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```
close all ;
clear ;
clc ;
```

setup

```
size = 200 ;
x = randi(10,size,1) ;
start = randi(length(x)-3,1,1) ;

len_y = randi(size-start,1,1) ;
y = x(start:(start+len_y),1) ;

corrLength = length(x)-length(y)+1 ;
lenCon = 2^ceil(log2(length(x)+length(y)-1)) ;
```

calculate cross correlation

```
x_pad = zeros(lenCon,1) ;
y_pad = zeros(lenCon,1) ;

for i = 1:length(x)
    x_pad(i,1) = x(i,1) ;
end

for i = 1:length(y)
    y_pad(i,1) = y(i,1) ;
end

X = fft(x_pad) ;
Y = fft(y_pad) ;

corr = ifft(X.*conj(Y)) ;
corr = round(corr(1:corrLength)) ;

match = 1 ;

for i = 1:length(corr)
    if corr(i,1) > corr(match,1)
        match = i ;
```

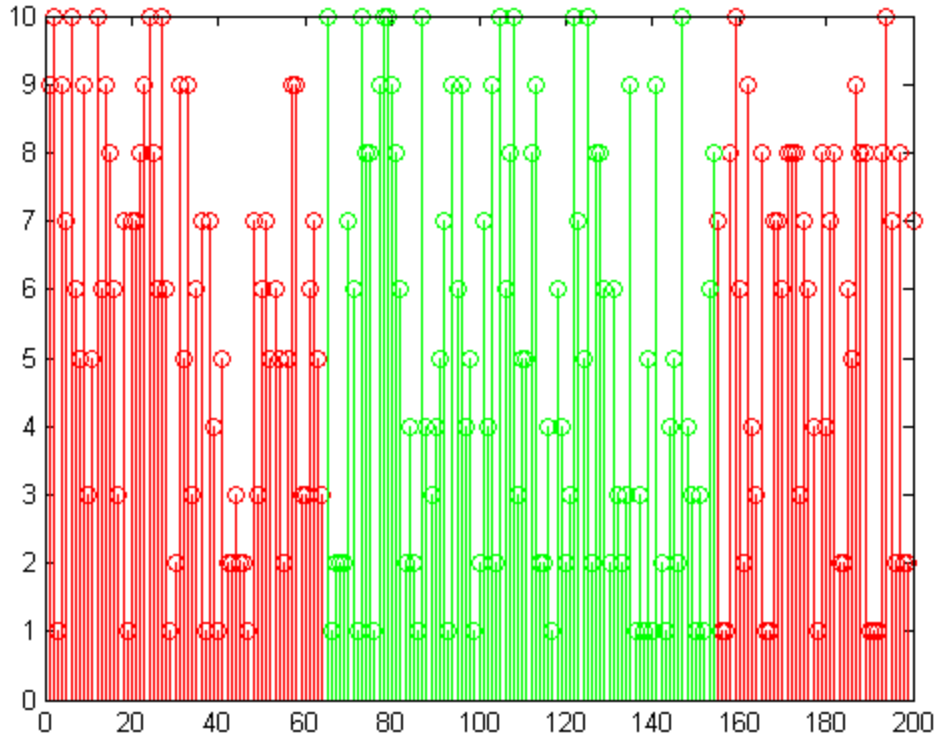
```
    end
end
```

removed matched signal

```
sub_sig = zeros(length(x),1) ;

j = 1 ;
for i = match:(match+length(y)-1)
    sub_sig(i,1) = y(j,1) ;
    j = j+1 ;
end

new_sig = x - sub_sig ;

sig_beg = x(1:(match-1)) ;
sig_end = x((match+length(y)):end) ;

sig_final = [sig_beg; sig_end] ;
```

plot

```
figure ;
stem(x,'r') ;
hold on ;
stem(start:(start+len_y),y,'g') ;
figure ;
stem(new_sig,'b') ;
figure ;
stem(sig_final,'b') ;
```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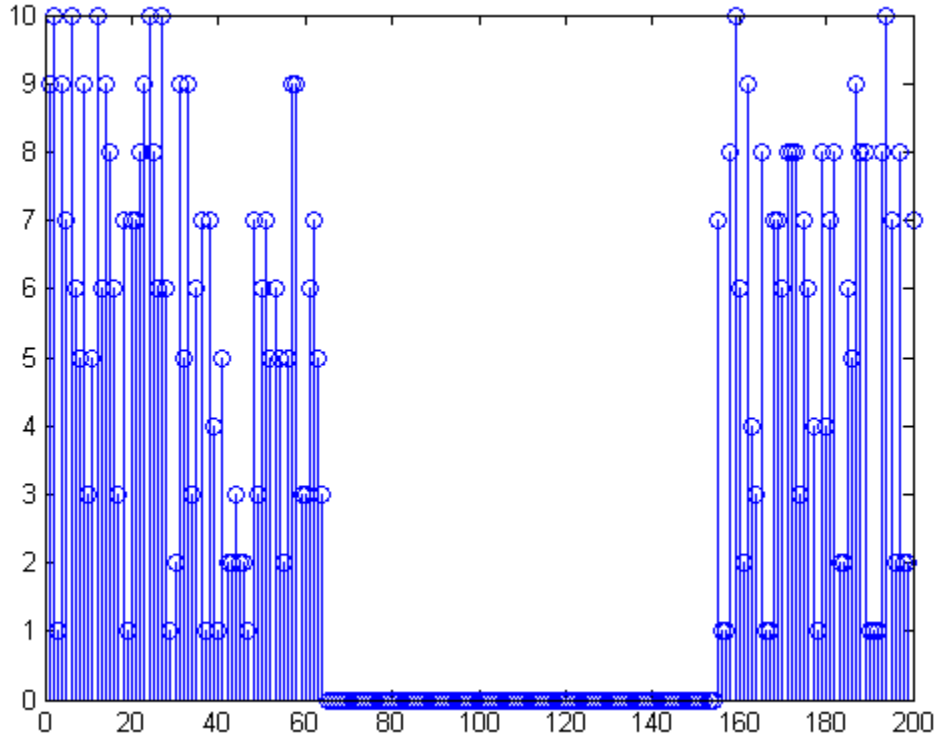
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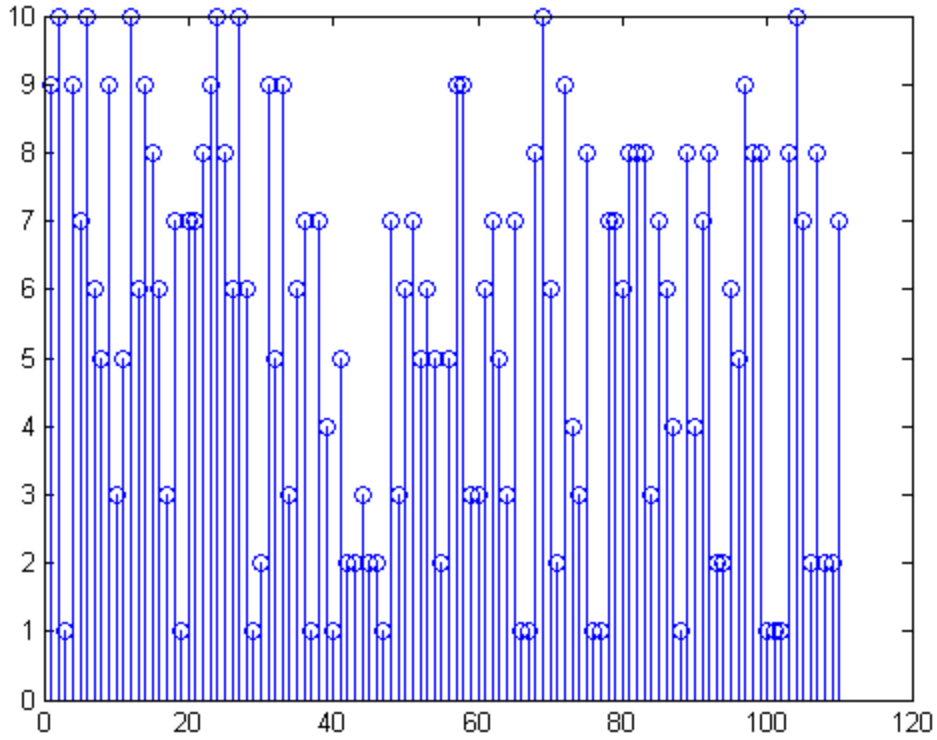

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