**CSCI 2150L**

**Lab Assignment 4:**

**Assigned: 3/18/2015, Wednesday**

**Due: 3/25/2015, Wednesday**

**Spring 2015**

**Grade out of: 40**

**Work in group: 2 students per group**

1. Write a menu - driven program in MATLAB to find the roots of a function using the following four root finding methods:
2. Bisection method
3. Newton Raphson iteration method
4. Secant Method
5. False Position method
6. The function and its initial guess values should be passed as parameters to the function.
7. The program should work for any given function passed as a parameter to the program along with its initial guess (in case of Newton method) or the initial 2 points in case of all the other methods.
8. In case of Newton’s method, there should not be any hard-coding, neither of the function nor of its derivative. Devise logic to find the derivative of the function that has been passed to the program.
9. Also, display the total number of iterations required for the function to converge. Do not assume any given number of iterations in your program.
10. **Plot the function for every method. The graph should display the function intersecting at the X axis (Y = 0). The point where it intersects the X-axis should be the root of your function.**
11. Your program should work for any given function for all the four methods.
12. Label your graph conveying what root finding method is used, what the function is and where the point of intersection is.

* I expect everyone to submit a working and well commented program. Name your function and file as Root\_Finding ([Paramters]).
* Mention your Names inside your Root\_Finding.m file under comments.
* Please upload only the MATLAB file in the dropbox in the folder named Assignment 4.
* I also expect equal participation by all team members in this assignment.
* **Strict action shall be taken if found that the assignment has been copied.**