In [1]:
```
# RPT prac 06 B3 I066 Srihari Thyagarajan 8th September
```

In [106]:
```
"""
Consider 2 signals, say signal 1 and signal 2, with frequency 50Hz and 150Hz in t

a) Signal 1
b) Signal 2
c) Signal 1 + Signal 2
d) Signal 1 - Signal 2
Interpret the result.

"""
```

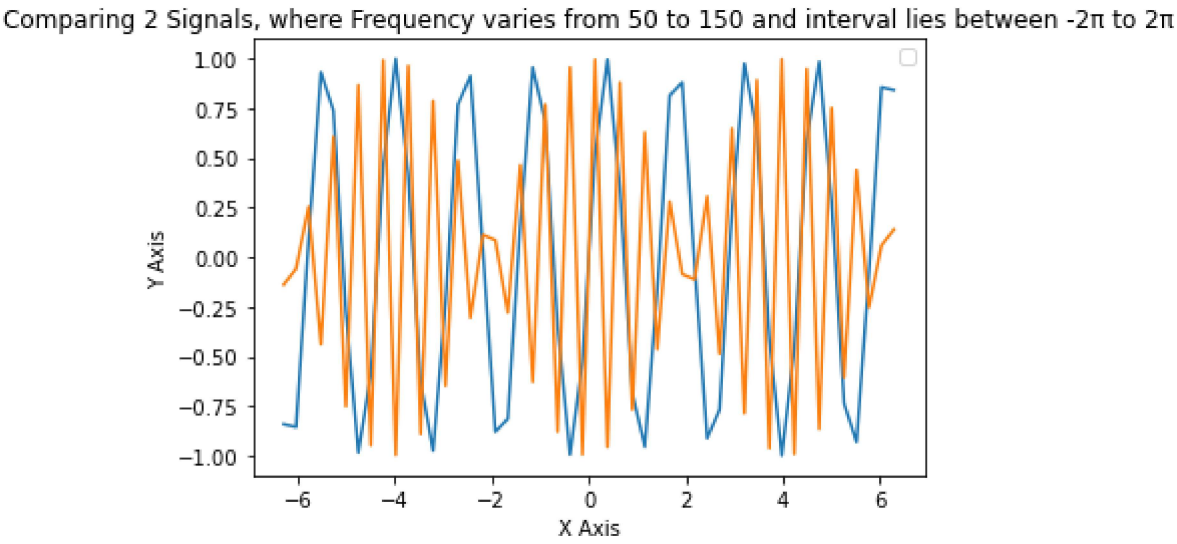
Out[106]:
```
'\nConsider 2 signals, say signal 1 and signal 2, with frequency 50Hz and 150Hz
in the interval (-2π t 2π).\n\na) Signal 1\nb) Signal 2\nc) Signal 1 + Signal 2
\nd) Signal 1 - Signal 2\nInterpret the result.\n\n'
```

In [150]:
```
# import libraries
import numpy as np
import matplotlib.pyplot as plt
import scipy.signal
import math


# importing libraries for playing sound file
from scipy.io.wavfile import read,write
from IPython.display import Audio
from numpy.fft import fft, ifft
from playsound import playsound # This Library is used.
%matplotlib inline
```

In [104]:
```
# Declaring respective variables
F1 = 50
F2 = 150
```

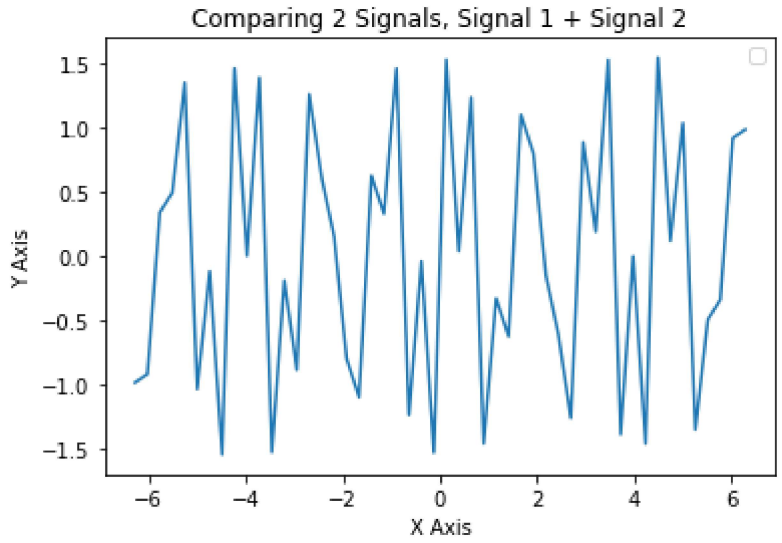
In [152]:
```
# Comparing 2 Signals
t = np.linspace(-2 * math.pi, 2 * math.pi, 50)
x1 = np.sin(F1 * 2 * math.pi * t)

plt.title("Comparing 2 Signals, where Frequency varies from 50 to 150 and interva
plt.xlabel("X Axis")
plt.ylabel("Y Axis")
plt.legend("Signal 1")
plt.plot(t, x1)

x2 = np.sin(F2 * 2 * math.pi * t)
plt.plot(t, x2)
```

Out[152]: [<matplotlib.lines.Line2D at 0x1ad9b52fd00>]



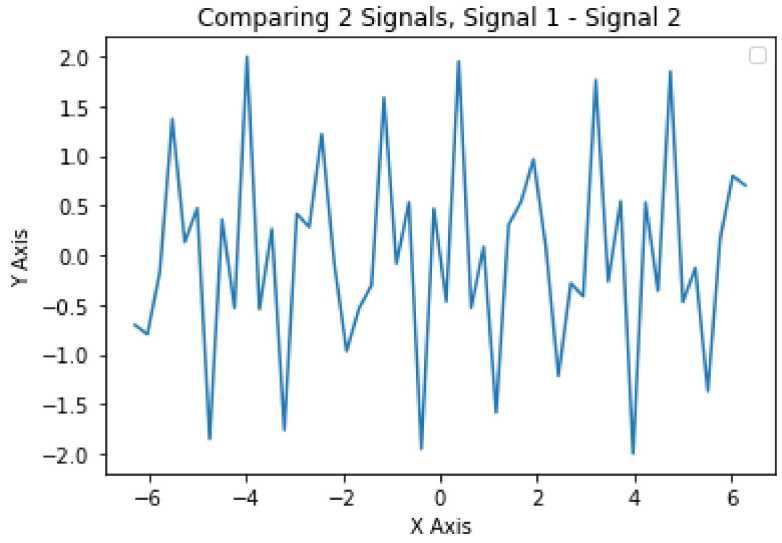
In [153]:
```
# Plotting the 2 signals -
# signal 1 + signal 2

plt.title("Comparing 2 Signals, Signal 1 + Signal 2")
plt.xlabel("X Axis")
plt.ylabel("Y Axis")
plt.legend("Signal 2")

plt.plot(t, x1 + x2)
```

Out[153]: [<matplotlib.lines.Line2D at 0x1ad9b5a2880>]



In [98]:
```
# signal 1 - signal 2
plt.title("Comparing 2 Signals, Signal 1 - Signal 2")
plt.xlabel("X Axis")
plt.ylabel("Y Axis")
plt.legend("Signal 3")
plt.plot(t, x1 - x2)
```

Out[98]: [<matplotlib.lines.Line2D at 0x1ad9aff6640>]



In [*]:
```
from playsound import playsound
playsound('C:/Users/mpstme.student/Downloads/I066_Folder/Experiment_8/audio.wav')
print('playing sound using  playsound')
```

In [*]:
```
Fs, data = read('C:/Users/mpstme.student/Downloads/I066_Folder/Experiment_8/audio
data = data[:,0]
print(Fs)
```

In [154]:
```
# End of the Practical Session.
```