```
%Roshan Jaiswal-Ferri
%Section - 03
%Aero 300 Lab 3 -  Iterative Methods to Solve Scalar Equations: 4/18/24

close all;      %Clears all
clear all;      %Clears Workspace
clc;            %Clears Command Window
```

PART 1: Pseudo Code

rootMatrix = roots(initial_guess, step_size, expected_num_roots, function) roots = []; %create an empty matrix for later current_point = initial_guess; num_brackets = 0;

```
   while num_brackets < expected_num_roots
       lower_bound = current_point;
       upper_bound = current_point + step_size;

       %solve the function at lower and upper bounds
       f_lower = function(lower_bound);
       f_upper = function(upper_bound);

       % Check if the signs of bounds are different
       if sign does not match
           %found root interval [lower_bound, upper_bound]
           roots = [roots; lower_bound, upper_bound];  %Append the bounds to the rootMatri
           num_brackets = num_brackets + 1;

           %Move the current point to the upper bound to find the next
           bound
           current_point = upper_bound;
       else
           %No bounds found, move to the next point
           current_point = upper_bound;
       end
   end
end
```

Published with MATLAB® R2023b