**# Plot.ly Homework - Belly Button Biodiversity**

![Bacteria by filterforge.com](Images/bacteria.jpg)

In this assignment, you will build an interactive dashboard to explore the [Belly Button Biodiversity dataset](http://robdunnlab.com/projects/belly-button-biodiversity/), which catalogs the microbes that colonise human navels.

The dataset reveals that a small handful of microbial species (also called operational taxonomic units, or OTUs, in the study) were present in more than 70% of people, while the rest were relatively rare.

**## Step 1: Plotly**

1. Use the D3 library to read in `samples.json`.

2. Create a horizontal bar chart with a dropdown menu to display the top 10 OTUs found in that individual.

\* Use `sample\_values` as the values for the bar chart.

\* Use `otu\_ids` as the labels for the bar chart.

\* Use `otu\_labels` as the hovertext for the chart.

  ![bar Chart](Images/hw01.png)

3. Create a bubble chart that displays each sample.

\* Use `otu\_ids` for the x values.

\* Use `sample\_values` for the y values.

\* Use `sample\_values` for the marker size.

\* Use `otu\_ids` for the marker colours.

\* Use `otu\_labels` for the text values.

![Bubble Chart](Images/bubble\_chart.png)

4. Display the sample metadata, i.e., an individual's demographic information.

5. Display each key-value pair from the metadata JSON object somewhere on the page.

![hw](Images/hw03.png)

6. Update all of the plots any time that a new sample is selected.

Additionally, you are welcome to create any layout that you would like for your dashboard. An example dashboard is shown below:

![hw](Images/hw02.png)

**## Advanced Challenge Assignment (Optional)**

The following task is advanced and therefore optional.

\* Adapt the Gauge Chart from <https://plot.ly/javascript/gauge-charts/> to plot the weekly washing frequency of the individual.

\* You will need to modify the example gauge code to account for values ranging from 0 through 9.

\* Update the chart whenever a new sample is selected.

![Weekly Washing Frequency Gauge](Images/gauge.png)

**## Deployment**

Deploy your app to a free static page hosting service, such as GitHub Pages. Submit the links to your deployment and your GitHub repo.

**## Hints**

\* Use `console.log` inside of your JavaScript code to see what your data looks like at each step.

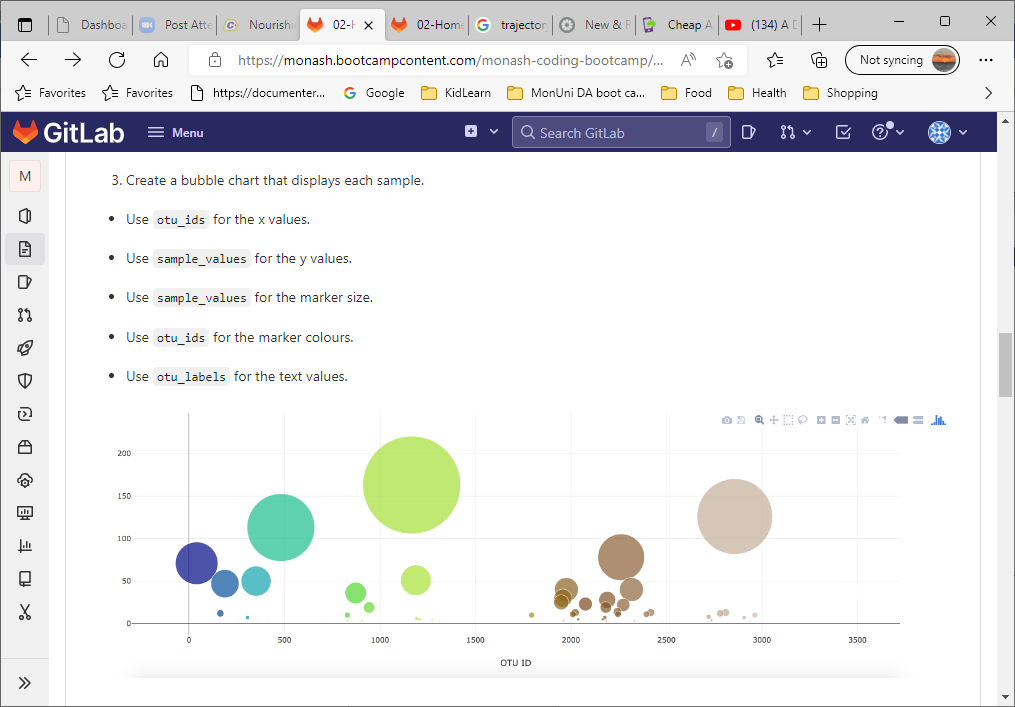
\* Refer to the [Plotly.js documentation](https://plot.ly/javascript/) when building the plots.

**### About the Data**

Hulcr, J. et al.(2012) *\_A Jungle in There: Bacteria in Belly Buttons are Highly Diverse, but Predictable\_*. Retrieved from: [http://robdunnlab.com/projects/belly-button-biodiversity/results-and-data/](http://robdunnlab.com/projects/belly-button-biodiversity/results-and-data/)

Chart

Description automatically generated



Graphical user interface, text, application, email

Description automatically generated

