "Program files (x86)/Java then search for plugin.jar
 - * hit ok then finish then ok to finish editing the classpath.
11. source should be ready to hack ! test you can launch Jalview by :
 - i. right click on project and pick Run As -> External Application
 - ii. once main types are found look for jalview.bin.Jalview
 - iii. let the program launch.
 - iv. to double check - make sure you can import the example alignment at http://www.jalview.org/examples/exampleFile_2_7.jar
12. Building the applet is trickier (need to use the makeapplet target to build the jalviewApplet.jar), but it should launch via the appletviewer using as 'launch java applet' runtime profile. Use parameters from one of the examples in the [examples/applets.html](http://www.jalview.org/examples/applets.html) page.

