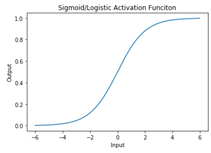
**Activation Function - Sigmoid/Logistic**

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

x=np.arange(-6,6,0.01)
y=1/(1+np.exp(-x))
plt.plot(x,y)
plt.title('Sigmoid/Logistic Activation Funciton')
plt.xlabel('Input')
plt.ylabel('Output')
```

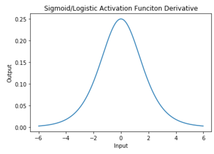
Out[1]: Text(0, 0.5, 'Output')




**Activation Function - Sigmoid/Logistic's Derivative**

In [2]:
```
y=1/(1+np.exp(-x))
dy=y*(1-y)
plt.plot(x,dy)
plt.title('Sigmoid/Logistic Activation Funciton Derivative')
plt.xlabel('Input')
plt.ylabel('Output')
```

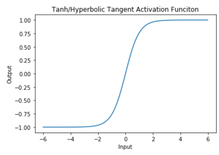
Out[2]: Text(0, 0.5, 'Output')




**Activation Function - Tanh/Hyperbolic Tangent**

In [3]:
```
x=np.arange(-6,6,0.01)
y=(2 / (1+ np.exp(-2*x)))-1
plt.plot(x,y)
plt.title('Tanh/Hyperbolic Tangent Activation Funciton')
plt.xlabel('Input')
plt.ylabel('Output')
```

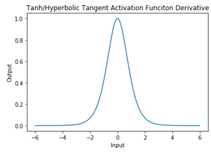
Out[3]: Text(0, 0.5, 'Output')




**Activation Function - Tanh/Hyperbolic Tangent Derivative**

In [4]:
```
dy=1-y**2
plt.plot(x,dy)
plt.title('Tanh/Hyperbolic Tangent Activation Funciton Derivative')
plt.xlabel('Input')
plt.ylabel('Output')
```

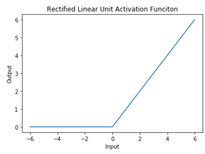
Out[4]: Text(0, 0.5, 'Output')




**Activation Function - ReLu(Rectified Linear Unit)**

In [5]:
```
x=np.arange(-6,6,0.01)
z=np.zeros(len(x))
y=np.maximum(z,x)
plt.plot(x,y)
plt.title('Rectified Linear Unit Activation Funciton')
plt.xlabel('Input')
plt.ylabel('Output')
```

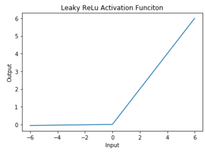
Out[5]: Text(0, 0.5, 'Output')




**Activation Function - Leaky-ReLu**

In [10]:
```
x=np.arange(-6,6,0.01)
y = np.where(x > 0, x, x * 0.01)
plt.plot(x,y)
plt.title('Leaky ReLu Activation Funciton')
plt.xlabel('Input')
plt.ylabel('Output')
```

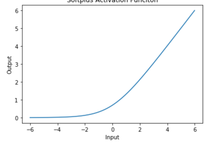
Out[10]: Text(0, 0.5, 'Output')




**Activation Function - Softplus**

In [7]:
```
x=np.arange(-6,6,0.01)
y=np.log(1+ np.exp(x))
plt.plot(x,y)
plt.title('Softplus Activation Funciton')
plt.xlabel('Input')
plt.ylabel('Output')
```

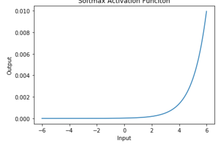
Out[7]: Text(0, 0.5, 'Output')




**Activation Function - Softmax**

In [8]:
```
x=np.arange(-6,6,0.01)
y=np.exp(x - np.max(x))
z=y / y.sum()
plt.plot(x,z)
plt.title('Softmax Activation Funciton')
plt.xlabel('Input')
plt.ylabel('Output')
```

Out[8]: Text(0, 0.5, 'Output')




**Activation Function - ELU(Exponential Linear Units)**

In [9]:
```
def elu(arr, alpha):
    x=np.arange(-6,6,0.01)
    y=np.linspace(0, len(x), len(x))
    a = []
    for x in arr:
        if x >= 0:
            a.append(x)
        else:
            a.append(alpha * (np.exp(x)-1))
    return a

y = elu(x, 1.0)

plt.plot(x, y)
plt.title('Exponential Linear Units Activation Funciton')
plt.xlabel('Input')
plt.ylabel('Output')
```

Out[9]: Text(0, 0.5, 'Output')