

# matplotlib-customising-graphs-workbook

September 21, 2020

## 1 MATPLOTLIB CUSTOMISING GRAPHS WORKBOOK

Have a go at the following questions to practice your new found skills.

If you have any questions, go back to the course videos and have another look. One version of the answers is available in the next download. 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>.

```
In [1]: # import matplotlib as plt
```

### 1.0.1 We are going to re-visit some of the graphs from the previous workbook and add information to them to make them more useful!

```
In [2]: # create a list of numbers 1-10 and produce a line plot
        # add a red * to mark each data point
```

```
In [3]: # create a list of the even numbers between 1 and 20 and produce a line graph
        # plot these as green dots joined by a dotted line
```

### 1.0.2 look at the last 2 graphs and that if the x axis is not specified it is assumed to be the

### 1.0.3 index number of the point plotted on the y axis.

### 1.0.4 So, plotting 2 different lists of 10 numbers each gives the same x axis

```
In [4]: # create a list of strings with your favourite book title and plot as a line graph
        # with a black dashed line of width 6 and square markers
```

```
In [5]: # then increase the size of the marker to 15 so they can be seen with the
        # thicker line
```

```
In [6]: # now represent your book data as a histogram with green bars
```

```
In [14]: # copy and paste the following data
         # this is the darwin data set used in the course 'using lists on real data'
         darwin=[49.0, -67.0, 8.0, 16.0, 6.0, 23.0, 28.0, 41.0, 14.0, 29.0, 56.0,
                 24.0, 75.0, 60.0, -48.0]
```

```
In [7]: # create a suitable graph to represent this data, including axis labels
        # remember the values represent the height difference between cross-fertilised
        # and self-fertilised plants in units of 0.125 inches

In [8]: # is a line graph a good representation of this data?

In [18]: # copy and paste the following data
         state = [0,1,1,0,0,0,1,1,1,1,0,0,0,0,0,0,1,1,1,1,0]

In [9]: # this is a section of data from a motion sensor taken at second intervals
        # starting at time 0
        # 0 = no motion, 1 = motion
        # produce a suitable fully labelled graph to represent this data

In [10]: # put a label on this graph with a green arrow pointing to the first time
         # motion is detected
```