Graficos

September 5, 2018

```python
In [10]: import pandas as pd
         import matplotlib.pyplot as plt
         import numpy as np
```

```python
In [2]: dados_aula_1 = pd.read_csv('./dados_aula1.csv')
        dados_aula_2 = pd.read_csv('./dados_aula2.csv')
```

```python
In [3]: dados_aula_1
```

```
Out[3]:        L  n       m
        0  1.053  6  0.0526
        1  1.053  5  0.0650
        2  1.053  4  0.1047
        3  1.053  3  0.1651
        4  0.894  4  0.0713
        5  1.060  3  0.1316
        6  0.800  3  0.1049
        7  0.713  3  0.0713
```

```python
In [4]: dados_aula_2
```

```
Out[4]:     Comprimento (cm)  Peso (g)  Barrigas
        0               12.5      13.2         1
        1               26.3      13.2         2
        2               33.8      13.2         3
        3               47.9      13.2         4
        4               56.5      13.2         5
        5               72.0      13.2         6
        6               12.4      14.7         1
        7               26.5      14.7         2
        8               36.8      14.7         3
        9               47.5      14.7         4
        10              59.7      14.7         5
        11              69.4      14.7         6
        12              19.7      33.3         1
        13              33.6      33.3         2
        14              50.0      33.3         3
        15              67.0      33.3         4
```

```
16              83.4      33.3       5
17              20.1      45.3       1
18              39.6      45.3       2
19              57.5      45.3       3
20              76.7      45.3       4
21              93.3      45.3       5
22              28.6     104.4       1
23              61.1     104.4       2
24              84.9     104.4       3
25             114.5     104.4       4
26             149.0     104.4       5
27              32.7     105.6       1
28              61.4     105.6       2
29              87.6     105.6       3
30             115.0     105.6       4
31              42.0     213.6       1
32              79.8     213.6       2
33             122.3     213.6       3
```

```python
In [5]: medidas_de_massa = dados_aula_2['Peso (g)'].unique()

In [6]: medidas_de_massa

Out[6]: array([ 13.2,  14.7,  33.3,  45.3, 104.4, 105.6, 213.6])

In [7]: massas_separadas = [dados_aula_2.where(dados_aula_2['Peso (g)'] == p).dropna() for p in

In [8]: [plt.plot(df['Barrigas'], df['Comprimento (cm)']) for df in massas_separadas]

Out[8]: [[<matplotlib.lines.Line2D at 0x7f335680b518>],
         [<matplotlib.lines.Line2D at 0x7f331ab11358>],
         [<matplotlib.lines.Line2D at 0x7f331ab03048>],
         [<matplotlib.lines.Line2D at 0x7f331aaf0b00>],
         [<matplotlib.lines.Line2D at 0x7f331aae3ba8>],
         [<matplotlib.lines.Line2D at 0x7f331aa6b080>],
         [<matplotlib.lines.Line2D at 0x7f331aa6b940>]]

In [35]: plt.show()

In [13]: def x(l, f, n):
             return np.power((l * 2 * f)/n, 2)

         def y(m, g):
             return m * g

In [34]: [plt.plot(x(df['Comprimento (cm)'], 120, df['Barrigas']), y(df['Peso (g)'] * 0.001, 9
         plt.show()
```
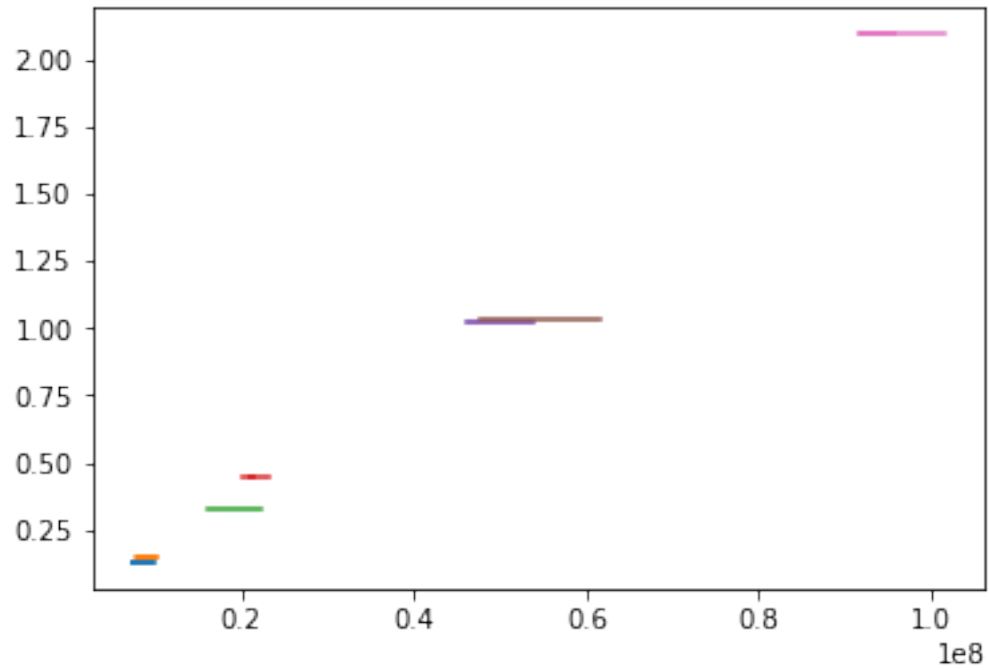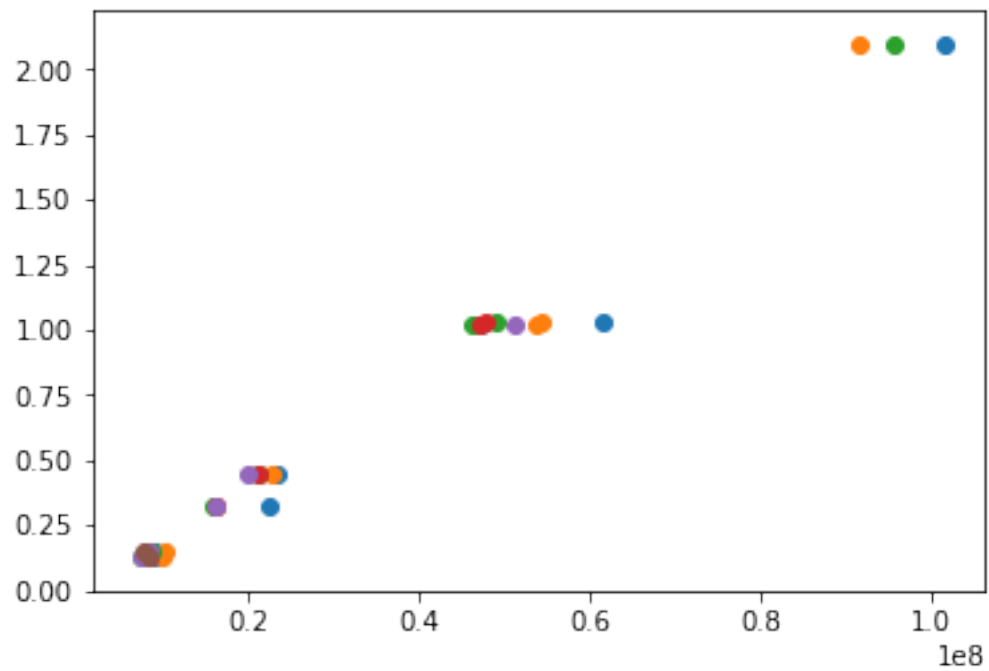
```
In [37]: [plt.scatter(x(df['Comprimento (cm)'], 120, df['Barrigas']), y(df['Peso (g)'] * 0.001
         plt.show()
```
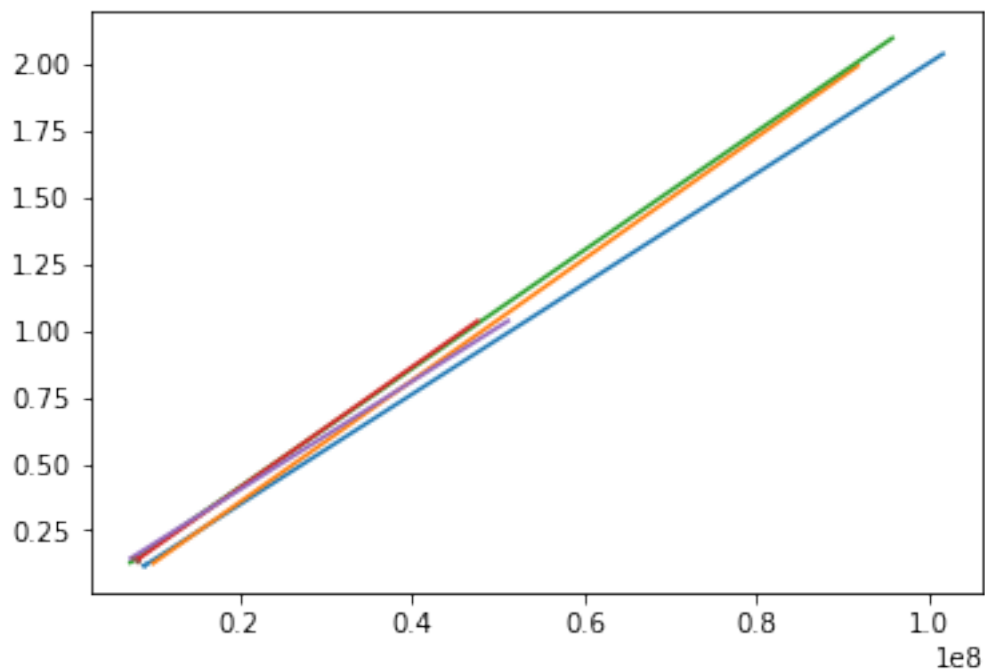
```
In [53]: from sklearn import linear_model

         models = [linear_model.LinearRegression().fit(
             pd.DataFrame(x(df['Comprimento (cm)'], 120, df['Barrigas'])),
             y(df['Peso (g)'] * 0.001, 9.8)) for df in  harmonicos_separados]

In [60]: [plt.plot(
             pd.DataFrame(x(harmonicos_separados[i]['Comprimento (cm)'], 120, harmonicos_separa
             model.predict(pd.DataFrame(x(harmonicos_separados[i]['Comprimento (cm)'], 120, ha

Out[60]: [[<matplotlib.lines.Line2D at 0x7f3316d6e0f0>],
          [<matplotlib.lines.Line2D at 0x7f3316e12da0>],
          [<matplotlib.lines.Line2D at 0x7f3316e2aa58>],
          [<matplotlib.lines.Line2D at 0x7f3316b94fd0>],
          [<matplotlib.lines.Line2D at 0x7f3316c85438>],
          [<matplotlib.lines.Line2D at 0x7f3316c85e48>]]

In [61]: plt.show()
```


Nao ta acabado