```matlab
% Lab 4
clear
% loading the data for this lab
data=xlsread('STRATOGEM_plankton.xls');
STRATOGEMplankton = data(:,2:end);
Date = data(:,1);

% Part 2
sumrows = nansum(STRATOGEMplankton,2);
subplot(2,1,1)
plot(Date,sumrows)
xlabel('Date')
ylabel('Plankton Counts')
title('Total Planktonplankton Counts Time Series 2002-2005 (Linear Scale)')
% Plot created
subplot(2,1,2)
plot(Date,sumrows)
set(gca, 'yscale','log')
xlabel('Date')
ylabel('Phytoplankton Counts')
title('Total Phytoplankton Count Time Series 2002-2005 (Log Scale)')

% Part 3 in shannonWiener.m

% Part 4
% calculating the index per date
swIndex = zeros(51,1);
for j=1:51
    swIndex(j) = shannonWiener(STRATOGEMplankton(j,:));
end
% Plot the sw Index vs Date
figure(2)
plot(Date,swIndex)
xlabel('Shannon-Wiener Index')
ylabel('Date')
title('Shannon-Wiener Diversity Index in the Straight of Georgia 2002-2005')


% Part 5 calculate the sw-index and the annual total phytoplankton
figure(3);
subplot(2,1,1);
plot(Date([10:27]),sumrows([10:27]));
xlabel('Month of Year (2003)');
ylabel('Total Phytoplankton Count');
set(gca, 'yscale', 'log');
title('Total Phytoplankton Count in 2003 (Logarithmic Scale)');

subplot(2,1,2);
plot(Date([10:27]),swIndex([10:27]));
xlabel('Month of Year (2003)');
ylabel('SW Diversity Index');
title('SW Diversity Index in 2003');

figure(4);
subplot(2,1,1);
plot(Date([28:43]),sumrows([28:43]));
xlabel('Month of Year (2004)');
ylabel('Total Phytoplankton Count');
```

```
set(gca, 'yscale', 'log');
title('Total Phytoplankton Count in 2004 (Logarithmic Scale)');

subplot(2,1,2);
plot(Date([28:43]),swIndex([28:43]));
xlabel('Month of Year (2004)');
ylabel('SW Diversity Index');
title('SW Diversity Index in 2004');
```

Total Planktonplankton Counts Time Series 2002-2005 (Linear Scale)

Total Phytoplankton Count Time Series 2002-2005 (Log Scale)

SW Diversity Index in the Straight of Georgia 2002-2005

Total Phytoplankton Count in 2003 (Logarithmic Scale)

Total Phytoplankton Count

Month of Year (2003)

SW Diversity Index in 2003

SW Diversity Index

Month of Year (2003)

Total Phytoplankton Count in 2004 (Logarithmic Scale)

Total Phytoplankton Count

Month of Year (2004)

SW Diversity Index in 2004

SW Diversity Index

Month of Year (2004)