Contents

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```
% Name          : Kai Chuen Tan
% Title         : Homework 2
% Course        : CSE 276C: Mathematics for Robotics
% Professor     : Dr. Henrik I. Christensen
% Date          : 17th October 2021

clear all;
clc;

fprintf('Name           : Kai Chuen Tan\n')
fprintf('Title          : Homework 2\n')
fprintf('Course         : CSE 276C: Mathematics for Robotics\n')
fprintf('Professor      : Dr. Henrik I. Christensen\n')
fprintf('Date           : 17th October 2021\n\n')
fprintf('-------------------------------------------------------\n\n')
```

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Name           : Kai Chuen Tan
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```

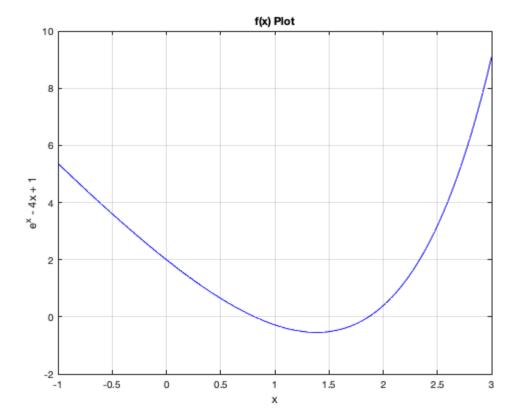Problem 5 - Solving Alice's Problem with Bisection Method

```
fprintf('Problem 5 - Solving Alice''s Problem with Bisection Method \n')

% Define x
x =linspace(-1, 3, 100);
% Alice's internet speed function, f(x)
fx = @(x)exp(x) - 4 * x +1;

% Plot the graph to guess the location of the roots.
figure
plot(x,fx(x),'b-')
title('f(x) Plot')
xlabel('x')
ylabel('e^x - 4x + 1')
grid on

% Based on the plot, we know there are a root in between 0 and 1.
a_1 = 0;
b_1 = 1;

fprintf("\na is %i, and b is %i.\n", a_1, b_1)
```

```
x_root_1 = Bisection_Method( fx, a_1, b_1 )

fprintf("--------------------------------\n")

% Based on the plot, we know there are a root in between 1 and 2.

a_2 = 1;
b_2 = 2;

fprintf("\na is %i, and b is %i.\n", a_2, b_2)

x_root_2 = Bisection_Method( fx, a_2, b_2 )
```

Problem 5 - Solving Alice's Problem with Bisection Method

a is 0, and b is 1.

x_root_1 =

    0.8145

----

a is 1, and b is 2.

x_root_2 =

    1.8667

f(x) Plot

x-axis: x

y-axis: $e^x - 4x + 1$