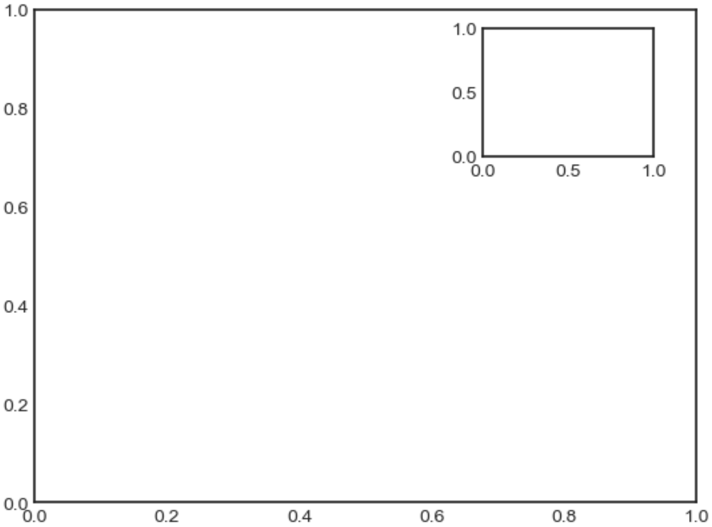
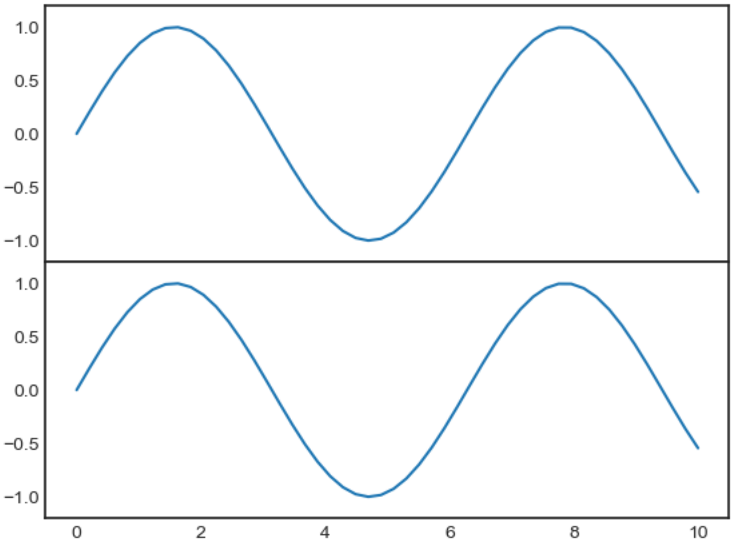
In [3]:
```
%matplotlib inline
import matplotlib.pyplot as plt
plt.style.use("seaborn-white")
import numpy as np
```

In [5]:
```
#subplots by hand by using plt.axes
#plt.axes([left,bottom,width,height]) will plot another graph at the postion represented by list argument
ax1=plt.axes()
ax2=plt.axes([0.65,0.65,0.2,0.2])#precentage representation
```



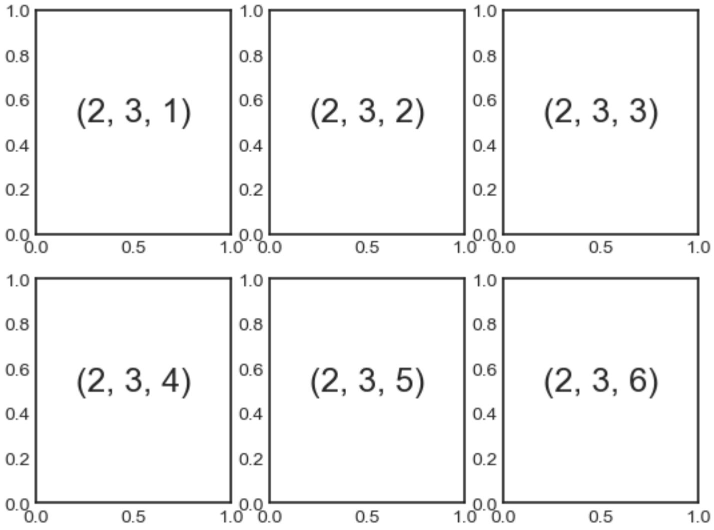
In [13]:
```
#equivalent of above method in object oriented interface
fig=plt.figure()
ax1=fig.add_axes([0.1, 0.5, 0.8, 0.4],ylim=(-1.2,1.2))
ax2=fig.add_axes([0.1, 0.1, 0.8, 0.4],ylim=(-1.2,1.2))#add_axes will add new axes
x=np.linspace(0,10)
ax1.plot(x,np.sin(x))#plotting sine wave in axis 1
ax2.plot(x,np.sin(x))#plotting cos wave in axis 2
```

Out[13]:
```
[<matplotlib.lines.Line2D at 0x19e91f28220>]
```



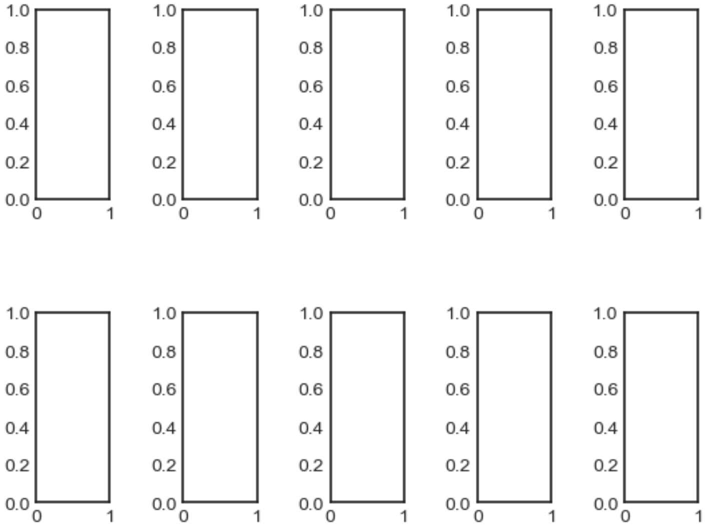
In [14]:

```
#using subplot to represent simple grids of subplots
#sample program for concept
for i in range(1, 7):
    plt.subplot(2, 3, i)#number of rowsi is 2 and number of columns is 3
    plt.text(0.5, 0.5, str((2, 3, i)),fontsize=18, ha='center')
#for object oriented approach use add_subplot
fig = plt.figure()
fig.subplots_adjust(hspace=0.4, wspace=0.4)#hspace for space along height and wspace for space along width
for i in range(1, 7):
    ax = fig.add_subplot(2, 3, i)
    ax.text(0.5, 0.5, str((2, 3, i)),fontsize=18, ha='center')
```



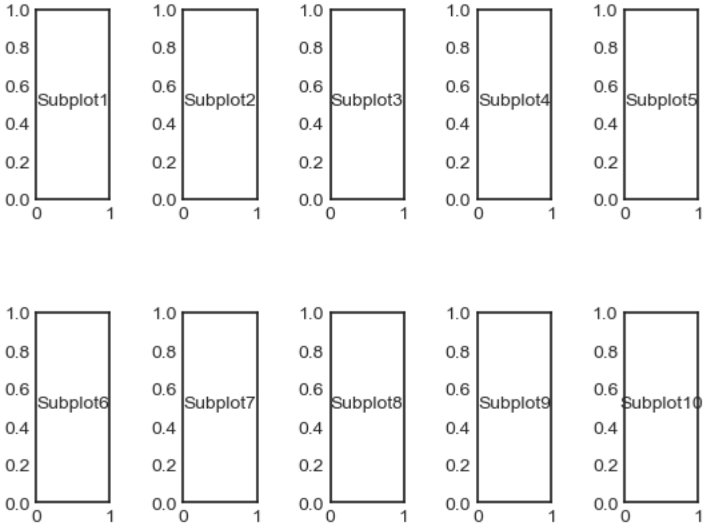
In [23]:

```
#plotting 10 subplots in matlab style
plt.subplots_adjust(hspace=0.6,wspace=1)
for i in range(1,11):
    plt.subplot(2,5,i)#third coordinate must always be greater than 1
```



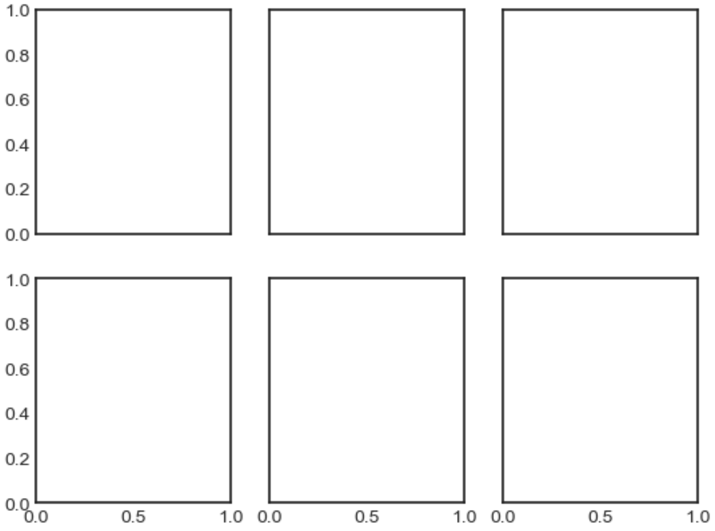
In [30]:

```
#plotting 10 subplots in object oriented style
fig=plt.figure()
fig.subplots_adjust(hspace=0.6,wspace=1)
for i in range(1,11):
    ax=fig.add_subplot(2,5,i)#third coordinate must always be greater than 1
    ax.text(0.5,0.5,"Subplot"+str(i),ha="center")
```



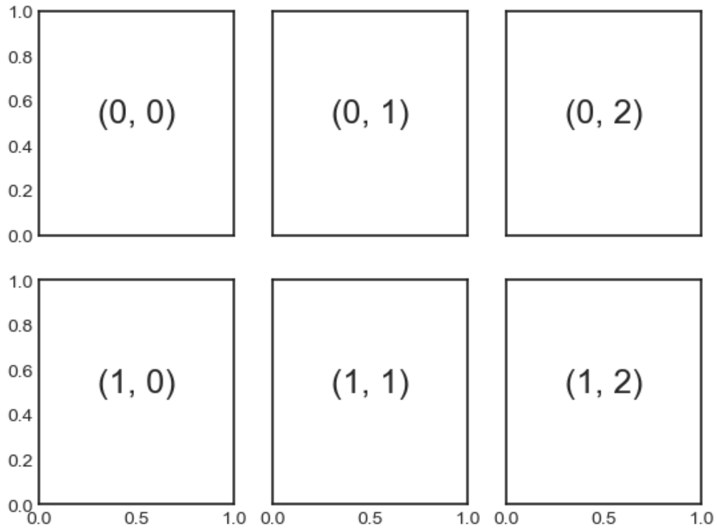
In [35]:

```
#using plt.subplots
fig,ax=plt.subplots(2,3,sharex="col",sharey="row")#all axes in the same row share y-axis scale,x-axis share same column
#resulting grid of axes has returned a numpy array
```



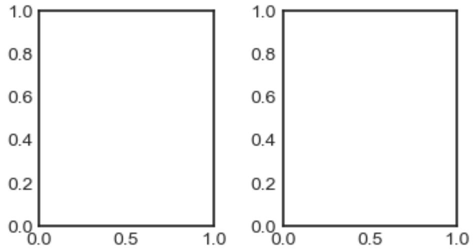
In [36]:
```
# axes are in a two-dimensional array, indexed by [row, col]
for i in range(2):
    for j in range(3):
        ax[i, j].text(0.5, 0.5, str((i, j)),fontsize=18, ha='center')
fig
```

Out[36]:



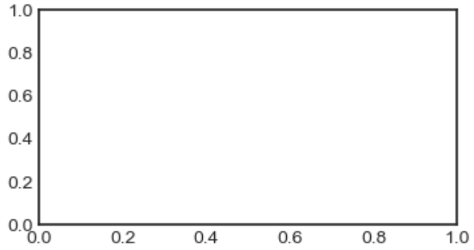
In [59]:
```
#advanced method GridSpec
grid=plt.GridSpec(2,3,wspace=0.4,hspace=0.3)
plt.subplot(grid[0,0])
plt.subplot(grid[0,1])
```

Out[59]:
```
<AxesSubplot:>
```



In [60]:
```
plt.subplot(grid[0,0:2])
```

Out[60]:
```
<AxesSubplot:>
```


1.0
0.8
0.6
0.4
0.2
0.0
0.0
0.2
0.4
0.6
0.8
1.0