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```
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
% ENGR 133
% Program Description
%
%
% Assignment Information
%   Assignment:     Ma3_Task 1
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%   Contributor:    Collin Gernhardt, cgernhar@purdue.edu
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%                   Jonathan Budiman, jbudiman@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.
%     [ ] think through the meaning of a specific error or
%         bug present in my code without looking at my code.

%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
```

INITIALIZATION

```
file = csvread("Lanewidth_TrafficSpeed.csv", 3, 0);
milemark = file(:, 1);
lanewidth = file(:, 2);
```

CALCULATIONS

```
for k = 2:size(file, 2)
```

```
[maxwidth, idx] = max(file(:, 2));
MaxCol(k,:) = [milemark(idx) maxwidth];
end

MaxCol = MaxCol(2,1);

for k = 2:size(file, 2)
[minwidth, idx] = min(file(:, 2));
MinCol(k,:) = [milemark(idx) minwidth];
end
MinCol = MinCol(2,1);

for k = 2:size(file, 2)
    okwidth = lanewidth<10;
    relRows = file(okwidth, :);

end

P = relRows(1, 1);
Q = relRows(end, 1);

nbetweenpq = numel(find(milemark>P))+numel(find(milemark<Q));
for k = P:Q
    x = find(milemark> 10);
    numover10 = numel(x);
end
percentage = 100*(numover10/nbetweenpq);



speedless65 = file(:, 3);
speed55to64 = file(:, 4);
speed45to54 = file(:, 5);
speed35to44 = file(:, 6);
speed25to34 =  file(:, 7);
speed15to24 = file(:, 8);
speed0to14 = file(:, 9);

num145toP = numel(find(milemark<P));
numPtoQ = numel(find(milemark<Q)) - num145toP;
numQto146 = numel(find(milemark>Q))-numel(find(milemark>146));
plot(lanewidth, milemark)
xlabel('lane width')
ylabel('milemark')
```

Unable to perform assignment because the size of the left side is 1-by-1 and the size of the right side is 1-by-2.

Error in Ma3_Task6_ControlSys_chen3633 (line 32)
MaxCol(k,:) = [milemark(idx) maxwidth];

OUTPUTS

```
fprintf('Maximum lane width is %f and the corresponding lane marker is
 %f \r\n', maxwidth, MaxCol)
fprintf("Minimum lane width is %f and the corresponding lane marker is
 %f \r\n", minwidth, MinCol)
fprintf("Mile Marker for P is %f \r\n", P)
fprintf("Mile Marker for Q is %f \r\n", Q)
fprintf("percentage of data points between P and Q where the lane
 width is greater than 10 is %f%% \r\n", percentage)
```

ACADEMIC INTEGRITY STATEMENT

I have not used source code obtained from any other unauthorized source, either modified or unmodified. Neither have I provided access to my code to another. The project I am submitting is my own original work.

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