***University of Barishal***

**Assignment on**

**Newton’s forward interpolation: representation of**

**numerical data by a polynomial curve**

**Course Title: Numerical Methods**

**Course Code: CSE-3107**

**Prepared For**

Md. Erfan

Assistant Professor

Department of Computer Science & Engineering

University of Barishal

**Prepared By**

Pranta Kumar Biswas

Class Roll: 17CSE028

Session: 2016-17  
Semester: 5th

Department of Computer Science & Engineering

University of Barishal

**Newton’s forward interpolation: representation of**

**numerical data by a polynomial curve**

Published: International Journal of Statistics and Applied Mathematics 2016; 1(2): 36-41

**Newton’s forward interpolation: representation of numerical data by a polynomial curve:** Interpolation, which is the technique of estimating intermediate values of a function of the independent variable.

Newton's forward interpolation formula is a finite difference identity giving an interpolated value between tabulated points in terms of the first value and the powers of the forward difference.

It’s a formula which has been derived from newton’s forward interpolation. It’s a representation of the numerical data on a pair of variable by a polynomial curve. This is a repeated application for counting interpolated values. The derived formula is suitable, when the values of the argument or independent variable are at equal interval.

**Why:** With the derived formula from Newton’s forward interpolation, numerical computations can be reduced, large number of interpolated values can be computed, represent the numerical data by a polynomial curve and also familiar with real life problems(Ex. Large number of population) and application of the formula.

**How:** To extend the formula of newton’s forward interpolation, set of (n + 1) pairs of values of x and y is applied to the formula where x is equal interval. By solving the equations and algebraic expansion, a polynomial curve for numerical data on a pair of variables can be represented. The required formula for representing a given set of numerical data on a pair of variables by a suitable polynomial we have aimed at.

**Limitations**

In case of large number of data swings, the curve will be unnatural and if we calculate any missing value with the formula, it will not be accurate. Again if, large amount of swings missing value predicted by the curve has high error rates.

**Future Work:**

Missing value predicted by the curve has high error rates in case of large number of data swings can be solved.