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| Lagrange | |
| Strengths | Weaknesses |
| * Easy to understand and implement * Provides exact interpolation of the data points * Algorithm is efficient * Can handle bot evenly and unevenly space data points | * Computation of the polynomial coefficients can be time-consuming * Does not provide and exact error estimate * May not always accurately capture the behavior of the function |

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| Newton Divided Difference | |
| Strengths | Weaknesses |
| * The method provides a very accurate polynomial approximation of the data points * It can handle many data points * The algorithm is relatively simple | * The computation of divided differences can be time-consuming * The method can suffer where the accuracy of the interpolation decreases as the degree of the polynomial increases * The method does not provide explicit error estimate |

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| Cubic Spline Interpolation | |
| Strengths | Weaknesses |
| * The method provides a smooth interpolation of the data points * It can handle many data points and irregularly spaced data points * It provides a good balance between accuracy and computational efficiency | * The method is sensitive to the choice of boundary conditions, and different choices can lead to different interpolated functions * The computation of spline coefficients can be time-consuming |