interactivefft

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In [1]:
```
import ipywidgets as widgets
import numpy as np
import matplotlib.pyplot as plt
```

In [2]:
```
f1= widgets.FloatSlider(min=100,max=200,step=1,description = "f1")
f2= widgets.FloatSlider(min=100,max=200,step=1,description = "f2")
f3= widgets.FloatSlider(min=100,max=200,step=1,description = "f3")
A1= widgets.FloatSlider(min=100,max=200,step=1,description = "A1")
A2= widgets.FloatSlider(min=100,max=200,step=1,description = "A2")
A3= widgets.FloatSlider(min=100,max=200,step=1,description = "A3")

samples =1024
```

In [3]:
```
def create_data(A1,A2,A3,f1,f2,f3):
    T=10
    samples=1024
    t= np.linspace(0,T,samples)
    data= A1*np.sin(2*np.pi*t*f1) + A2*np.sin(2*np.pi*t*f2)+ A3*np.sin(2*np.pi*t*f3)
    return data

def plot_graph(A1,A2,A3,f1,f2,f3):
    data= create_data(A1,A2,A3,f1,f2,f3)
    fig,ax= plt.subplots()
    ax.plot(data)
    fig.show()
```

In [5]:
```
widgets.interact(plot_graph,A1=A1,A2=A2,A3=A3,f1=f1,f2=f2,f3=f3)
```

```
interactive(children=(FloatSlider(value=100.0, description='A1', max=200.0, min=100.0, step=1.0
```

Out[5]:
```
<function __main__.plot_graph>
```

In [6]:
```
def plot_fft(A1,A2,A3,f1,f2,f3):
    data= create_data(A1,A2,A3,f1,f2,f3)
    fig,ax= plt.subplots()
    ax.plot(np.abs(np.fft.fft(data)))
    fig.show()
```

In [7]:
```
widgets.interact(plot_fft,A1=A1,A2=A2,A3=A3,f1=f1,f2=f2,f3=f3)
```

```
interactive(children=(FloatSlider(value=191.0, description='A1', max=200.0, min=100.0, step=1.0
```

Out[7]:
```
<function __main__.plot_fft>
```