Tutorial 10 homework

In this homework, you'll make a figure containing a scatter plot with marginal histograms similar to what we made earlier. Now, however, we have a few more tools at our disposal so we can probably make a better figure.

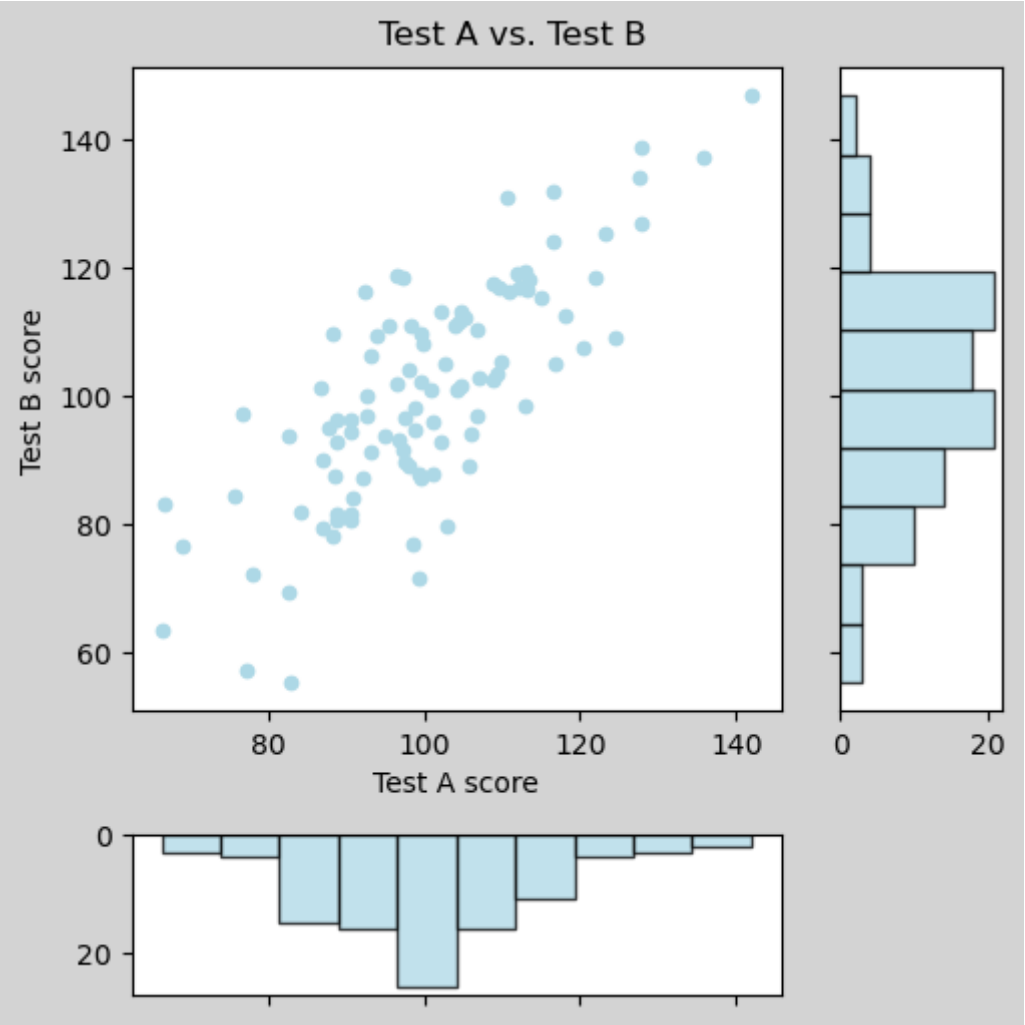
Here is some code to make a simulated data consisting of the scores on two tests (A and B) taken by 100 people.

In [3]:
```
import numpy as np
import matplotlib.pyplot as plt

my_rng = np.random.default_rng(seed = 42)
test_a = my_rng.normal(100, 15, (100,1))
test_b = test_a + my_rng.normal(0, 10, test_a.shape)
```

Let's make a figure featuring a scatter plot of the scores against one another, along with two supporting panels showing the histograms of the two test scores.

An example figure would look something like this:



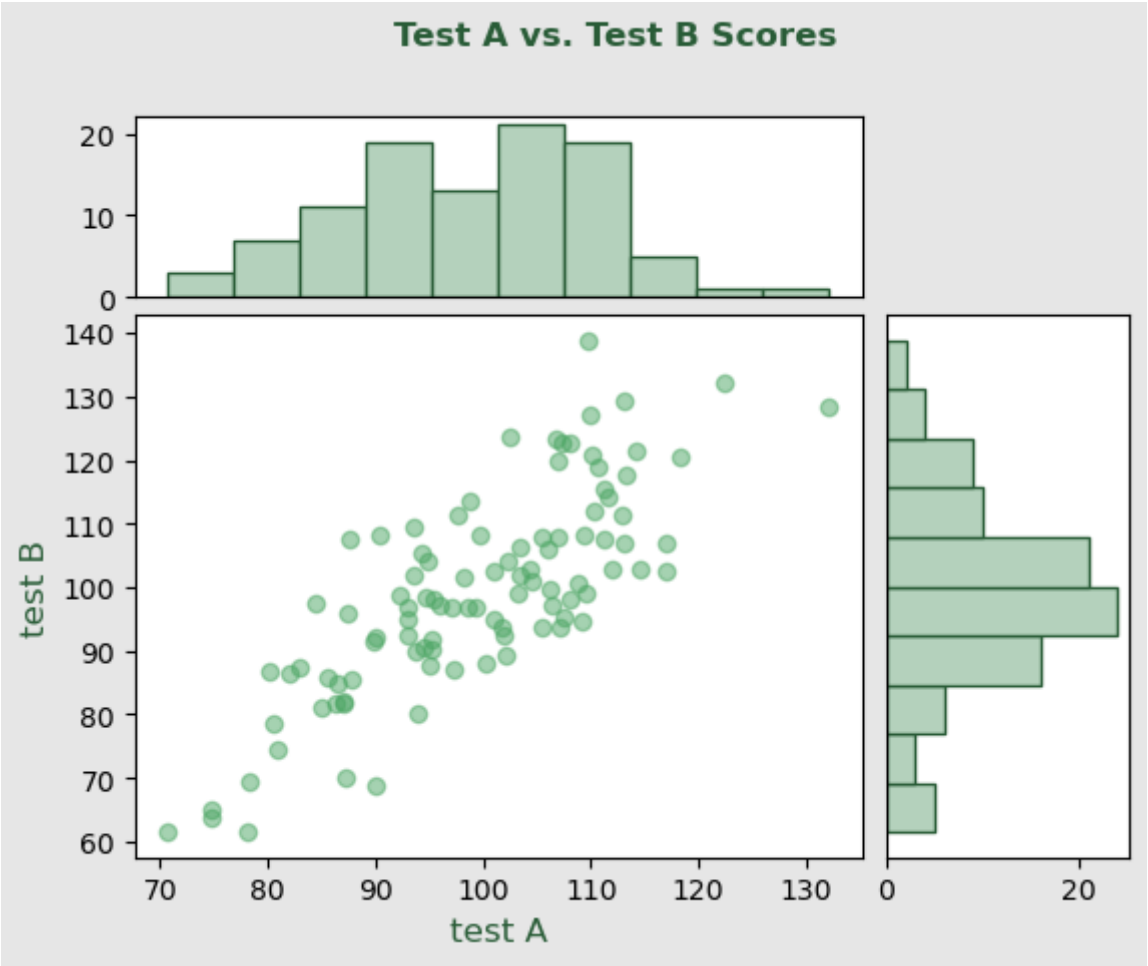
But your goal isn't to make a figure that looks exactly like this; your goal is to make a figure that looks better than this!

In [37]:
```
#
gs_kw = dict(width_ratios = [3,1],
             height_ratios = [1,3],
             wspace=0.05,hspace=0.05)

# make a figure with 4 subplots
fig, axd = plt.subplot_mosaic([['testAhist', 'blank'],
                               ['scatter', 'testBhist']],
                               gridspec_kw=gs_kw)

# plot the data
axd['testAhist'].hist(test_a, color='#b4d1bc', edgecolor='#295c37')
axd['blank'].set_axis_off() # turn of the second plot
axd['scatter'].scatter(test_a, test_b, alpha=0.5, color='#4ca664')
axd['testBhist'].hist(test_b, orientation='horizontal', color='#b4d1bc', ed


# annotations
axd['testAhist'].set_xticks([])
axd['testBhist'].set_yticks([])
axd['scatter'].set_xlabel('test A', fontsize=12, color='#295c37')
axd['scatter'].set_ylabel('test B', fontsize=12, color='#295c37')
fig.suptitle('Test A vs. Test B Scores', weight='bold', color='#295c37') #
fig.set_facecolor((0.9, 0.9, 0.9))
```



In [ ]: