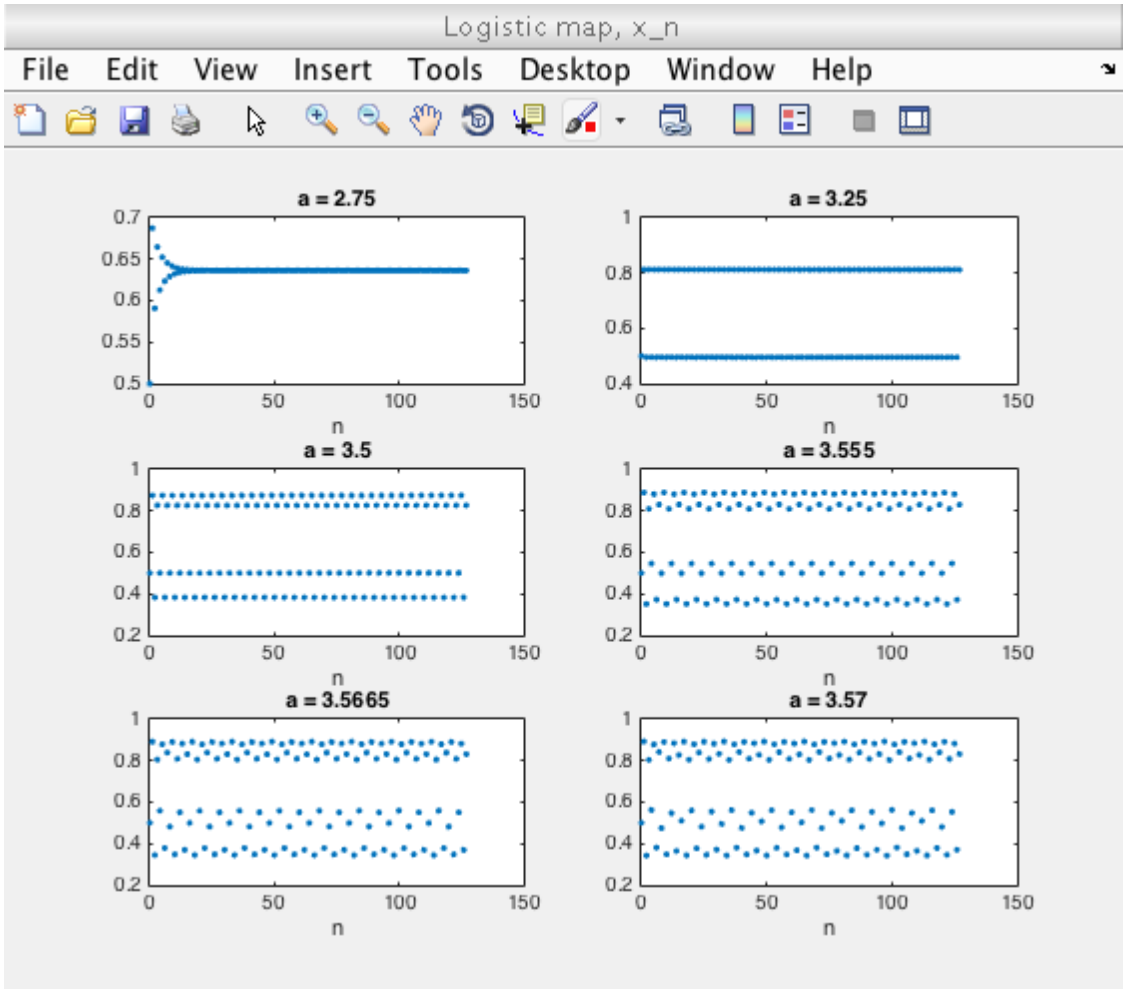
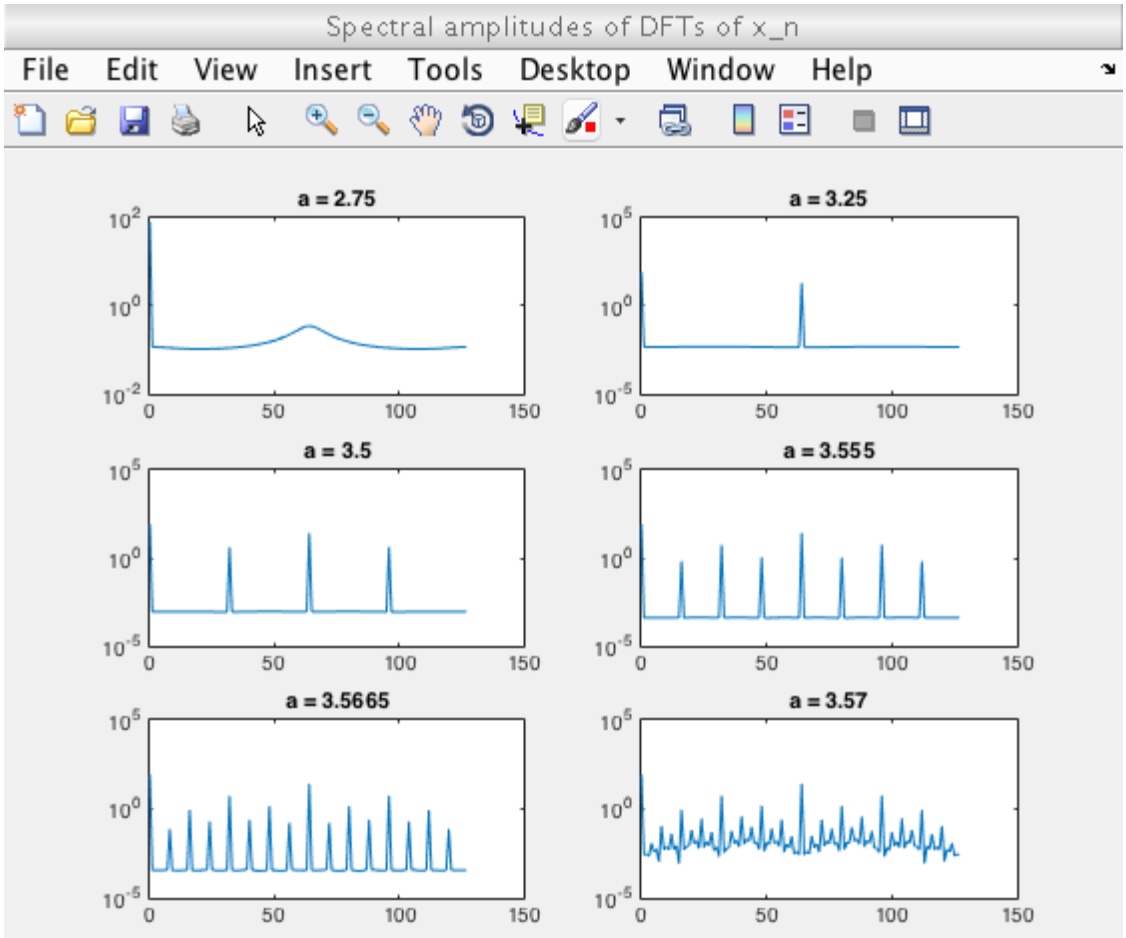
Contents


```
% Shannon Moran
% Math 671, HW 2, problem 1

function[]=Math671_HW2_p1()

a = [2.75, 3.25, 3.5, 3.555, 3.5665, 3.57];
N = 128;
n = linspace(0,N-1,N);
x = zeros(N,1);
x(1) = 0.5;

figure('Name','Logistic map, x_n','NumberTitle','off')
for i=1:length(a)
    [DFT_x,x_a] = LogisticMap(a(i),x,N);
    subplot(3,2,i);
    plot(n,x_a,'.');
    title(['a = ' num2str(a(i))])
    xlabel('n')
end

figure('Name','Spectral amplitudes of DFTs of x_n','NumberTitle','off')
for i=1:length(a)
    [DFT_x,x_a] = LogisticMap(a(i),x,N);
    subplot(3,2,i);
    semilogy(n,DFT_x,'-')
    title(['a = ' num2str(a(i))])
end

end
```

Calculates logistic map for x and its spectral amplitudes at each n

```
function[DFT_x,x_a]=LogisticMap(a,x_a,N)

for i=2:N
    x_a(i) = a(1)*x_a(i-1)*(1-x_a(i-1));
end
DFT_x = abs(fft(x_a));

end
```


Logistic map, x_n
File Edit View Insert Tools Desktop Window Help
a = 2.75
a = 3.25
a = 3.5
a = 3.555
a = 3.5665
a = 3.57
n


Spectral amplitudes of DFTs of x_n
File Edit View Insert Tools Desktop Window Help
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