SUMMARY:

The nature of regression analysis is explained. Shown that the Ordinary least squares estimators of slope and intercept term follows normal distribution and an estimate of error variance has chi-square distribution with (n-2) degrees of freedom. Derived the expression for the best linear unbiased predictor and shown that the problem of obtaining BLUP reduces to obtaining BLUE for the model parameters. The BLUP for the mean response at a specified value will be obtained by replacing the regression and slope parameters with their BLUE. The theoretical derivations were illustrated with a numerical example and presented the interpretation of the results. The two variable model is extended and introduced to Multiple linear regression mode. Derived least squares estimators for regression coefficient and shown that they unbiased, BLUE and consistent. The error variance is estimated and its statistical properties are presented.