Finding the Grashof Condition Using MATLAB.

ME2220 Mechanism Design

Prof. Eduardo Veras, PhD.

MATLAB Programming

```
function GC = Grashof_Condition(a, b, c, d)
%   Comments:
%     S = shortest link;
%     L = longest link;
%     SL = summation of shortest and longest links
%     PQ = remaining links, P and Q;

    % From MATLAB's documentation:
    % min() is a built-in function used to determine the minimum elements
    % of an array; and max() is a built-in function used to determine
    % the maximum elements of an array.

    S = min([a,b,c,d]);  % min of array or list of the link lengths
    L = max([a,b,c,d]);  % max of array or list of the link lengths

    % Calculate the summation of shortest link (S), and longest (L), link.
    SL = S + L;

    % Calculate the length of the remaining links: P and Q
    PQ = a + b + c+ d - SL;

    % Execute statements if condition is true:
    if SL < PQ
        disp("Grashof");
    elseif SL==PQ
        disp("Special Grashof");
    else
        disp("non-Grashof");
    end
```

Test of the Grashof Condition:

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```
clearvars; clc
L1 = 2;
L2 = 4.5;
L3 = 7;
L4 = 8;

Grashof_Condition(L1, L2, L3, L4);
```