load('/Users/maanasd/Downloads/running.mat')

hour = Acceleration.Timestamp.Hour;

minute = Acceleration.Timestamp.Minute;

second = Acceleration.Timestamp.Second;

uniq\_sec = (hour\*3600)+(minute\*60)+second;

final\_matrix = [uniq\_sec Acceleration.X Acceleration.Y Acceleration.Z];

plot(final\_matrix(:,1),final\_matrix(:,2:4));

legend('X', 'Y', 'Z');

xlabel('Relative time (s)');

ylabel('Acceleration (m/s^2)');

x = final\_matrix(:,2);

y = final\_matrix(:,3);

z = final\_matrix(:,4);

mag = sqrt(sum(x.^2 + y.^2 + z.^2, 2));

t = final\_matrix(:,1);

figure

plot(t,mag);

xlabel('time (z)');

ylabel('acceleration (m/s^2');

magNoG = mag - mean(mag);

figure

plot(t,magNoG);

xlabel('Time (s)');

ylabel('Acceleration (m/s^2)');

title('mean substracted')

minPeakHeight = std(magNoG);

[pks,locs] = findpeaks(magNoG,'MINPEAKHEIGHT',minPeakHeight);

numSteps = numel(pks)

hold on;

plot(t(locs), pks, 'r', 'Marker', 'v', 'LineStyle', 'none');

title('Counting Steps');

xlabel('Time (s)');

ylabel('Acceleration Magnitude, No Gravity (m/s^2)');

hold off;

m.AccelerationSensorEnabled = 0;

clear m;