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Advanced Numerical Method

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1. Write a computer program that gets a polynom degree, n, form the user and a list of data points and fits the n–degree polynomial to that data.

2. Consider the following equation:

$$f(x) = \frac{1}{x} \tag{1}$$

In the range of

$$1 < x < 2$$

and using the program produced in item 1:

   (a) Generate a data set containing 20 points from equation (1).

   (b) Fit polynomials of order 5, 10 and 15 to the data points.

   (c) Plot all the points and the fitted curves on a single graph and compare the results.

3. Find a suitable function for spline curve fitting and fit a natural spline curve to the above data set points.