

# School of Computer Science Engineering and Technology

Course-BTech

Course Code - CSET211

Year - Second

Date - 01/09/2024

Type - AI Core-1

Course Name - Statistical Machine Learning

Semester - ODD

Batch - CSE 3rd Semester

## Lab Assignment - 5: Polynomial Regression

### CO- Mapping

Section	CO1	CO2	CO3
Section 1: Q1-Q3	✓		
Section 2	✓		✓

### Section 1: Polynomial regression

Given a dataset *bluegills.txt* having *age* and *length* fields. Write a Python script to Load the file and perform following task:

Q1: Design a linear regression model.

Q2: Divide the data into training and testing data and fit polynomial regression for degree 1 to degree 10 polynomials.

Q3. Plot training error and test error (in RMS error) versus polynomial degree.

### Section 2: Study of Nifty 50 index

A stock market trader wants to study the relationship between opening prices of *Nifty 50* indexes. Help him choose the best regression technique to fit in the data by analysing  $R^2$  error. Visualize the results using suitable plots.