**Fixed Point Coding Assignment 2**

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Guidelines :

1. Decide Precision to be used based on your understanding of problem (preferably use 16 bits).
2. Decide Q Format based on your understanding of problem.

Problem 1 : convolution between a and b.

a = [ 0.256258710002038 0.963365491187825 -0.743741290000000 0.963365491190122 0.256258709998790 -0.450848071183266 1.25625871000000 -0.450848071189536 0.256258710000382 0.963365491183852 -0.743741290000000 0.963365491188951 0.256258710000446 -0.450848071184437 1.25625871000000 -0.450848071188365]

b = [ 0.256258710000824 -0.299311523023751 1.18013824251201 -0.724526570403471 0.963365491184473 0.0611683879836982 -0.126424722362053 1.08772832230303 -0.743741290000000 1.08772832230147]

Problem 2 : correlation between a and b.

a = [ -8.31662009587695e-13 0.634029328751641 -0.767445067471676 1.21423064425930 -0.398089786809545 0.577773754381422 0.836673932101677 -0.308971047587158 1.58778525229245 -0.182021563971272 ]

b = [ 0.256258710000824 -0.299311523023751 1.18013824251201 -0.724526570403471 0.963365491184473 0.0611683879836982 -0.126424722362053 1.08772832230303 -0.743741290000000 1.08772832230147 ]

Problem 3 : Implement moving average filter with equation

For the input sequence x –

x = [ -8.31662009587695e-13 0.634029328751641 -0.767445067471676 1.21423064425930 -0.398089786809545 0.577773754381422 0.836673932101677 -0.308971047587158 1.58778525229245 -0.182021563971272 1.08979021355278 0.955496287619025 0.101910213188460 1.83342544475812 -0.0328730083226371 1.47944976553274 0.951056516297123 0.416799687379008 1.91156787310481 0.0161320533298923 1.70710678118365 0.801827011717968 0.605004908232005 1.80383953270139 -0.0489434837048209 1.75534914481212 0.508323091823254 0.657549842333970 1.51612377556215 -0.220379314802769 1.63098631369702 0.0938778153096871 0.587785252289410 1.07806879773563 -0.469889032770565 1.36346871276806 -0.398089786807767 0.428535685869768 0.539117897404445 -0.753010516576522 1.00000000000013 -0.909928708031988 0.226248967323822 -0.0383550418345928 -1.01612377556313 0.598101848038048 -1.37787003224955 0.0330716683035159 -0.587785252288216 -1.20501828135071 0.216772751324045 -1.74119124600282 -0.101910213187831 -1.04773048637417 -1.27368995655362 -0.0924099202063116 -1.95105651629510 -0.140900308094125 -1.37037177295808 -1.19200765574847 -0.292893218816216 -1.97770261413640 -0.0638088080855569 -1.52794015341620 -0.951056516293349 -0.368309299489775 -1.81488605669931 0.128145116048447 -1.51612377556127 -0.565315643581117 -0.324423348820114 -1.48091766063180 0.412214747707523 -1.35396817701884 -0.0713070673777790 -0.187593110348669 -1.01612377555957 0.747339916547638 -1.08031399754952 0.477111137289843 -6.64924840784914e-13 -0.477111137294668 1.08031399755176 -0.747339916547943 1.01612377556041 ]

Problem 4 : Use newton Raphson method to find root of equation . root should be correct up to six decimal places.