

Create a volcano plot: A volcano plot is a graph that shows effect size from a study. It is a type of scatter plot where the  $-\log_{10}$  p-value is plotted on the y axis and the fold change ( or in our case  $\log_2$  fold-change) is on the x-axis.

1. Calculate the  $-\log_{10}$  of the p value in the example dataframe (I will give you this answer):

```
data = -(np.log10(example['P.Value']))
```

2. Save algorithm from answer 1 as a dataframe: In order to save this you will need 2 lines of code:

```
Df = pd.DataFrame(data)  
Df.columns = [<your answer>]
```

3. Concatenate your  $-\log_{10}$  dataframe to your example dataframe. hint: you can use

```
newexample = pd.concat([example, Df ], axis = 1)
```

4. Create scatter plot