Numerical Computing Lab Session 1:

Task 1(If more than one root kindly mention all values)

Function	Root (by visualization)
$f_1(x) = \cos(x) - 1.3x$	
$f_2(x) = x\cos(x) - 2x^2 + 3x - 1$	
$f_3(x) = 2x\cos(2x) - (x+1)^2$	

Task 2 (Bisection Method)

$$\boldsymbol{f_1(x) = \cos(x) - 1.3x}$$

Tol	No. of Iterations	Interval	Root
0.001			
0.00001			

Repeat the process by selecting another interval

Tol	No. of Iterations	Interval	Root
0.001			
0.00001			

$$\boldsymbol{f_2(x) = x\cos(x) - 2x^2 + 3x - 1}$$

Tol	No. of Iterations	Interval	Root
0.001			
0.00001			

Repeat the process by selecting another interval

Tol	No. of Iterations	Interval	Root
0.001			
0.00001			

$$f_3(x) = 2x\cos(2x) - (x+1)^2$$

Tol	No. of Iterations	Interval	Root
0.001			
0.00001			

Repeat the process by selecting another interval

Tol	No. of Iterations	Interval	Root
0.001			
0.00001			

Write your Observations:

Task 3 (Newton Raphson Method)

$$f_1(x) = \cos(x) - 1.3x$$

Tol	No. of Iterations	Starting Point	Root
0.001			
0.00001			

Repeat the process by selecting another interval

Tol	No. of Iterations	Starting Point	Root
0.001			
0.00001			

$$f_2(x) = x\cos(x) - 2x^2 + 3x - 1$$

Tol	No. of Iterations	Starting Point	Root
0.001			
0.00001			

Repeat the process by selecting another interval

Tol	No. of Iterations	Starting Point	Root
0.001			
0.00001			

$$f_3(x) = 2x\cos(2x) - (x+1)^2$$

Tol	No. of Iterations	Starting Point	Root
0.001			
0.00001			

Repeat the process by selecting another interval

Tol	No. of Iterations	Starting Point	Root
0.001			
0.00001			

Write your Observations:

Task 4:

Function	Root (by fsolve)
$f_1(x) = \cos(x) - 1.3x$	
$f_2(x) = x\cos(x) - 2x^2 + 3x - 1$	
$f_3(x) = 2x\cos(2x) - (x+1)^2$	