```
using downsample method i did this assignment


import numpy as np
from scipy import ndimage

def block_mean(ar, fact):
    assert isinstance(fact, int), type(fact)
    sx, sy = ar.shape
    X, Y = np.ogrid[0:sx, 0:sy]
    regions = sy/fact * (X/fact) + Y/fact
    res = ndimage.mean(ar, labels=regions, index=np.arange(regions.max() + 1))
    res.shape = (sx/fact, sy/fact)
    return res


from scipy.ndimage import convolve
array_downsampled = convolve(array,
                 np.array([[0.25,0.25],[0.25,0.25]]))[:array.shape[0]:2,:array.shape[1]:2]
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---------------------------------------------------------------------------
NameError                                 Traceback (most recent call last)
<ipython-input-7-104b460ff8ed> in <module>()
      1 from scipy.ndimage import convolve
----> 2 array_downsampled = convolve(array,
      3                  np.array([[0.25,0.25],[0.25,0.25]]))
[:array.shape[0]:2,:array.shape[1]:2]
      4 Share

NameError: name 'array' is not defined
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import xarray as xr
import numpy as np
import matplotlib.pyplot as plt

fig, (ax1, ax2, ax3) = plt.subplots(1, 3, figsize=(15,5))

# Create a 10x10 array of random numbers
a = xr.DataArray(np.random.rand(10,10)*100, dims=['x', 'y'])

# "Downscale" the array, mean of blocks of size (2x2)
b = a.coarsen(x=2, y=2).mean()

# "Downscale" the array, mean of blocks of size (5x5)
c = a.coarsen(x=5, y=5).mean()


# Plot and cosmetics
a.plot(ax=ax1)
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ax1.set_title("Full Data")

b.plot(ax=ax2)
ax2.set_title("mean of (2x2) boxes")

c.plot(ax=ax3)
ax3.set_title("mean of (5x5) boxes")
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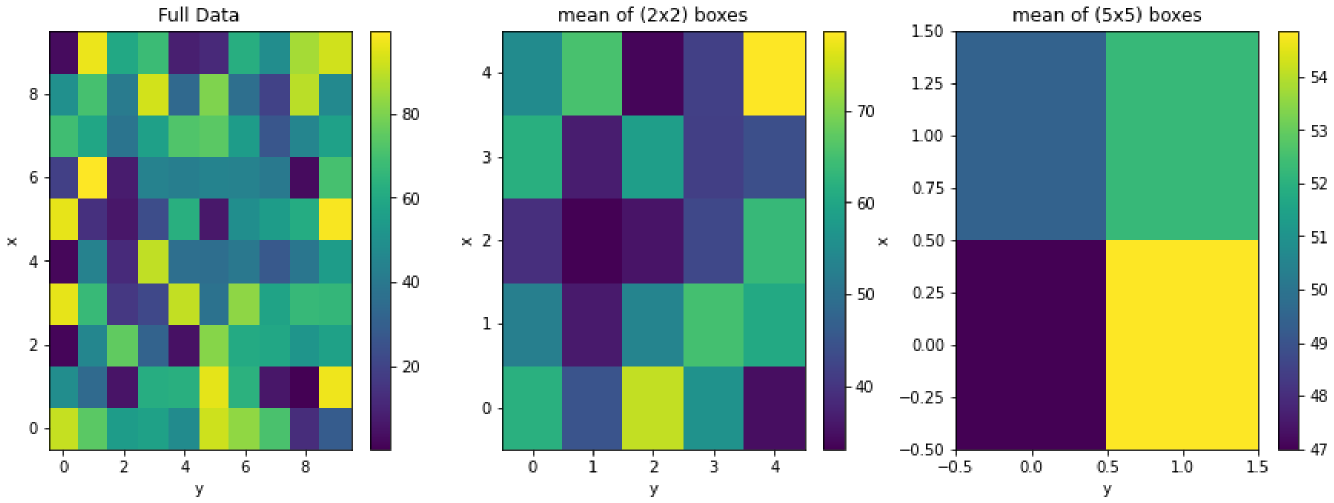
```
    Text(0.5, 1.0, 'mean of (5x5) boxes')
```



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