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%HW1 #4&5

%#4 read .dat file and plot data
D = dlmread('animage.dat');
figure();
plotmatrix( D(1:end,1) ,D(1:end,2))
title('Tree');
xlabel('Tree');
ylabel('Tree');

%#5 read data
D = dlmread('DataSet.dat');
%seperate the data set into two matrices
x=D(1:end,1);
y=D(1:end,2);

%this section plots the entire data set
%figure();
% subplot(1,2,1);
% plotmatrix( D(1:end, 1), D(1:end,2));
% subplot(1,2,2);
% plot(D(1:end, 1), D(1:end,2));
% The first value is, Friday, November 20, 2015 12:00:00 AM
% The last value is, Tuesday, December 22, 2015 11:45:00 PM
% Data spans approximately 33 days
% Data spans approximately 4 full weeks
%splitting by weeks @ 12:00:00AM 22-27th, 27-4th, 4-11th, 11-18th,
% 1448604000 , 1449208800 , 1449813600 , 1450418400,

%this section plots energy consumption over each week
% week1 = [x(x< 1448604000) , y(x< 1448604000)];
% week2 = [x(x> 1448604000 & x< 1449208800), y(x> 1448604000 & x<
1449208800)];
% week3 = [x(x> 1449208800 & x< 1449813600), y(x> 1449208800 & x<
1449813600)];
% week4 = [x(x> 1449813600 & x< 1450418400), y(x> 1449813600 & x<
1450418400)];
% week5 = [x(x> 1450418400) , y(x> 1450418400)];
% week1=int64(week1);
% week2=int64(week2);
% week3=int64(week3);
% week4=int64(week4);
% week6=int64(week5);

% figure();
% %subplot(2,3,1);
% plot(week1(1:end,1),week1(1:end,2))
% dateaxis('x',8);
% %subplot(2,3,2);
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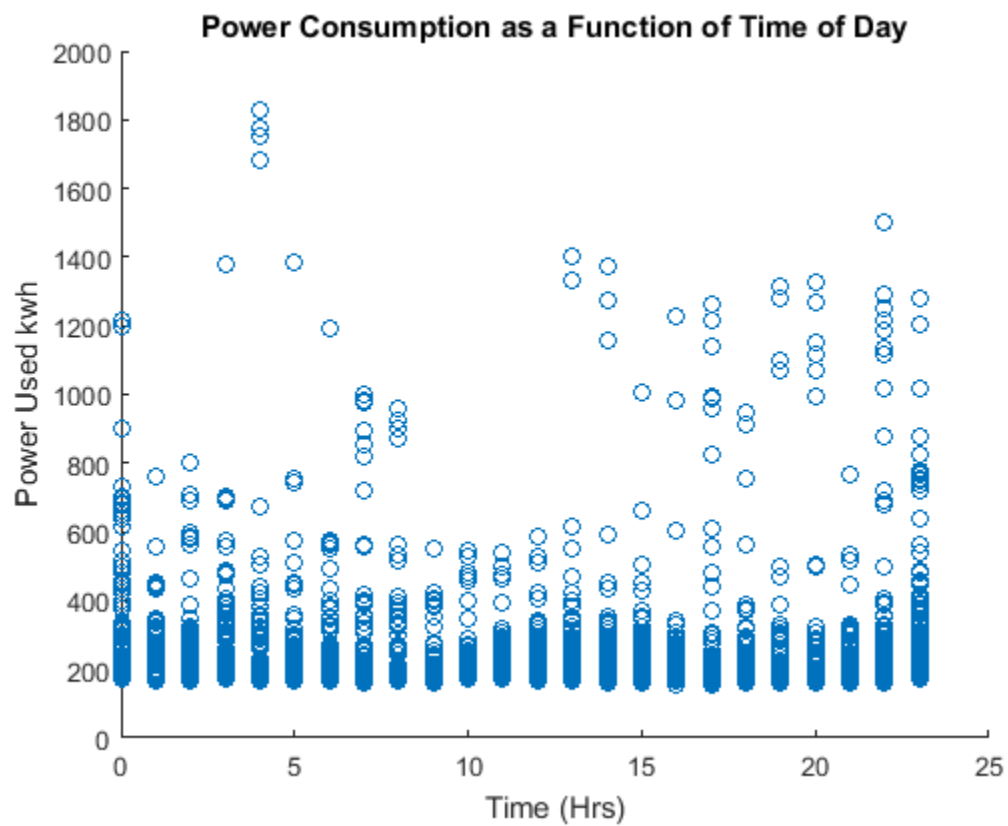
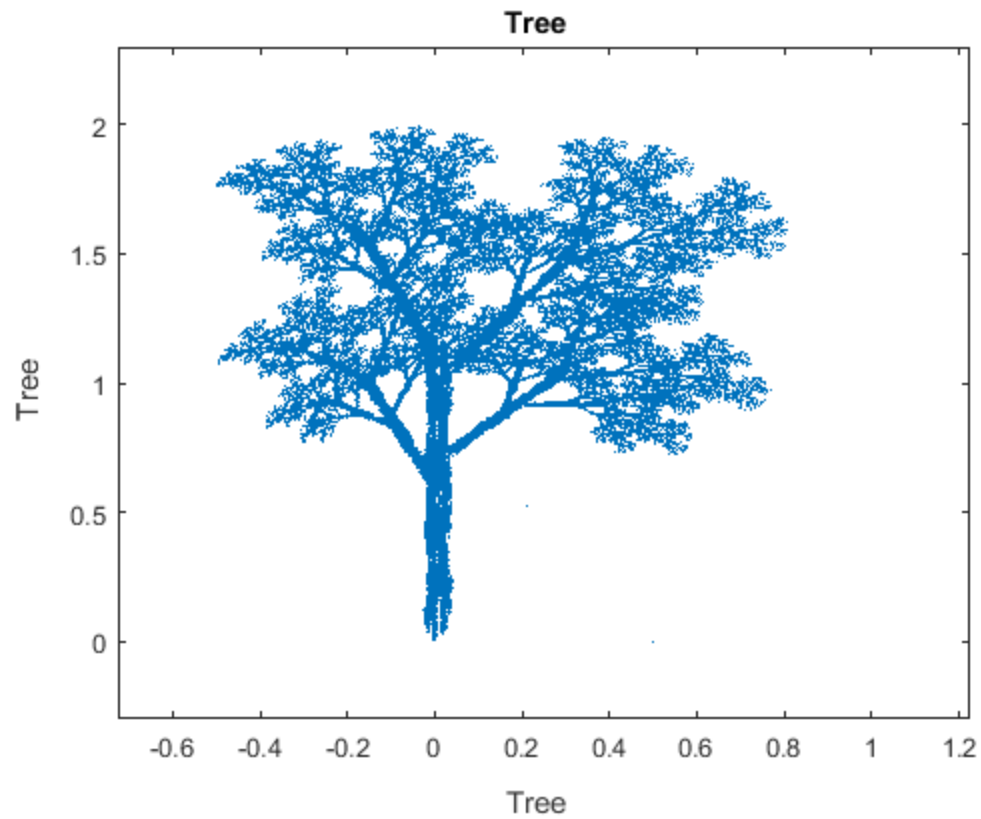
%     figure();
%     plot(week2(1:end,1),week2(1:end,2))
%     dateaxis('x',8);
%     %subplot(2,3,3);
%     figure();
%     plot(week3(1:end,1),week3(1:end,2))
%     dateaxis('x',8);
%     %subplot(2,3,4);
%     figure();
%     plot(week4(1:end,1),week4(1:end,2))
%     dateaxis('x',8);
%     %subplot(2,3,5);
%     figure();
%     plot(week5(1:end,1),week5(1:end,2))
%     dateaxis('x',8);

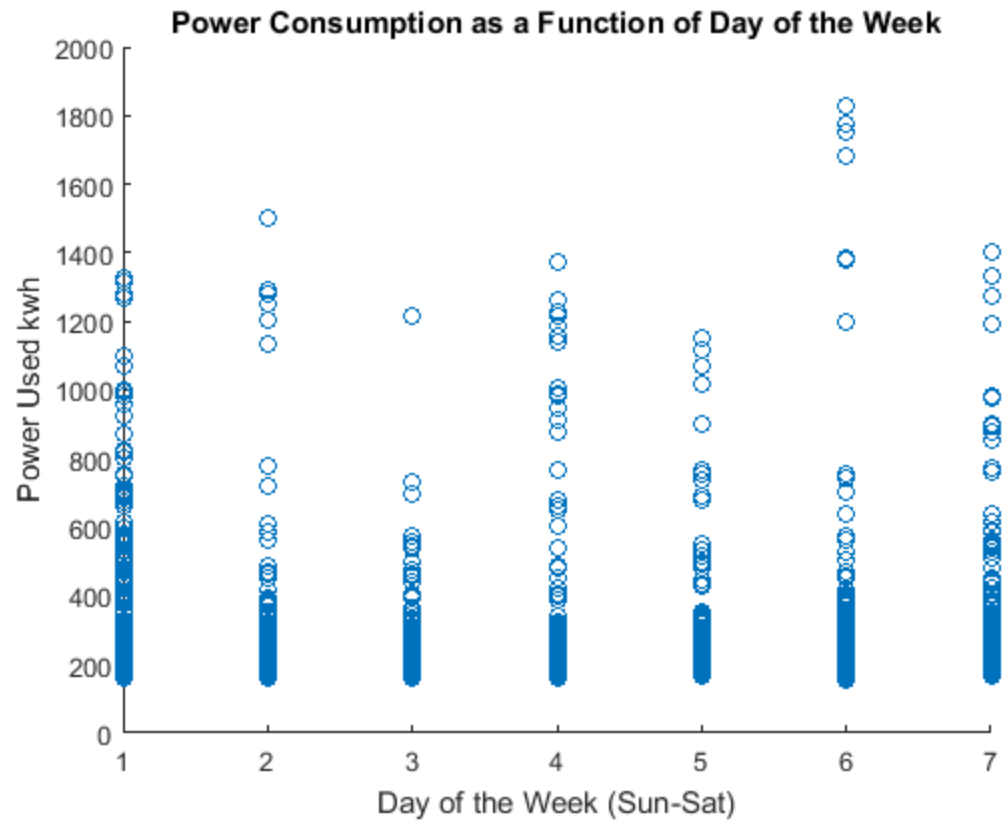
% this section plots energy consumption as a function of time of
day, and
% energy consumption as a function of days in a week
z = datetime(x,'ConvertFrom','epochtime');
[Y,M,D,H,MN,S] = datevec(z);
figure();
scatter(H,y)
title('Power Consumption as a Function of Time of Day');
xlabel('Time (Hrs)');
ylabel('Power Used kwh');

figure();
[ WeekdayNum, WeekdayName] = weekday(z);
scatter(WeekdayNum,y)
title('Power Consumption as a Function of Day of the Week');
xlabel('Day of the Week (Sun-Sat)');
ylabel('Power Used kwh');

%This section plots 33 figures, energy consumption for each day
%48 datapoints should be a day
% n=96;
% nold=1;
% i=1;
%     while nold < numel(x)
%         % day = [z(nold:n),y(nold:n) ];
%         dayx = z(nold:n);
%         dayy = y(nold:n);
%         nold=nold+96;
%         n = n + 96;
%         if(n>numel(x))
%             n=numel(x) ;
%         end
%         % figure()%
%         %     plot(dayx,dayy)
%     end

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