**EXPERIMENT 10**

By,

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**Write a MALTAB script to generate and filter the ECG/PPG.**

**Code:**

clc;

clear all;

close all;

ecg=load('C:\Users\Aadhithan\Downloads\PPG\2.txt');

ppg=load('C:\Users\Aadhithan\Downloads\PPG\2.txt');

f\_s=250;

N=length(ecg);

t=[0:N-1]/f\_s; %time period(total sample/Fs )

figure

plot(t,ecg); title(' ECG Data plotting ')

xlabel('time')

ylabel('amplitude')

z=ppg(200:950,1); % PPG signal

figure

plot(z,'r');

title('PPG Data Ploting');

xlabel('time');

ylabel('amplitude');

w=50/(250/2);

bw=w;

[num,den]=iirnotch(w,bw); % notch filter implementation

ecg\_notch=filter(num,den,ecg);

figure,

N1=length(ecg\_notch);

t1=[0:N1-1]/f\_s;

plot(t1,ecg\_notch,'b'); title('Filtered ECG signal ')

xlabel('time')

ylabel('amplitude')

w=50/(250/2);

bw=w;

fs\_ppg=700

[a,b]=iirnotch(w,bw); % notch filter implementation

ppg\_notch=filter(a,b,ppg);

N2=length(ppg);

t1=[0:N2-1]/fs\_ppg

figure

plot(t1,ppg\_notch,'r'); title('Filtered PPG signal ')

xlabel('time')

ylabel('amplitude')

%% Task 2-a

figure, subplot 211% study useage of subplot under help section

plot(t,ecg); title('ECG Data plotting ')

xlabel('time')

ylabel('amplitude')

legend(' ORIGINAL ECG SIGNAL')

subplot 212

plot(t1,ecg\_notch,'r'); title('Filtered ECG signal ')

xlabel('time')

ylabel('amplitude')

legend(' Flitered ECG SIGNAL')

figure

subplot 211% study useage of subplot under help section

plot(z); title('PPG Data plotting ')

xlabel('time')

ylabel('amplitude')

legend(' ORIGINAL PPG SIGNAL')

subplot 212

plot(t1,ppg\_notch,'r'); title('Filtered ECG signal ')

xlabel('time')

ylabel('amplitude')

legend(' Flitered PPG SIGNAL')

%% plot the Both signal Original and FILter signal

figure, plot(t(1:201),ecg(1:201),'r');

title('Data plotting for 0 to 0.804 time frame')

xlabel('time')

ylabel('amplitude')

hold on

figure

plot(t1(1:201),ecg\_notch(1:201),'g');

legend('ORIGINAL ECG SIGNAL',' Flitered ECG SIGNAL')

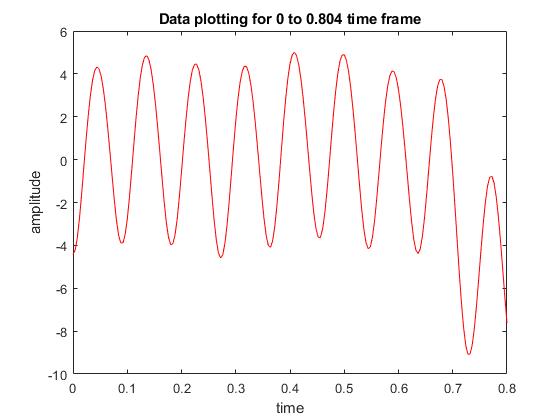
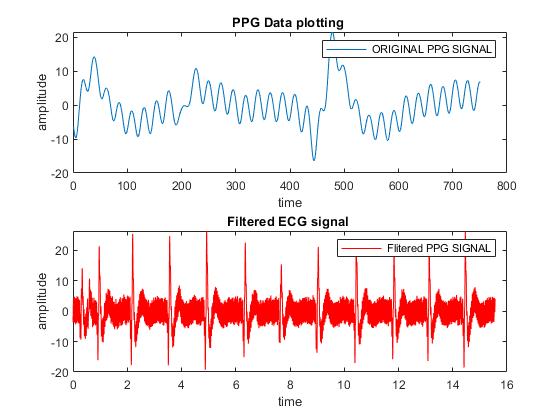
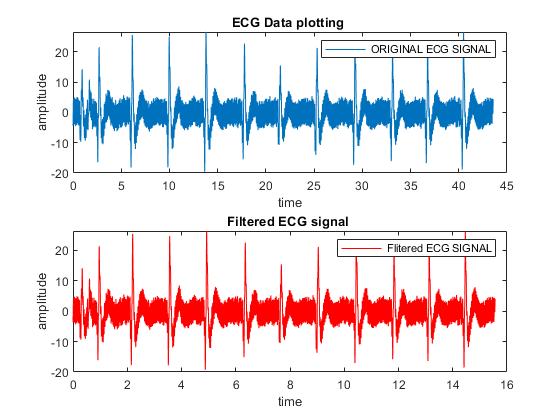
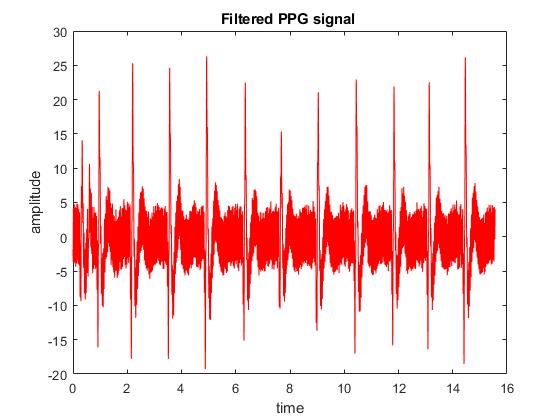
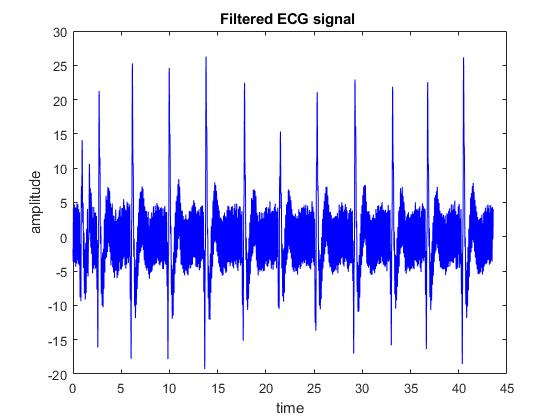
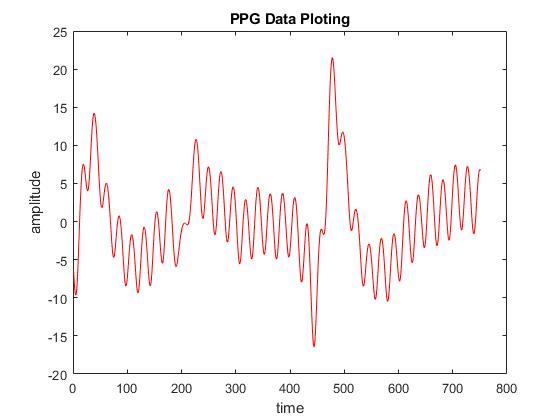
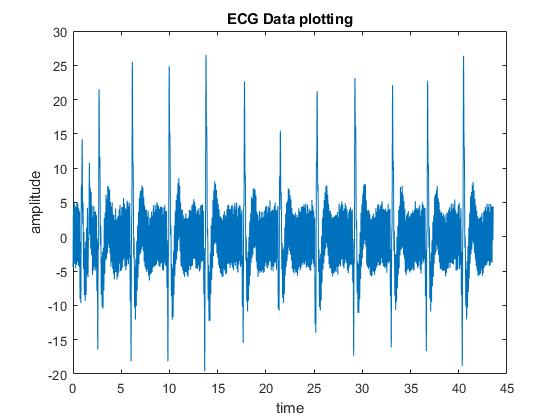
plot(t1(1:201),z(1:201),'y');

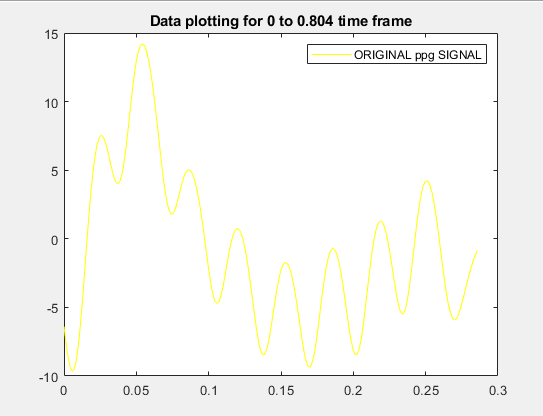
title('Data plotting for 0 to 0.804 time frame')

legend('ORIGINAL ppg SIGNAL',' Flitered ppg SIGNAL')

hold off

**OUTPUT:**

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