# Coding Assignment 3
# Linear System and Interpolation

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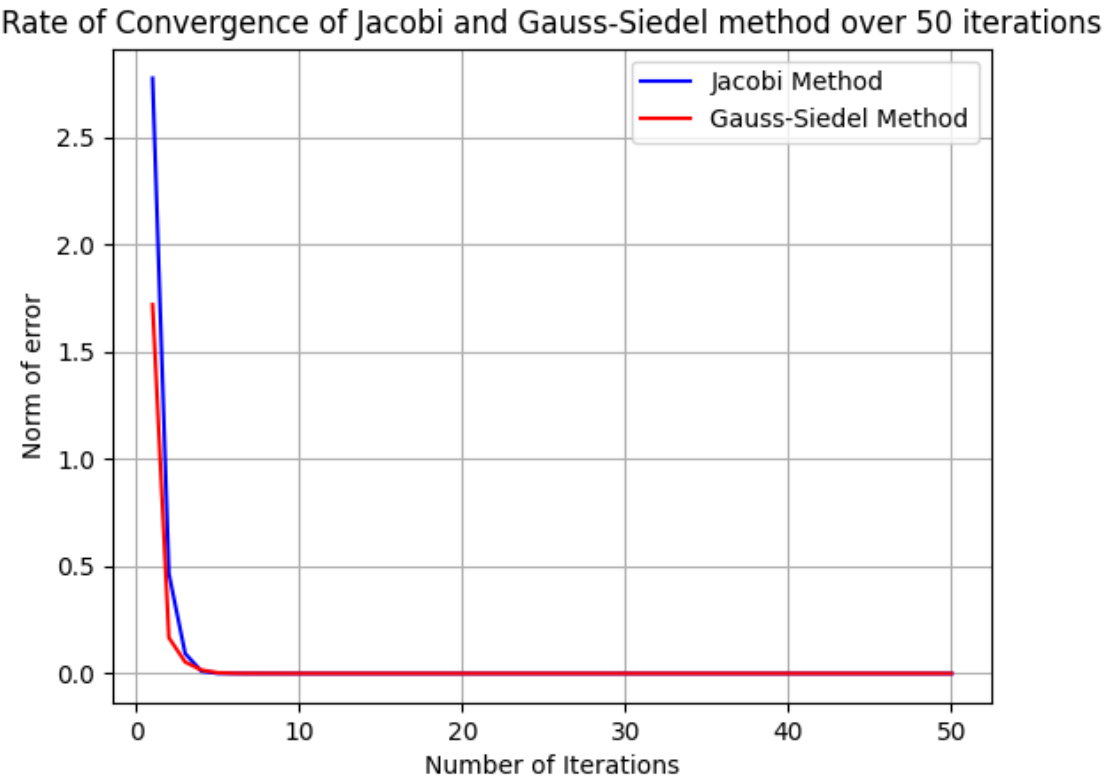
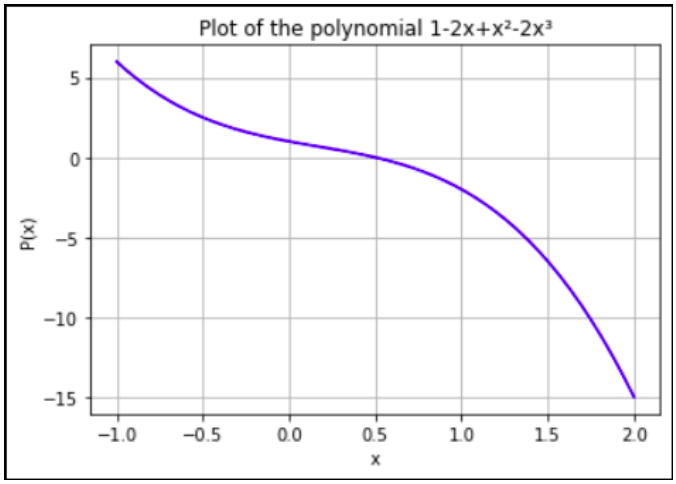
Q1. Approach mentioned in comments
Q2. Approach mentioned in comments

Q3. Approach mentioned in comments
Curve which I got between number of iterations and error as per Jacobi method and Gauss-Siedel method is :



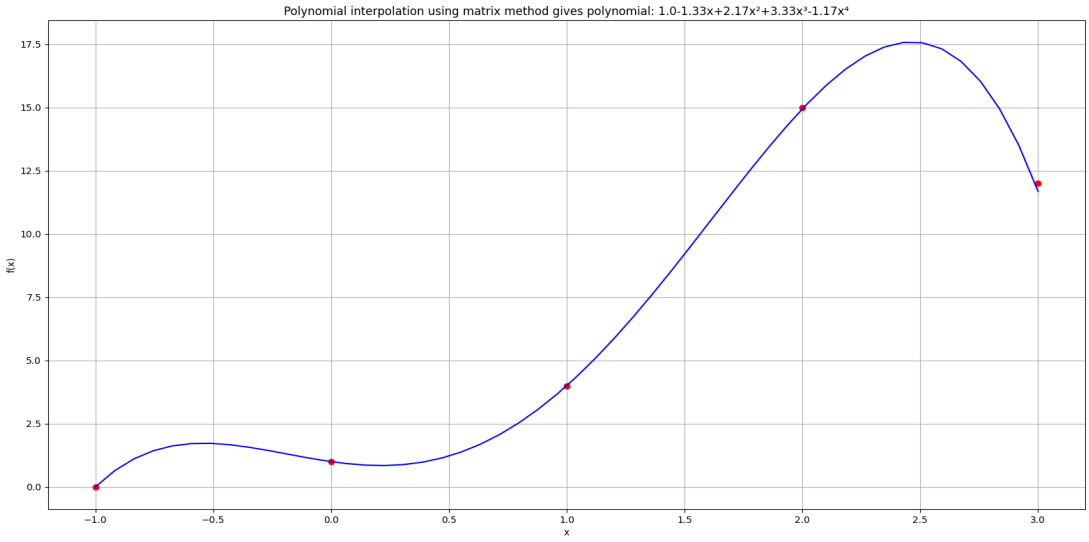

Q4. Approach mentioned in comments
Test Cases and plots:

1. p = Polynomial([1, -2, 1, -2])
   p.show(-1, 2)

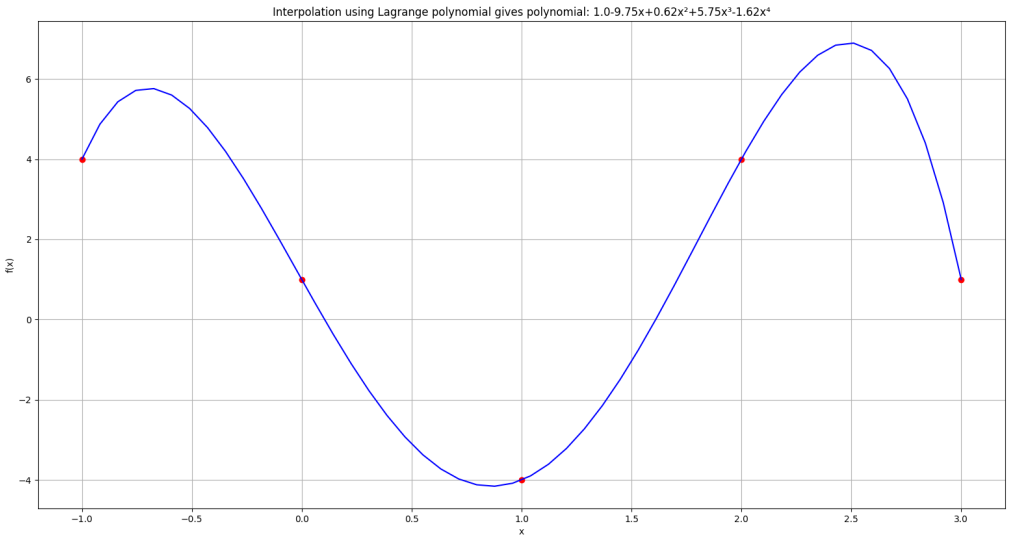



2.

p = Polynomial([])
p.fitViaMatrixMethod([(1,4), (0,1), (-1, 0), (2, 15), (3,12)])




3.
q = Polynomial([])
q.fitViaLagrangePoly([(1,-4), (0,1), (-1, 4), (2, 4), (3,1)])




Q5. We can observe that for different interpolations, for large samples, the curve almost becomes identical to the actual curve.