MATLAB CODE

clc

clear

%% Taking input from user

a = input('What is the lower limit? ');

b = input('What is the upper limit? ');

n = input('What is the number of intermediate points? ');

delta\_x = (b-a)/n; % Increment in x

c = max(a,b) % To set the axex limit

%% Initialization

x1 = a;

x2 = x1 + delta\_x;

x3 = x2 + delta\_x;

%% Taking thefunction as input from user

str = input('Give an equation in x: ','s'); % the user types in, for instance 2\*x^2-3\*x+4

f = inline(str,'x') ;

%% Evaluating the function for x1, x2 & x3

while (x3 <= b)

y1 = feval(f,x1);

y2 = feval(f,x2);

y3 = feval(f,x3);

if y1>y2 && y2<y3

fprintf('The solution lies betwee %f & %f \n The solution is (approximately)%f: \n',x1,x3,x2);

break

else

x1 = x2;

x2 = x3;

x3 = x2 + delta\_x;

end

fplot (f,[a b], 'b')% Plotting the function

grid on

hold on

plot(x2,y2,'\*') % Plotting the minimum pooint

hold off

end

Python Code:

import math as mp

a = int(input("Enter the A value"))

b = int(input("Enter the B value"))

n = int(input("Enter the N value"))

D = (b-a)/n

print("a = ", a)

print("b = ", b)

print("Delta = ", D, "\n")

def equation(x):

return 10-(mp.sqrt(x))\*mp.sin(x) if x != 0 else 0# Change the equation as per your need

def elem\_method(x1,x2,x3):

while x3 <= b:

f1 = equation(x1)

f2 = equation(x2)

f3 = equation(x3)

if f1 >= f2 and f2 <= f3:

print("f1:",f1,"f2", f2,"f3",f3)

print("The minimum point is at x = ",x2,"and the function value is ",f2,"lies b/w",x1,x3 ,"\n")

break

else:

print("f1:",f1,"f2", f2,"f3",f3)

print("The minimum does not lie b/w the intervals of",x1,"and",x2, "\n")

x1 = x2

x2 = x3

x3 = x2 + D

x1 = a

x2 = x1 + D

x3 = x2 + (D)

print("x1 = ", x1)

print("x2 = ", x2)

print("x3 = ", x3,"\n")

if x3 <= b:

elem\_method(x1,x2,x3)

else:

print("No minimum exists in the interval ",a,"and",b)