In [1]:

```
## numpy is used for creating fake data
import numpy as np
import matplotlib as mpl

## agg backend is used to create plot as a .png file
mpl.use('agg')

import matplotlib.pyplot as plt
%matplotlib inline
plt.rcParams['figure.figsize'] = (12,8)
```

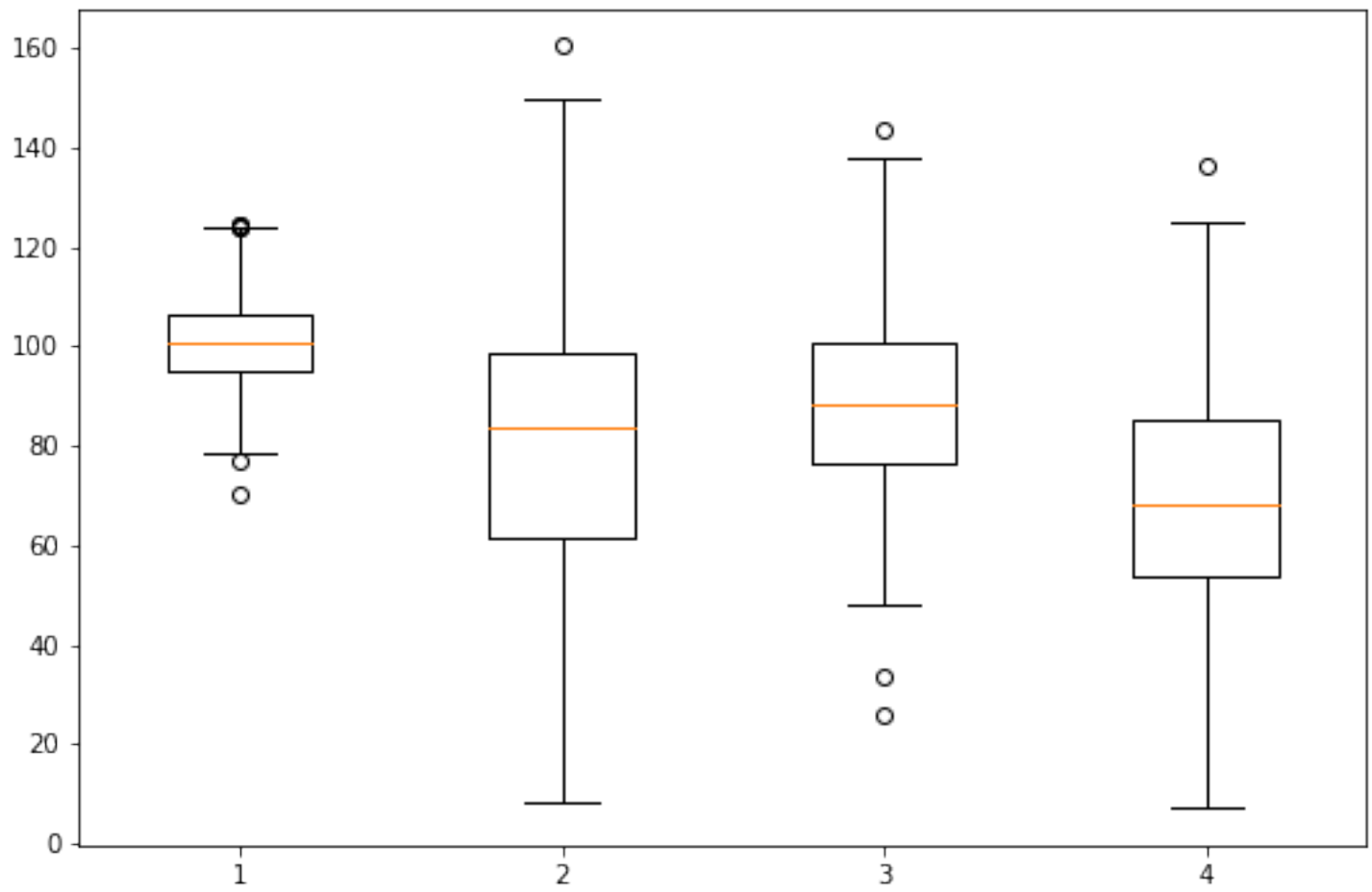
In [2]:

```
## Create data
np.random.seed(10)
collectn_1 = np.random.normal(100, 10, 200)
collectn_2 = np.random.normal(80, 30, 200)
collectn_3 = np.random.normal(90, 20, 200)
collectn_4 = np.random.normal(70, 25, 200)

## combine these different collections into a list
data_to_plot = [collectn_1, collectn_2, collectn_3, collectn_4]
```

In [3]:

```
# Create a figure instance
fig = plt.figure(1, figsize=(9, 6))

# Create an axes instance
ax = fig.add_subplot(111)

# Create the boxplot
bp = ax.boxplot(data_to_plot)

fig.show()
# Save the figure
#fig.savefig('fig1.png', bbox_inches='tight')
```

```
/Library/Frameworks/Python.framework/Versions/3.6/lib/python3.6/site
-packages/matplotlib/figure.py:418: UserWarning: matplotlib is curre
ntly using a non-GUI backend, so cannot show the figure
  "matplotlib is currently using a non-GUI backend, "
```

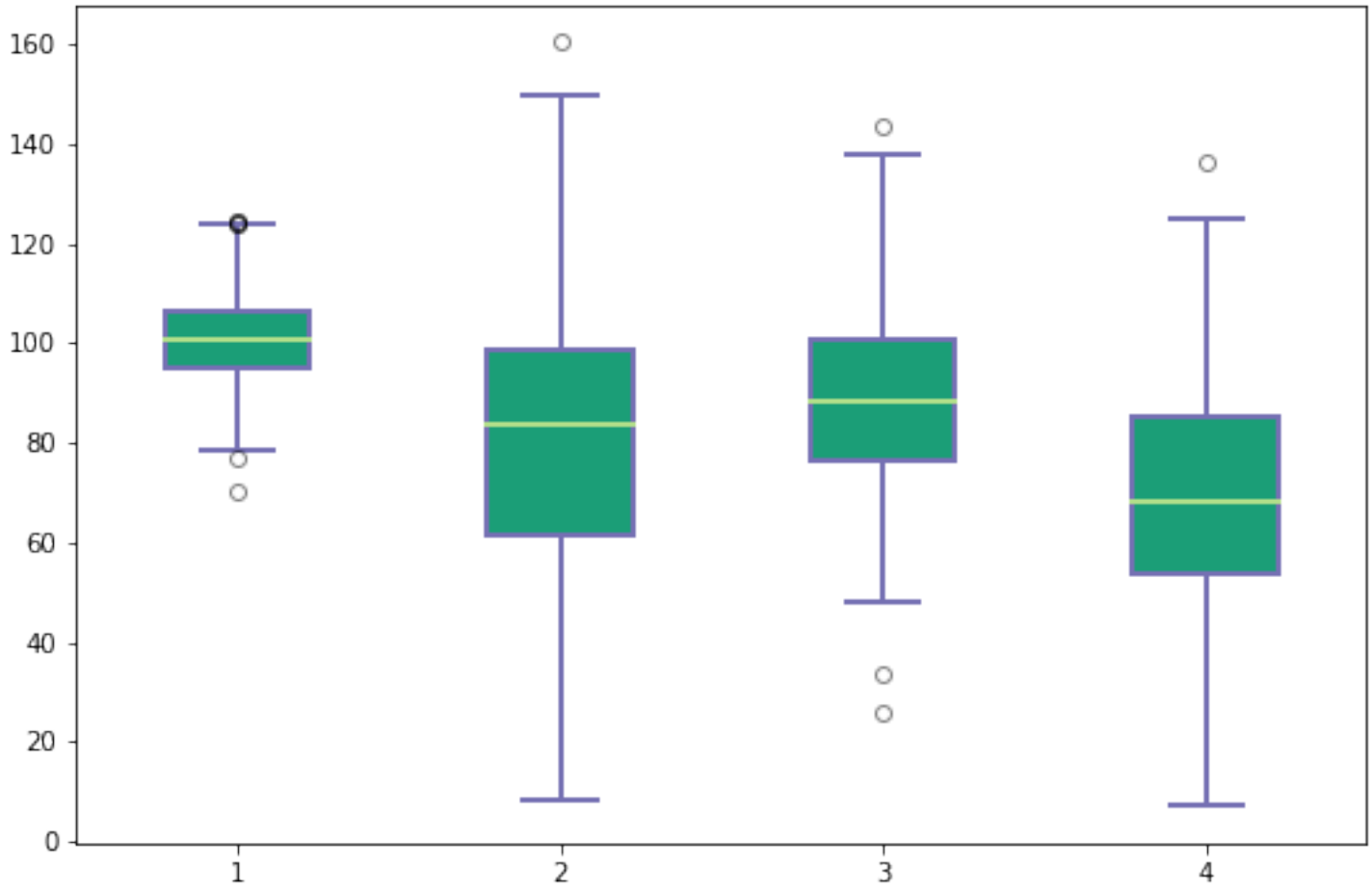


In [4]:

```
# Create a figure instance
fig = plt.figure(1, figsize=(9, 6))

# Create an axes instance
ax = fig.add_subplot(111)
## add patch_artist=True option to ax.boxplot()
## to get fill color
bp = ax.boxplot(data_to_plot, patch_artist=True)

## change outline color, fill color and linewidth of the boxes
for box in bp['boxes']:
```

```
    # change outline color
    box.set( color='#7570b3', linewidth=2)
    # change fill color
    box.set( facecolor = '#1b9e77' )

## change color and linewidth of the whiskers
for whisker in bp['whiskers']:
    whisker.set(color='#7570b3', linewidth=2)

## change color and linewidth of the caps
for cap in bp['caps']:
    cap.set(color='#7570b3', linewidth=2)

## change color and linewidth of the medians
for median in bp['medians']:
    median.set(color='#b2df8a', linewidth=2)

## change the style of fliers and their fill
for flier in bp['fliers']:
    flier.set(marker='o', color='#e7298a', alpha=0.5)

fig.show()
```

```
/Library/Frameworks/Python.framework/Versions/3.6/lib/python3.6/site
-packages/matplotlib/figure.py:418: UserWarning: matplotlib is curre
ntly using a non-GUI backend, so cannot show the figure
  "matplotlib is currently using a non-GUI backend, "
```

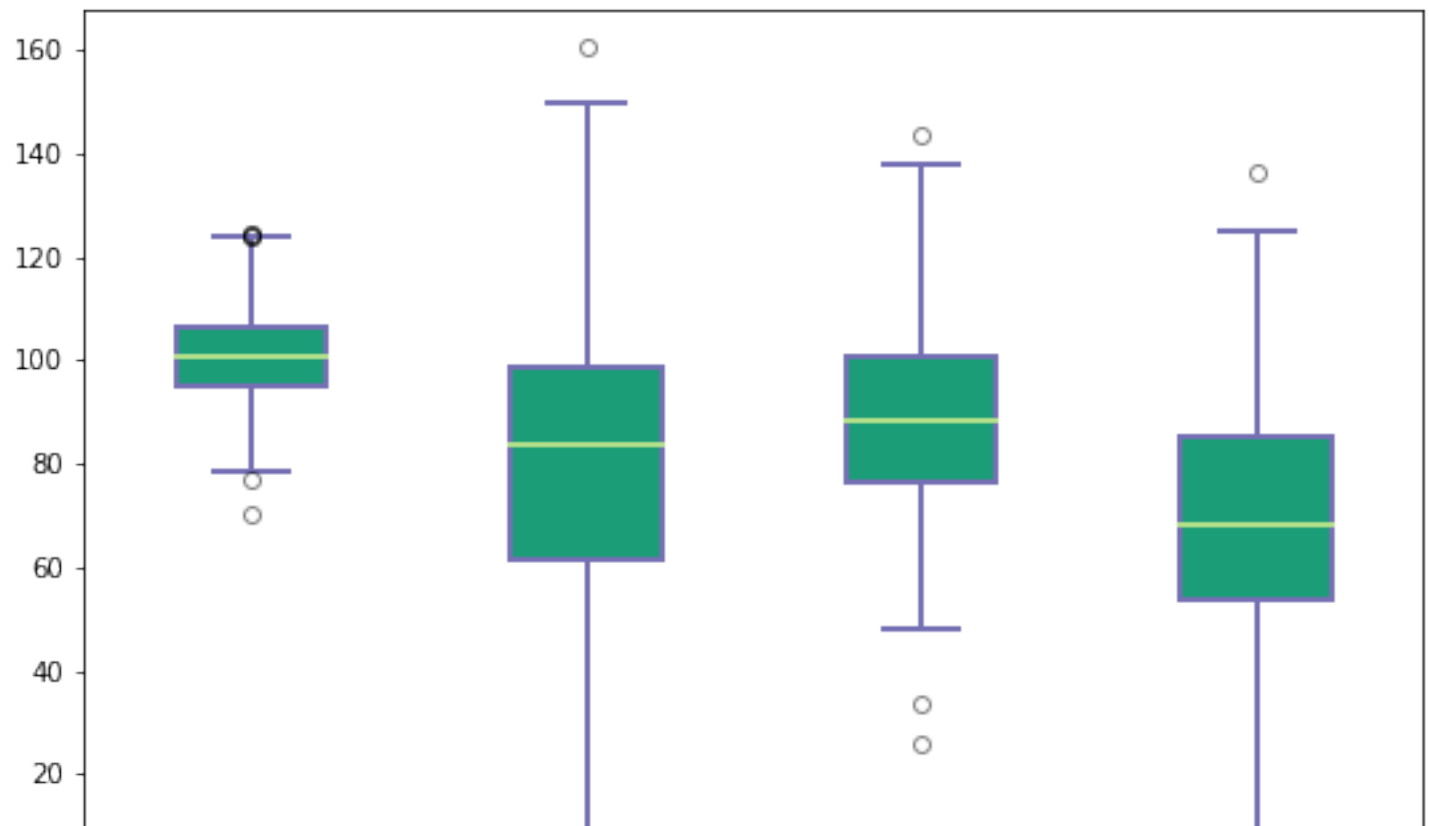


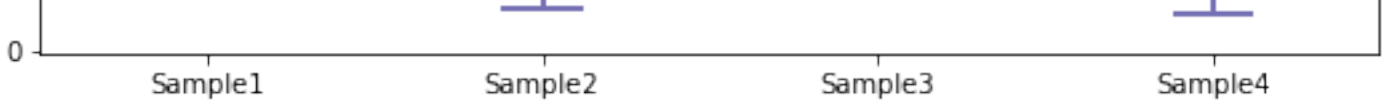
In [5]:

```
# Create a figure instance
fig = plt.figure(1, figsize=(9, 6))

# Create an axes instance
```

```
ax = fig.add_subplot(111)
## add patch_artist=True option to ax.boxplot()
## to get fill color
bp = ax.boxplot(data_to_plot, patch_artist=True)

## change outline color, fill color and linewidth of the boxes
for box in bp['boxes']:
    # change outline color
    box.set( color='#7570b3', linewidth=2)
    # change fill color
    box.set( facecolor = '#1b9e77' )

## change color and linewidth of the whiskers
for whisker in bp['whiskers']:
    whisker.set(color='#7570b3', linewidth=2)

## change color and linewidth of the caps
for cap in bp['caps']:
    cap.set(color='#7570b3', linewidth=2)

## change color and linewidth of the medians
for median in bp['medians']:
    median.set(color='#b2df8a', linewidth=2)

## change the style of fliers and their fill
for flier in bp['fliers']:
    flier.set(marker='o', color='#e7298a', alpha=0.5)

ax.set_xticklabels(['Sample1', 'Sample2', 'Sample3', 'Sample4'])
ax.get_xaxis().tick_bottom()
ax.get_yaxis().tick_left()

fig.show()
```

```
/Library/Frameworks/Python.framework/Versions/3.6/lib/python3.6/site
-packages/matplotlib/figure.py:418: UserWarning: matplotlib is curre
ntly using a non-GUI backend, so cannot show the figure
  "matplotlib is currently using a non-GUI backend, "
```





In [ ]: