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STOP

PLOT THE WAVEFORMS

START

READ THE INPUT SEQUENCE

READ THE CONSANT FOR (SCALAR) AMPLITUDE AND TIME MANIPULATION

READ THE (VECTOR) SEQUENCE FOR SIGNAL ADDTION AND MULTIPLICATION

PERFORM OPERTAION ON THE D.T. SIGNAL

Write a program in MATLAB to study the basic operations on the

Discrete – time signals. (Operation on dependent variable (amplitude manipulation) and Operation on independent variable (time manipulation)).

**APPARATUS REQUIRED:**

Pentium 4 Processor, MATLAB software

**THEORY:**

Let *x*(*n*) be a sequence with finite length.

1. Amplitude manipulation
   * Amplitude scaling:*y*[n] =*ax*[*n]*, where a is a constant.

If a > 1, then y[n] is amplified sequence If a < 1, then y[n] is attenuated sequence

If a = - 1, then y[n] is amplitude reversal sequence

* + Offset the signal: *y*[n] =*a+x*[*n]*, where a is a constant
  + Two signals *x1*[*n]* and *x2[n]* can also be added and multiplied: By adding the values *y1[n*]= *x1[n]* + *x2[n*] at each corresponding sample and by multiplying the values *y2[n*]= *x1[n]* X *x2[n]* at each corresponding sample.

1. Time manipulation
   * Time scaling: *y*[*n*]=*x*[an*],* where a is a constant.
   * Time shifting: *y*[*n*]=*x[n -* *]*, where  is a constant.
   * Time reflection (folding):*y*[*n]*=*x[*-*n]*