CL 249: Computational Methods Lab
Date: 27/08/24
Assignment 4: Newton's interpolation and Cubic splines

1. Fit an 'nth' order Newton's interpolating polynomial that best represents the data:

x	0	1	2.5	3	4.5	5	6
y	2	5.4375	7.3516	7.5625	8.4453	9.1875	12

This can be done by checking for errors when adding the next higher-order term sequentially.
Further, determine the y value at x=3.5.

2. Fit cubic splines to the following data:

x	1	2	3	5	7	8
f(x)	3	6	19	99	291	444

Also, estimate the value of the function at x=4.

Submission Details:

Q1.
1. Submit the Python script or Jupyter Notebook. Ensure your code is well-documented, with comments explaining the logic behind each step.
2. Submit a PDF file containing the final polynomial form and value at x= 3.5.

Q2.
1. Submit the Python script or Jupyter Notebook. Ensure your code is well-documented, with comments explaining the logic behind each step.
2. Submit a PDF file containing the final polynomial form and value at x= 4.

You can make a single PDF file containing answers to both questions.