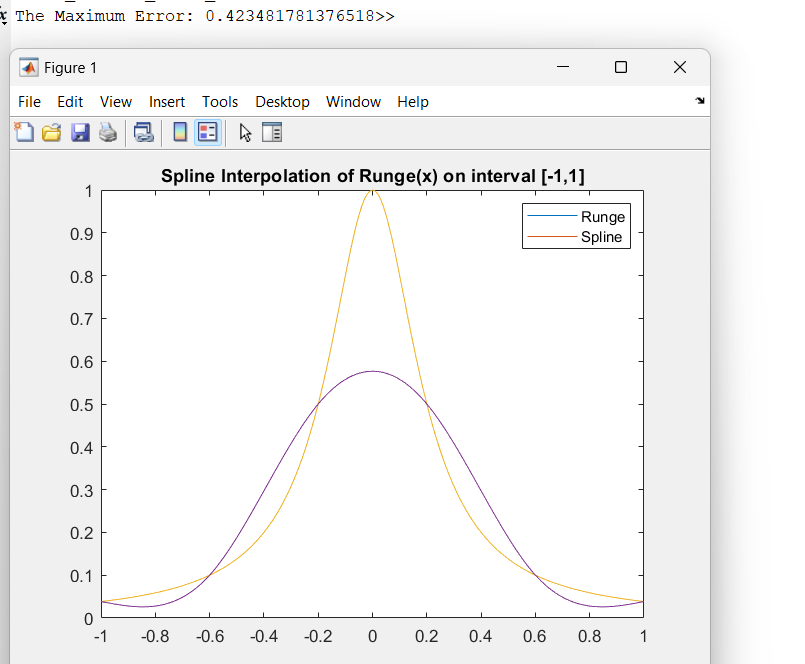
Problem 1.

(a – f) Initially using 5 knots to generate the spline, the maximum error of the spline approximation of the Runge function was .42



Increasing the number of knots to n=4,8,16,32,64…, we observe:

A screenshot of a computer code

Description automatically generated

The spline appears to converge quadratically to the runge function, as each time the size of the intervals are halfed, the error is atleast 4x smaller. The spline s appears to converge to f, and this agrees with the theoretical result that splines can converge to f.

Code: A screenshot of a computer program

Description automatically generated

A screenshot of a computer

Description automatically generated

Problem 2