# Lab 3

## Interpolation and Approximation

1. Write a program to approximate the functional value at any given x from given n no. of data using Lagrange's interpolation.

2. Write a program to approximate the functional value at any given x from given n no. of data using Newton's forward difference interpolation.

3. Write a program to approximate the functional value at any given x from given n no. of data using Newton's backward difference interpolation.

4. Write a program to approximate the functional value at any given x from given n no. of data using Newton's central divided difference interpolation.

5. Write a program to approximate the functional value at any given x from given n no. of data using Cubic Spline interpolation.

6. Compare various method interpolation in terms of speed, accuracy and ease of coding.

7. Write a program to implement least square approximation for linear data.

8. Write a program to implement least square approximation for non- linear data.

9. Write a program to implement least square approximation polynomial data.

**Note:** Lab report must contain algorithm, source code and output of each programming problem.