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```
function [approxln3,absDiff] = PS08_ln3_noloop_ehotson(n)

%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
% ENGR 132
% Program Description
% This program approximates ln3 by running a summation to a given
% number of
% terms. It then returns the approximation and the difference between
% it
% and actual ln3.
%
% Function Call
% [approxln3,absDiff] = PS08_ln3_approx_wpopovic_ehotson(n)
%
% Input Arguments
% 1. n - the number of times the function must run in the
% approximation
%
% Output Arguments
% 1. approxln3 - approximation of ln3 as calculated by the series
% 2. absdiff - the absolute value of the difference between the
% approximation for ln3 and the value given by the log(3) function.
%
% Assignment Information
% Assignment:      PS 08, Problem 4
% Author:          Ethan Hotson, ehotson@purdue.edu
% Team ID:         009-01
% Contributor:     Will Popovich, wpopovic@purdue.edu
% My contributor(s) helped me:
%   [ ] understand the assignment expectations without
%       telling me how they will approach it.
%   [ ] understand different ways to think about a solution
%       without helping me plan my solution.
%   [X] think through the meaning of a specific error or
%       bug present in my code without looking at my code.
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
```

INITIALIZATION

```
%preset outputs to output for invalid input
approxln3 = -99;
absDiff = -99;
```

CALCULATIONS

```
if ~(isscalar(n) && (floor(n) == n) && n > 0) %validate inputs
    fprintf("Error: Invalid n\nn must be a positive, scalar, integer
    value.\n");
else
    approxln3 = 0; %initialize the approximation
    index = 0; %initialize index for while loop

    %compute approximation
    for index = 0:n
        newTerm = (1/(4^index)) * (1/(2*index + 1)); %compute nth term
        approxln3 = approxln3 + newTerm; %update the approximation
    end

    absDiff = abs(log(3) - approxln3); %calculate the absolute
    difference between the approximation and matlab's value
end

Not enough input arguments.

Error in PS08_ln3_noloop_ehotson (line 44)
if ~(isscalar(n) && (floor(n) == n) && n > 0) %validate inputs
```

COMMAND WINDOW OUTPUT

ACADEMIC INTEGRITY STATEMENT

```
% Call your academic integrity statement here
```

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