Babraham Bioinformatics

Exercise:
Using Inkscape for Figure Design and Editing

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Introduction

In this exercise we are going to give you a set of figures to either produce or amend. Once you have modified all of the individual figures you can arrange them together into a suitable figure panel.

Figure 1 – Disease rates by country

You have been given a graph (alzheimers.svg) showing the rates of Alzheimer's disease in three different countries. We'd like to illustrate this a bit more nicely by adding the flags of the countries above their respective bar in the bar plot.

Open the SVG file and make any changes you see fit to the graph. Then create the flags for the three nations. Make sure they are all the same size and then place them over the appropriate bar in the plot.

All of these flags can be constructed from the basic shape drawing and intersecting tools.

Japan
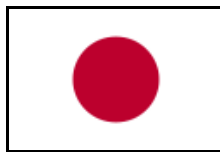
This will simply be a white rectangle with a red circle in it. Make sure the circle is perfectly circular and that it is exactly centered within the rectangle – both horizontally and vertically.

Iceland

There are several potential ways to draw this, but probably the easiest is to:
1. Draw a blue rectangle
2. Duplicate this into a white rectangle and then symmetrically decrease it's height
3. Duplicate the blue rectangle into a white rectangle and asymmetrically decrease its width
4. Duplicate both of the white rectangles and make them a bit symmetrically smaller

Remember that holding the shift key whilst changing height or width will perform the operation symmetrically.

Turkey

To make the crescent moon draw a white circle then draw another smaller circle which partially overalps this. Then use the Path > Difference tool to remove the smaller circle from the larger one.

Figure 2 – Drug screen barplot

We have given you a file barplot.svg which contains results of a drug screen which shows the effect drugs had on WT and KO genotypes. Whilst the data is nice, the graph isn't great. It has problems with its sizing, colouring and annotations. Clean the graph up and improve its appearance.

Figure 3 – Pie chart

We have given you a file pie_chart.svg which needs to be better labelled. Load the file and fix the labelling.

Figure 4 – Strip chart

We have given you a file stripchart_disease.svg which needs some improvement. Some things which are problematic at the moment are:

- It's not as clear as it could be where the points from one sample end and the next one starts.
- The bar for the mean could be made to stand out more
- The text labels at the bottom overlap with each other

Improve the figure as you see fit.

Figure 5 – Neutrophil infiltration image

We have given you an image 'neutrophil_image.png' which is a microscopy picture of neutrophil infiltration to a site of injury.

Import the PNG file into an SVG document.

The central large circular portion of the image is the site of the injury. Place a circle around this and then label it as "injury". Place the text of the label within the bounds of the image, not outside.

Figure 6 - Freehand drawing and editing

In the Data/Inkscape practical folder is a jpeg image called 'human_ear.jpg'. This is a low resolution photograph of an ear.

Import this image into your project Scale it to an appropriate size and then use the image as a template for you to generate a vector illustration of an ear.

You can draw the initial sections freehand using either the drawing or curves tool, then use simplification and node editing to create a more refined image.

Once you're happy with the image you can delete the original photo to leave just your vector drawing.

Finally you can label the major components of the ear (lobule, helix, tragus and scapha)

Composition

Once you're happy with all of the slightly random collection of figures, try to combine these into a single panel.