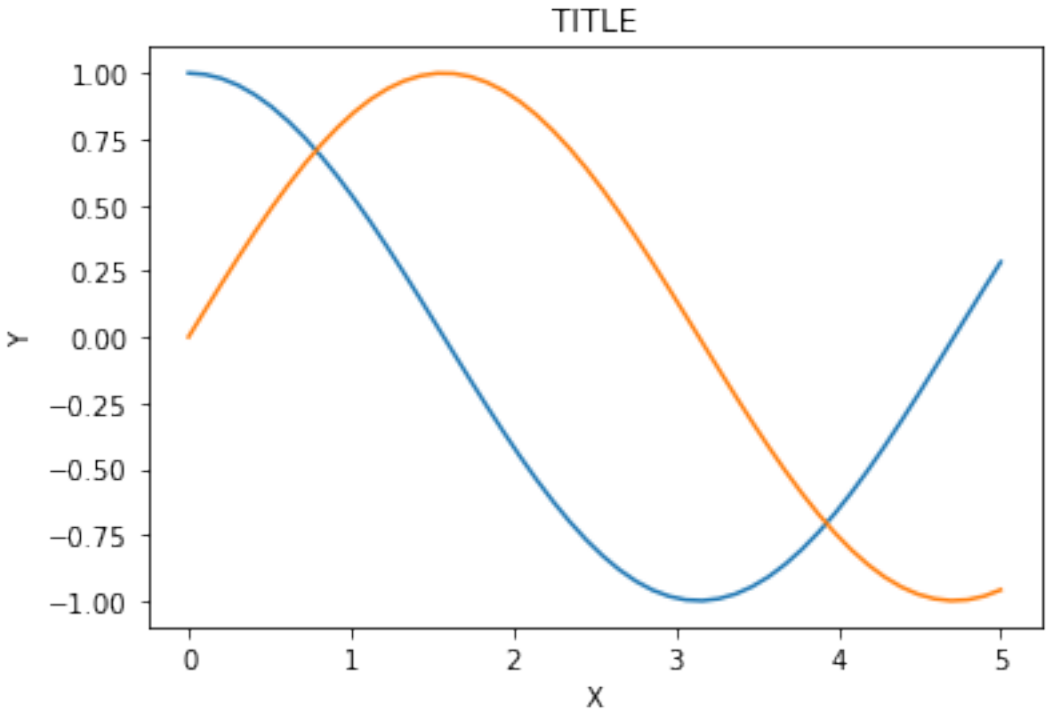
visualization

April 14, 2019

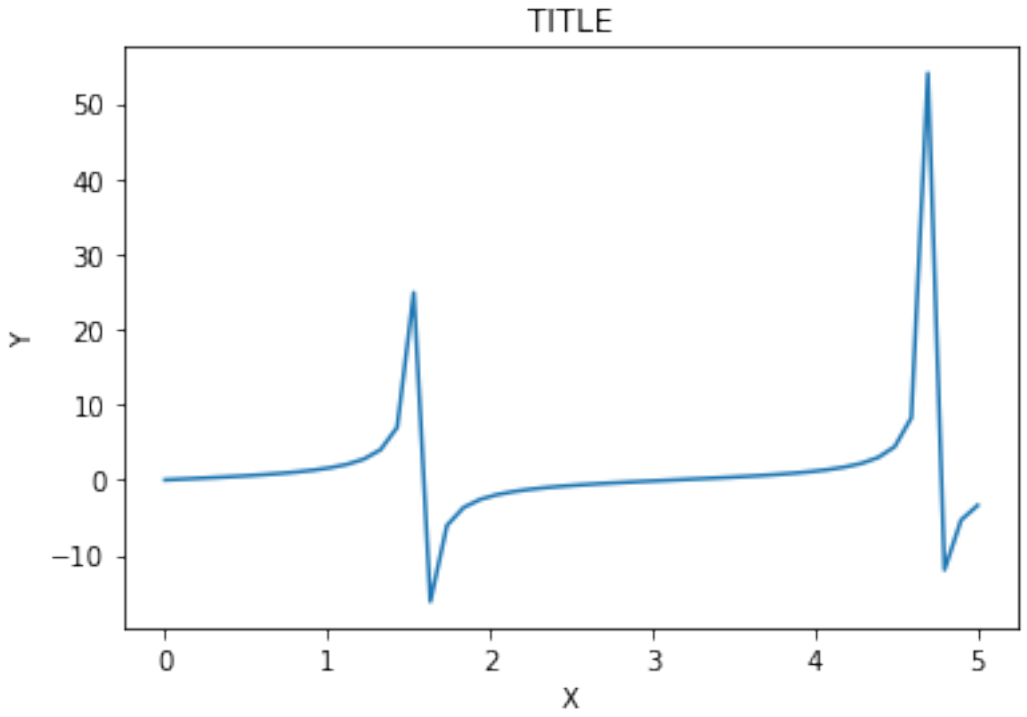
```
In [1]: %matplotlib inline
        import numpy as np
        import matplotlib.pyplot as plt
        import matplotlib as mpl
```

```
In [2]: x = np.linspace(0,5,50)
        y_cos = np.cos(x)
        y_sin = np.sin(x)
        y_tan = np.tan(x)
```

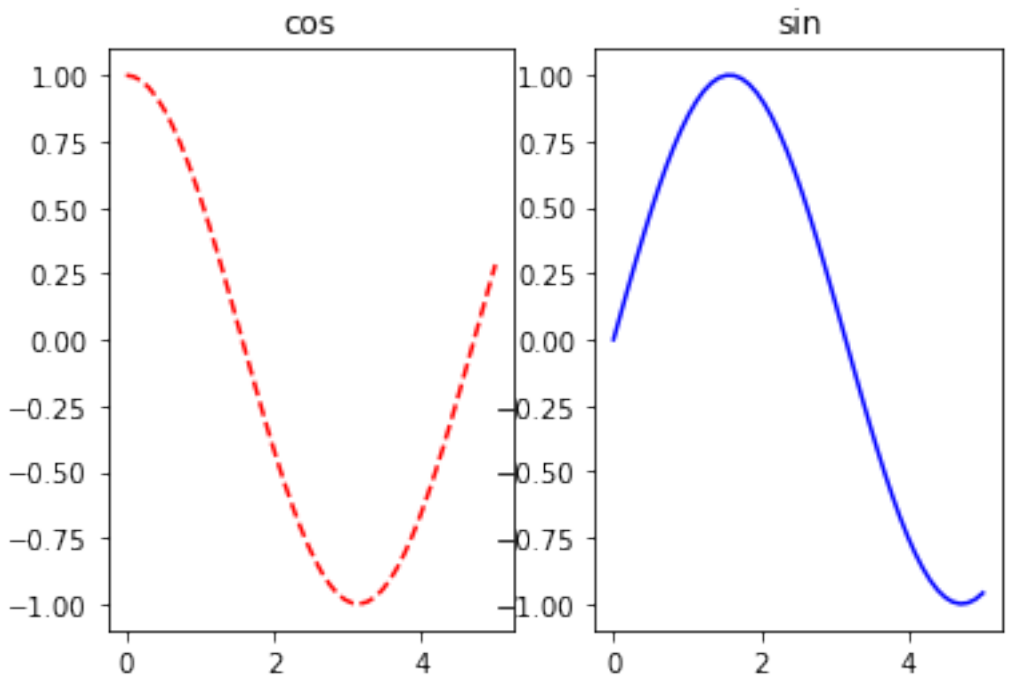
```
In [3]: plt.figure()
        plt.plot(x, y_cos)
        plt.plot(x, y_sin)
        plt.xlabel('X')
        plt.ylabel('Y')
        plt.title("TITLE")
        plt.show()
```



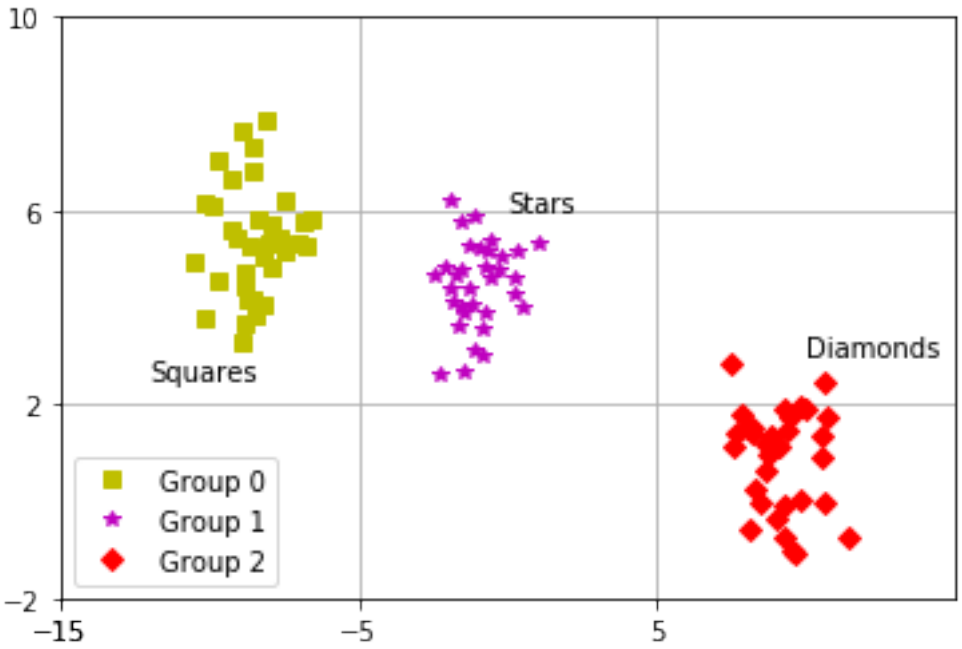
In [4]:
```
plt.figure()
plt.plot(x, y_tan)
plt.xlabel('X')
plt.ylabel('Y')
plt.title("TITLE")
plt.show()
```



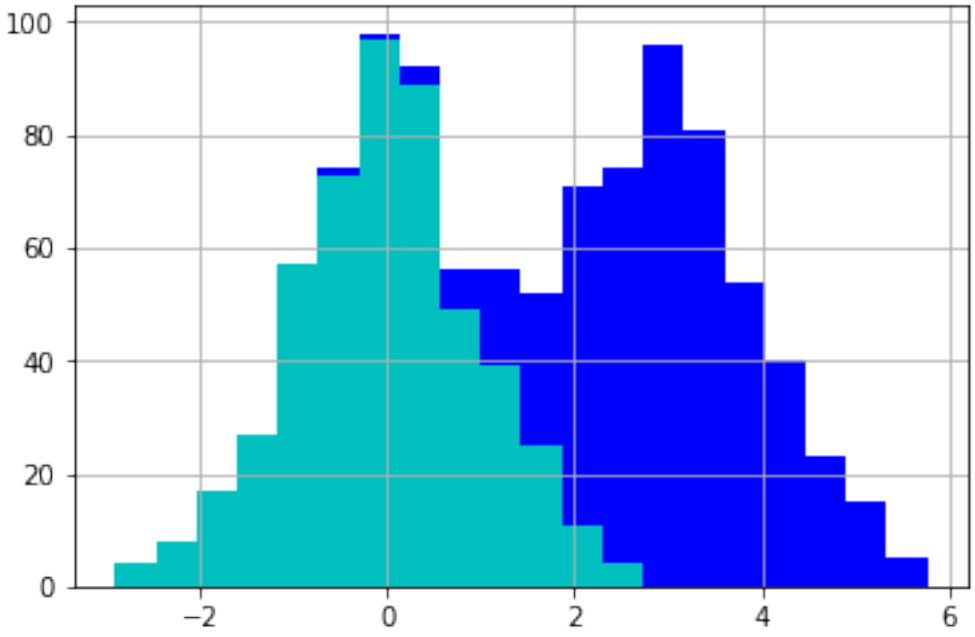
In [5]:
```
plt.subplot(1,2,1)
plt.plot(x,y_cos,'r--')
plt.title('cos')
plt.subplot(1,2,2)
plt.plot(x,y_sin,'b-')
plt.title('sin')
plt.show()
```



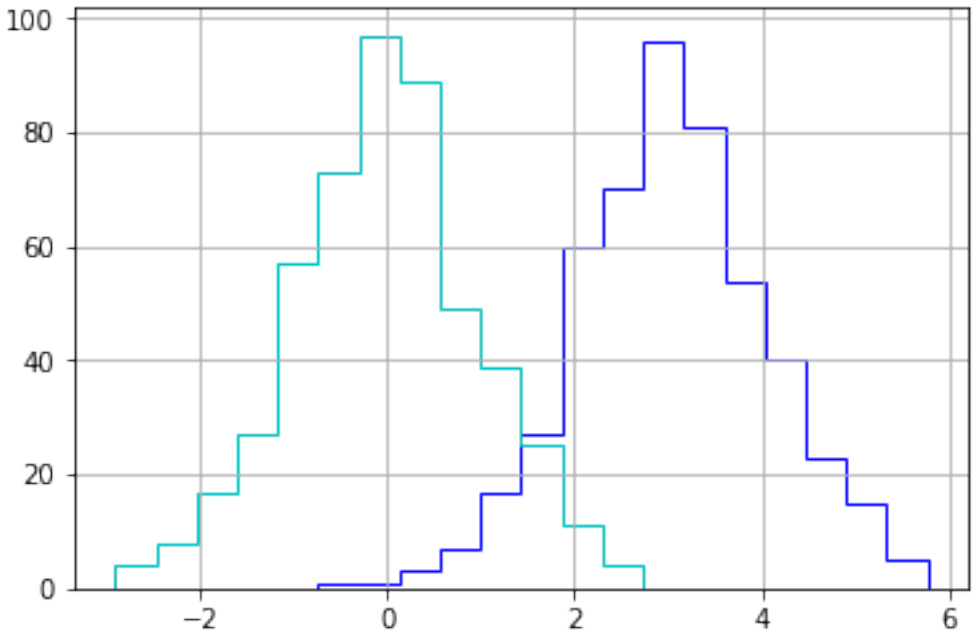

```
In [6]: from sklearn.datasets import make_blobs
        D = make_blobs(n_samples=100,n_features=2, centers=3, random_state=7)
        groups = D[1]
        coordinates = D[0]
        plt.plot(coordinates[groups==0,0],coordinates[groups==0,1],'ys',label="Group 0")
        plt.plot(coordinates[groups==1,0],coordinates[groups==1,1],'m*',label="Group 1")
        plt.plot(coordinates[groups==2,0],coordinates[groups==2,1],'rD',label="Group 2")
        plt.ylim(-2,10)
        plt.xlim(-15,15)
        plt.yticks([10,6,2,-2])
        plt.xticks([-15,-5,5,-15])
        plt.grid()
        plt.annotate("Squares",(-12,2.5))
        plt.annotate("Stars",(0,6))
        plt.annotate("Diamonds",(10,3))
        plt.legend(loc='lower left',numpoints=1)
        plt.show()
```



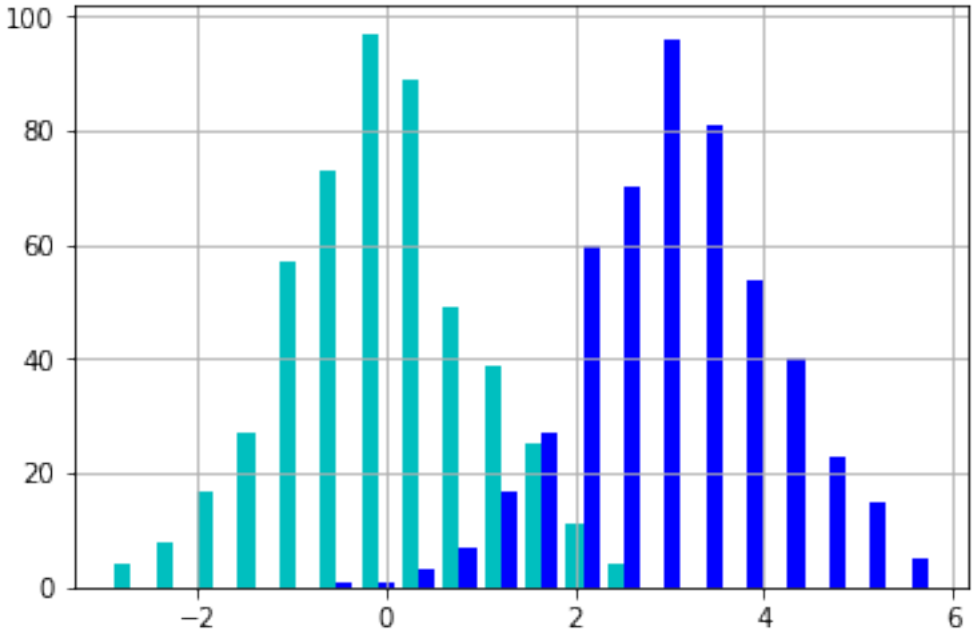
In [7]:
```
x = np.random.normal(loc=0.0,scale=1.0, size=500)
z = np.random.normal(loc=3.0,scale=1.0, size=500)
plt.hist(np.column_stack((x,z)),bins=20,histtype='bar',color=['c','b'], stacked=True)
plt.grid()
plt.show()
```



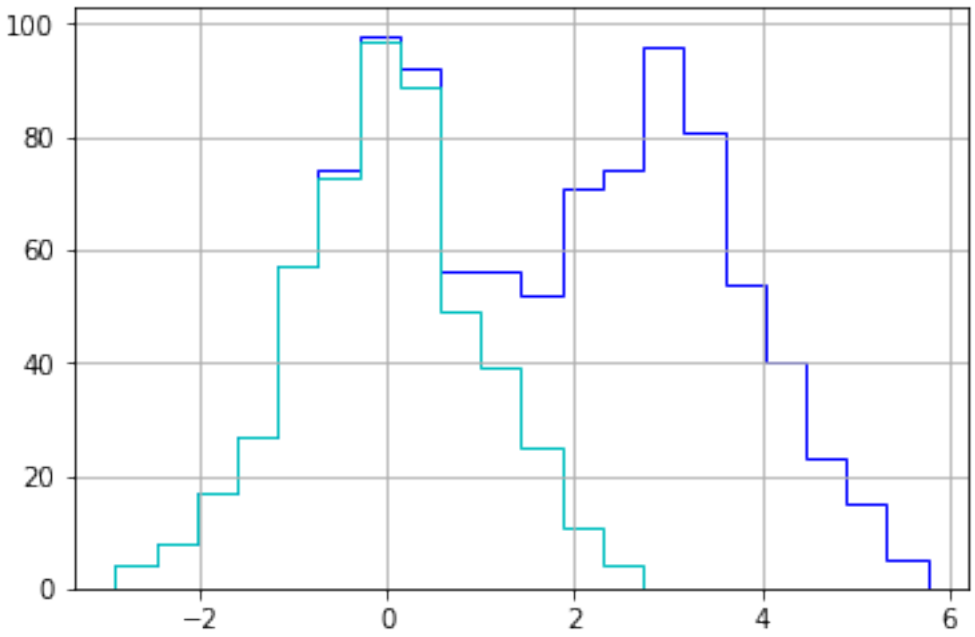
In [8]:
```
plt.hist(np.column_stack((x,z)),bins=20,histtype='step',color=['c','b'], stacked=False)
plt.grid()
plt.show()
```



In [9]:
```
plt.hist(np.column_stack((x,z)),bins=20,histtype='bar',color=['c','b'], stacked=False)
plt.grid()
plt.show()
```



In [10]:
```
plt.hist(np.column_stack((x,z)),bins=20,histtype='step',color=['c','b'], stacked=True)
plt.grid()
plt.show()
```



In [ ]: