matplotlib_histograms_workbook_answers

September 21, 2020

1 MATPLOTLIB HISTOGRAMS WORKBOOK

Remember, there are different ways to write code to get the same answer, so your answer can be correct and different to the answer example!

If you feel stuck and want some in person help, then have a look at the events page to join in a workshop https://swamphen.co.uk/events.

1.0.1 This will use the same data set read in during the class, the head dimensions data

In [ ]:
```
# either read in the data, or work in the same notebook as the data is already
# read into

import matplotlib.pyplot as plt
import csv
with open('head_dimensions.csv') as data:
    reader = csv.reader(data, delimiter = ',')
    for i in reader:
        my_list = list(reader)

head = my_list

for i in range(len(head)):
    for j in range(len(head[i])):
        head[i][j] = float(head[i][j])

def extract_data(data_set, value_number):
    data = []
    for i in range(len(data_set)):
        data.append(data_set[i][value_number])
    return(data)

length_one = extract_data(head, 0)
breadth_one = extract_data(head, 1)
length_two = extract_data(head, 2)
breadth_two = extract_data(head, 3)
print(length_one, breadth_one, length_two, breadth_two)
```

```
In [ ]: # plot a green horizontal histogram of length_two and add axis names
        plt.hist(length_two, color = 'g', orientation = 'horizontal')
        plt.xlabel('frequency')
        plt.ylabel('sibling two head length (cm)')

In [ ]: # plot a histogram comparing the head breadth of the two brothers
        # plot a bar stacked graph and choose green for brother one, red for brother 2
        # give the graph a legend at the top left of the screen
        # label the axes
        plt.hist([breadth_one, breadth_two], histtype = 'barstacked', color = ['g','r'], label
        plt.legend(loc='upper left')
        plt.xlabel('head breadth (cm)')
        plt.ylabel('frequency')

In [ ]: # plot a histogram for the data in length_two from the 5th data point onwards
        # make the plot cyan
        plt.hist(length_two[5:], color = 'c')

In [ ]: # plot a double histogram side by side of length_one and breadth_one
        # add a legend
        # what axes titles can you add?
        plt.hist([length_one, breadth_one], label = ['head length', 'head breadth'])
        plt.xlabel('measurement (cm)')
        plt.ylabel('frequency')
        plt.legend()

In [ ]: # can you see any relationship between head length and breadth in this graph?

        # no

In [ ]: # is this a sensible graph to plot

        # no two unrelated things on the same axis is not very helpful

In [ ]: # what would be a better graph to plot to show a relationship between these values?
        plt.scatter(length_one, breadth_one)
```