```
clear;clc;close all

% Main Code
x = 1:2:100; x = x';
y = 1:100; y = y';

% Spot the errors in the calling of the functions and the functions
% themselves. If there are no errors, what is the COMMAND WINDOW output.
% Also describe what each function is doing or what it should be doing if
% the errors are fixed

% Calling functions
[R1] = AddVect(x,y);
SubVect(x,y); % error?
R3,R4 = MultVect(y,x) % error?
R5 = DivVect(x,y)


% Functions
function [Ans] = AddVect(X,Y)
    Ans = 0;
    for i = 1:numel(X)
        Ans = Ans +X(i);
    end
    for i = 1:numel(Y)
        Ans = Ans +Y(i);
    end
    fprintf('Sum of %i elements = %i\n',numel(X)+numel(Y),Ans) %error?
end

function [Ans] = SubVect(X,Y)
    Ans = 0 % Displayed in command window?
    N = numel(X);
    MOD = Y(1:N) -Y(N+1:2*N) -X; % error?
    Count = 0 % displayed in command window?
    while N > 1
        Count = Count +1;
        Ans = Ans +MOD(Count);
        N = N-1;
    end
    fprintf('Sum of %i elements = %i\n',Count,Ans)
end
```

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```matlab
function [Ans,A] = MultVect(X,Y)
    Ans = Y.*X(1:numel(Y)); % error?
    Ans = X(numel(Y):numel(Y))*Ans; % error?
    Ans = Ans*X(numel(Y)+1:2*numel(Y)); % error?
    Ans = sum(Ans);
end

function [Ans] = DivVect(X,Y,y)
    ANS = X./Y(1:numel(X)); % error?
    ANS = ANS./X; % error?
    ANS = Y./sum(ANS); % error?
    Ans = 1;
end

% Question: Use the Nilakantha series to calculate the value of pi. The
% series looks like this: Pi = 3 +4/(2*3*4) -4/(4*5*6) +4/(6*7*8)
% -4/(8*9*10) +...
% Create a main code that calls a function Nilkantha that can compute the
% value of Pi in two ways:
% 1) To N terms (Do not count 3 as the first term)
% 2) That calculates the value of Pi until it is within 1/1000000% of
% MatLab's value of Pi (use percent difference calculation).
% Display the value of Pi and state how many iterations are performed.
% Do this inside the function.
% Store the calculated value of Pi in a variable named Pi (MatLab's
% built-in value for Pi is stored as a variable named "pi").
```

```
% Main Code:
clear;clc;close all;
Choice = 1; % Choice = 1 (N terms), Choice = 2 (Percent Difference)
[Pi] = Nilkantha(Choice);

function [Pi] = Nilkantha(Choice)

Pi = 3;
if Choice == 1
    disp('Calculate Pi to how many terms?')
    N = input('N = '); clc;
    Count = 1; % Why?
    for i = 1:N
        sign = (-1)^(i+1);
        den = (Count+1)*(Count+2)*(Count+3);
        Count = Count +2; % Why?
        Pi = Pi +sign*(4/den);
    end
   fprintf('The value of Pi = %1.15f\n',Pi)
   fprintf('It took %i iterations to obtain\n',i)
else
    Count = 1;
    i = 1; % Why?
    while 1
        sign = (-1)^(i+1);
        i = i+1; % Why?
        den = (Count+1)*(Count+2)*(Count+3);
        Count = Count +2;
        Pi = Pi +sign*(4/den);
        diff = abs(2*(Pi -pi)/(Pi +pi))*100;
        if diff > .000001
            continue
        else
            fprintf('The value of Pi = %1.15f\n',Pi)
            fprintf('It took %i iterations to obtain\n',i)
            break
        end
    end
end

end
```