CSCI 2150 Introduction to Scientific Computing

Assignment 6

Points 100

1) Use MATLAB to find the polynomial using Newton’s Interpolation which interpolates the points (-3.2, 4.5), (-1.5, 0.5), (0.3, 0.6), (0.7, 1.2), (2.5, 3.5). These points are given in a text file Newton.txt. You will be required to load this text file into MATLAB and then do the rest of the program.

Plot the polynomial that you get.

2) Use MATLAB to implement Lagrange's interpolation formula to find the interpolating polynomial *P*3 through the points (0, 3), (1, 2), (2, 7), and (4, 59), and then approximate value *f* (3) by *P*3 (3).Read the data from the text file Lagrange.txt. You will be required to load the text file into MATLAB and then do the rest of the program.

For approximating the value for f (3), Do Not hard-code the value for input=3 in your program. For example, your formula for approximation should be implemented in a generic form. It should take input as 3 and then approximate f (3).

Plot the polynomial that you get.

Please do not use any inbuilt functions to do your assignment. Your input data has to be read from the two files given.

You can find those files on elc along with this assignment.