Experiment No: 2.1 **Experiment name:**A Matlab Program for Amplitude Scalling

**Objective:**

For different purpose,we have to scale amplitude increasing decreasing.So,from this lab we learn how a Amplitude can be scaled.

**Source code:**

clear all;

close all;

clc;

n=input('How many inputs ');

for i=1:1:n

y(i)=input('input ');

end

indx=input('Enter zero index');

p=1-indx;

for i=1:1:n

x(i)=p;

p=p+1;

end

subplot(2,1,1)

stem(x,y)

xlabel('Time');

ylabel('Amplitude');

title('Main Function')

i\_d =input('Enter 1 for increase or decrease:');

q = input('Enter scaling value:');

if(i\_d==1)

for i=1:1:n

y(i)=y(i)\*q;

end

else

for i=1:1:n

y(i)=y(i)/q;

end

end

subplot(2,1,2);

stem(x,y)

xlabel('Time');

ylabel('Amplitude');

title('Scaling Function')

**Output:**

How many inputs 4

input 3

input 2

input 6

input 2

Enter zero index3

Enter 1 for increase or decrease:1

Enter scaling value:3

>>

**Figure:**

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**Discussion:**

From the lab we came to know,how an amplitude of a signal can be increased or decreased.The main process of scalling amplitude is , multiplying a constant value with y axis value.In the figure the main signal graph & scalling graph are shown both using **subplot().**

Experiment No: 2.2 **Experiment name:**A Matlab Program for Time Scalling

**Objective:**

For different purpose,we have to scale time of a signal increasing or decreasing.So,from this lab we learn how time can be scaled.

**Source code:**

clc;

clear all;

close all;

n=input('How many inputs: ');

for i=1:1:n

y(i)=input('Input: '); %giving values of y axis

end

a=input('Enter zero index: ');

p=1-a;

for i=1:1:n

x(i)=p; %rearranging x axis

p=p+1;

end

subplot(2,1,1)

stem(x,y)

xlabel('Time');

ylabel('Amplitude');

title('Main Function')

i\_d =input('enter 1 for increase or decrease:');

q = input('enter scaling value:');

if(i\_d==1)

for i=1:1:n

x(i)=x(i)\*q;

end

else

for i=1:1:n

x(i)=x(i)/q;

end

end

subplot(2,1,2);

stem(x,y)

xlabel('Time');

ylabel('Amplitude');

title('Time Scalled Function')

**Output:**

How many inputs: 4

Input: 2

Input: 3

Input: 6

Input: 1

Enter zero index: 2

enter 1 for increase or decrease:1

enter scaling value:3

>>

**Figure:**



**Discussion:**

Basically, when we perform time scaling, we change the rate at which the signal is sampled. Changing the sampling rate of a signal is employed in the field of speech processing.By multiplying a constant with x axis values,we get a time scaled function.In the figure the main signal graph & scalling graph are shown both.

Experiment No: 2.3 **Experiment name:**A Matlab Program for Time Revarsal

**Objective:**

For different purpose,we need time revarsal of a signal.So,from this lab we learn how time can be revarsed.

**Source code:**

clc;

clear all;

close all;

n=input('How many inputs: ');

for i=1:1:n

y(i)=input('Input: '); %giving values of y axis

end

a=input('Enter zero index: ');

p=1-a;

for i=1:1:n

x(i)=p; %rearranging x axis

p=p+1;

end

subplot(2,1,1)

stem(x,y)

xlabel('Time');

ylabel('Amplitude');

title('Main Function')

for i=1:1:n

x(i)=x(i)\*-1;

end

subplot(2,1,2)

stem(x,y)

xlabel('Time');

ylabel('Amplitude');

title('Time Revarsal Function')

**Output:**

How many inputs: 5

Input: 3

Input: 4

Input: 7

Input: 3

Input: 1

Enter zero index: 3

>>

**Figure:**

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**Discussion:**

Signal can be negative. In fact, one can make it negative just by multiplying it by -1. This causes the original signal to flip along its y-axis. That is, it results in the reflection of the signal along its vertical axis of reference. As a result, the operation is aptly known as the time reversal or time reflection of the signal.Original & Time revarsed graph are shown both.