

Assignment- 3

1. What are the fundamental concepts underlying regression analysis, and how are they applied in statistical modeling?
2. Explain the Blue property assumptions in regression analysis and their significance in model estimation.
3. How does least squares estimation contribute to finding the best-fitting line in linear regression models?
4. Write a Python function to perform simple linear regression using the least squares method. Given arrays representing independent and dependent variables, calculate the slope and intercept of the regression line.
5. Develop a Python script to perform multiple linear regression using libraries like NumPy or scikit-learn. Given a dataset with multiple independent variables and one dependent variable, train a regression model to predict the dependent variable based on the independent variables.