```
format long
close all;
clc


fun = @(x) sin(x)+sin(10*x/3);
g = @(x) cos(x) + (10/3)*cos(10*x/3);
h = @(x) -sin(x) -(10/3)^2*sin(10*x/3);
reason = 'X Tolerance met'; % default




opt = setDefaultOptimizationOptions();
opt.tolX = 10e-6;
opt.MaxFunEvals = 1000;

[xMin,fMin,flag,output] = goldenSection(fun,1,2,opt)
gradient = g(xMin);
hessian = h(xMin);



opt.TolX = 10e-2;

[xMin2,fMin2,flag2,output2] = goldenSection(fun,1,2,opt)
gradient2 = g(xMin2);
hessian2 = h(xMin2);

[xMin3,fMin3,flag3,output3] = goldenSection(fun,-1,2,opt)
gradient3 = g(xMin3);
hessian3 = h(xMin3);




% Create a cell array to store the data
data = {'Case 1', [xMin],  [fMin], [gradient],  [hessian],  [output.funcCount], ↙
[reason];
        'Case 2', [xMin2], [fMin2],[gradient2], [hessian2], [output2.funcCount], ↙
[reason];
        'Case 3', [xMin3], [fMin3],[gradient3], [hessian3], [output3.funcCount], ↙
[reason]};

% Create a cell array to store the column names
colnames = {'', 'xMin', 'fMin','Gradient', 'Hessian', 'Number of Function Calls',↙
'Reason for Termination'};

% Create a UI table with the data and column names
f = figure;
```

```
uit = uitable(f, 'Data', data, 'ColumnName', colnames);

% Set the column width to fit the content
uit.ColumnWidth = {'auto', 'auto', 'auto', 'auto', 'auto', 'auto', 'auto'};

% Set the position of the table to make it bigger
uit.Position = [50 50 800 200];

itle = uicontrol('Style', 'text', 'String', ' Q3/4) Results of GoldenSection↙
Optimization', 'FontSize', 16, 'FontWeight', 'bold', 'HorizontalAlignment', 'center',↙
'Units', 'normalized', 'Position', [0 0.9 1 0.1]);
```