Computação Experimental - 2/2-17

```
In [82]: import numpy as np
         import pandas as pd
         import scipy
         from scipy.optimize import curve_fit
         import matplotlib.pyplot as plt
         %matplotlib inline
```

```
In [83]: def exp_regression_xy(xInput, yInput):
             array = np.polyfit(xInput, np.log(yInput), 1)
             x = np.linspace(np.min(xInput), np.max(xInput), 100)
             y = np.exp(array[1]) * np.exp(array[0] * x)
             return [x, y]
```

```
In [90]: dataMCRPyJader = np.genfromtxt('montecarlo-pylog-jader.txt', delimiter=',')
         dataMCRPyHugo = np.genfromtxt('montecarlo-pylog-hugo.txt', delimiter=',')

         yPyJ = dataMCRPyJader[:,0]
         xPyJ = dataMCRPyJader[:,1]
         yPyH = dataMCRPyHugo[:,0]
         xPyH = dataMCRPyHugo[:,1]

         resultPyJ = exp_regression_xy(xPyJ, yPyJ)
         resultPyH = exp_regression_xy(xPyH, yPyH)

         plt.plot(np.log(resultPyJ[0]), resultPyJ[1], 'r--')
         plt.plot(np.log(resultPyH[0]), resultPyH[1], 'k--')

         plt.plot(np.log(xPyJ), yPyJ, 'r.', label='machine 1')
         plt.plot(np.log(xPyH), yPyH, 'k.', label='machine 2')

         plt.title('Python Montecarlo')
         plt.xlabel('Data point size')
         plt.ylabel('Time (seconds)')

         plt.legend()
```
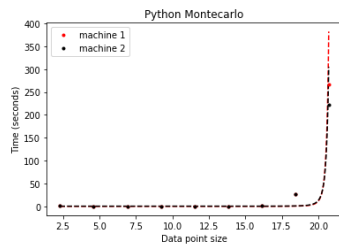
Out[90]: <matplotlib.legend.Legend at 0x11b587cf8>


```
In [92]: dataMCRScalaJader = np.genfromtxt('montecarlo-scalalog-jader.txt', delimiter=',')
         dataMCRScalaHugo = np.genfromtxt('montecarlo-scalalog-hugo.txt', delimiter=',')

         yScalaJ = dataMCRScalaJader[:,0]
         xScalaJ = dataMCRScalaJader[:,1]
         yScalaH = dataMCRScalaHugo[:,0]
         xScalaH = dataMCRScalaHugo[:,1]

         resultScalaJ = exp_regression_xy(xScalaJ, yScalaJ)
         resultScalaH = exp_regression_xy(xScalaH, yScalaH)

         plt.plot(np.log(resultScalaJ[0]), resultScalaJ[1], 'r--')
         plt.plot(np.log(resultScalaH[0]), resultScalaH[1], 'k--')

         plt.plot(np.log(xScalaJ), yScalaJ, 'r.', label='machine 1')
         plt.plot(np.log(xScalaH), yScalaH, 'k.', label='machine 2')

         plt.title('Scala Montecarlo')
         plt.xlabel('Data point size')
         plt.ylabel('Time (seconds)')
         plt.legend()
```
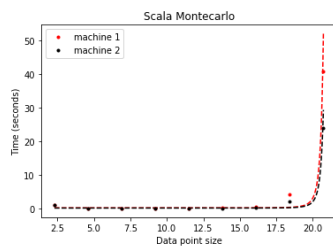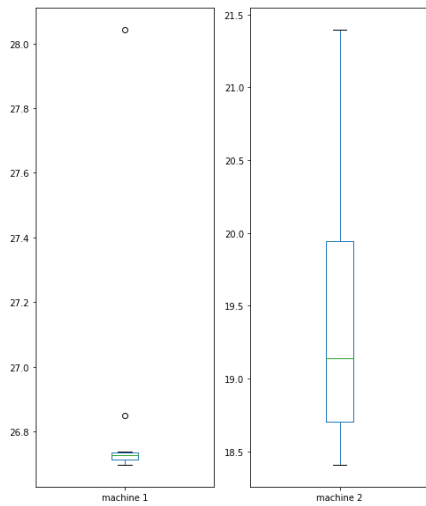
Out[92]: <matplotlib.legend.Legend at 0x11b8579b0>

```python
dfMCPareadoJader = pd.read_csv('pareado-mc-jader.txt', names=['machine 1', 'scala'])
del dfMCPareadoJader['scala']
dfMCPareadoHugo = pd.read_csv('pareado-mc-hugo.txt', names=['machine 2', 'scala'])
del dfMCPareadoHugo['scala']
dfPython = pd.concat([dfMCPareadoJader, dfMCPareadoHugo])
dfPython.plot(kind='box', figsize=(8, 10), subplots=True, title='Python Montecarlo')
```

Out[165]: machine 1   AxesSubplot(0.125,0.125;0.352273x0.755)
          machine 2   AxesSubplot(0.547727,0.125;0.352273x0.755)
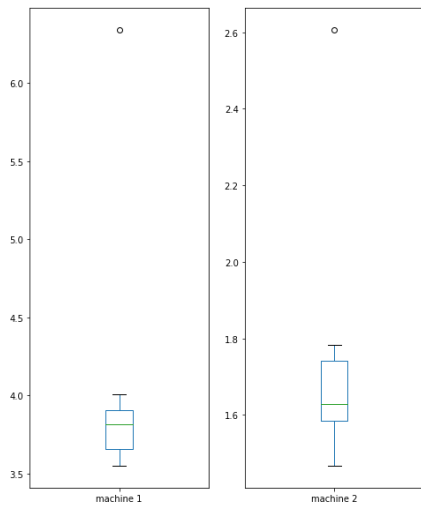   dtype: object

In [166]:

```python
dfMCPareadoJader = pd.read_csv('pareado-mc-jader.txt', names=['python', 'machine 1'])
del dfMCPareadoJader['python']
dfMCPareadoHugo = pd.read_csv('pareado-mc-hugo.txt', names=['python', 'machine 2'])
del dfMCPareadoHugo['python']
dfPython = pd.concat([dfMCPareadoJader, dfMCPareadoHugo])

dfPython.plot(kind='box', figsize=(8, 10), subplots=True, title='Scala Montecarlo')
```
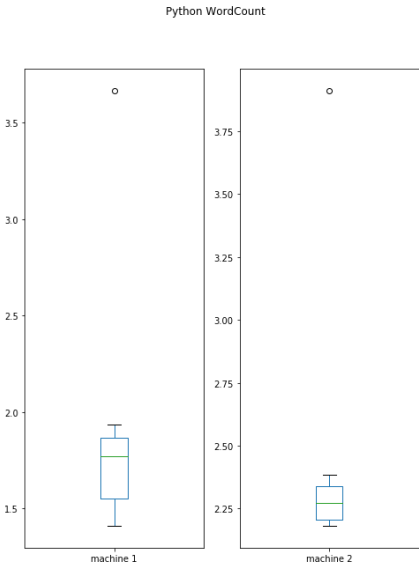
Out[166]: machine 1   AxesSubplot(0.125,0.125;0.352273x0.755)
          machine 2   AxesSubplot(0.547727,0.125;0.352273x0.755)
          dtype: object

```
In [168]: dfWCPareadoJader = pd.read_csv('pareado-wc-jader.txt', names=['machine 1', 'scala'])
          del dfWCPareadoJader['scala']
          dfWCPareadoHugo = pd.read_csv('pareado-wc-hugo.txt', names=['machine 2', 'scala'])
          del dfWCPareadoHugo['scala']
          dfPython = pd.concat([dfWCPareadoJader, dfWCPareadoHugo])
          dfPython.plot(kind='box', figsize=(8, 10), subplots=True, title='Python WordCount')
```

Out[168]: machine 1   AxesSubplot(0.125,0.125;0.352273x0.755)
          machine 2   AxesSubplot(0.547727,0.125;0.352273x0.755)
          dtype: object

Python WordCount

```
In [169]: dfWCPareadoJader = pd.read_csv('pareado-wc-jader.txt', names=['python', 'machine 1'])
          del dfWCPareadoJader['python']
          dfWCPareadoHugo = pd.read_csv('pareado-wc-hugo.txt', names=['python', 'machine 2'])
          del dfWCPareadoHugo['python']
          dfPython = pd.concat([dfWCPareadoJader, dfWCPareadoHugo])

          dfPython.plot(kind='box', figsize=(8, 10), subplots=True, title='Scala WordCount')
```

Out[169]: machine 1   AxesSubplot(0.125,0.125;0.352273x0.755)
          machine 2   AxesSubplot(0.547727,0.125;0.352273x0.755)
          dtype: object

Scala WordCount