CSE2202: Numerical Methods Lab

Online 5 A2 Time 40 Minutes

Instructions:
2 sets of problems are given for online lab test.
Set 1: Curve Fitting Using Lagrange Interpolation
Set 2: Curve Fitting Using Newton Divide Difference Interpolation.
If you choose Set 1 you will get 20% penalty and for choosing between Set 3 there is no penalty.
After completing your code you must upload you code and output in the following google form link.
Time for Set 1: 30 Minutes
Time for Set 2: 40 Minutes

Problem Description:

The following is a table that lists values of cube roots of numbers from 1.0 to 2.0 in steps of 0.1.

X	$\sqrt[3]{x}$
1.0	1.0
1.1	1.032
1.2	1.063
1.3	1.091
1.4	1.119
1.5	1.145
1.6	1.170
1.7	1.193
1.8	1.216
1.9	1.239
2.0	1.260

1. Write a program that fit 4th degree Lagrange Interpolating Polynomial and use the equation to interpolate the cube roots for numbers 1.25 to 1.75 in steps of 0.05. Print a table as shown below:

x	Interpolated cube root of x	True Value of $\sqrt[3]{x}$	Absolute Error
1.25 1.30 . . 1.75			

2. Write a program that fit 4^{th} degree Newton Divide Difference Interpolating Polynomial and use the equation to interpolate the cube roots for numbers 1.25 to 1.75 in steps of 0.05. Print a table as shown below:

x	Interpolated cube root of x	True Value of $\sqrt[3]{x}$	Absolute Error
1.25 1.30 . . 1.75			