Part 1: Step by Step Instructions for the In-Class Demo

1. Begin by typing “glue” at a terminal on your lab machine. This should launch the Glue interface.
2. Upload the exoplanet database by dragging and dropping the csv file into the upper left box labeled “Data Collection”
3. Select the new line (planets…) that appeared under “Data” and drag it into the big white empty window that says “drag data to plot”.
4. Select “1D histogram” from the dropdown menu and click “OK”. A fairly nonsensical histogram will pop up in the viewing window.
5. Select “pl\_discmethod” for the x-axis value and resize the histogram window so that you can read the labels.

*At this point in the semester, the results shouldn’t be too surprising. There are a few methods (RV, transits) with many successful detections, direct imaging and microlensing with a few tens of detections, and a lot of methods with only a couple of successes.*

1. One trick we haven’t played with yet in this class but that can be quite useful is log scaling for counts (y-axis) in histograms. These discovery method data are precisely the kind of case where you would want to do this. In glue, it’s also super easy. Just click the “log” axis in the plot options.
2. Now make a 2D scatter plot by dragging the data (planets…) into the plot window. Set the axes to planet semi-major axis (pl\_orbsmax) vs. planet mass (pl\_bmassj) in log-log space.
3. You should now have two plots in the main window. A scatterplot and a histogram. In the histogram tool, select the rightmost button in the top bar (it looks like a blue band with red points scattered around inside). This will allow you to select a subset of data. Click and drag over one of the bars in the histogram to select a single planet detection method and note that the points corresponding to that method in the scatterplot (and any other plots you have open) will also be highlighted in the same color.

*A data subset will also appear in the menu at the left. Clicking on it in the “plot layers” menu will allow you to make various modifications to the color, transparency, etc. The plot layer corresponding to this subset of data will also now appear on any other plots you create, though you can turn it off if you’d like by deselecting it in the Plot Layers Menu. Note that if you want to change the selection for a subset, you should click on it in the “Data Collection” menu and then reselect the data in the plot where you wish to make the selection.*

1. To create another subset, go to Data Manager 🡪 New subset. Then use the data selection tool in the histogram to choose another bar from the histogram. The points corresponding to these data will change color in the scatterplot to match.
2. You can also make selections in the scatter plot. Try this out by creating a third region from the Data Manager Menu, then click over to the scatterplot and select a region of interest. Note that in this case, the planets in that group will change color in the histogram as well

*This may get confusing if this new region overlaps with a selection you’ve already made, and you may wish to turn off other subsections of the data by de-selecting their check boxes in the plot layers menu*