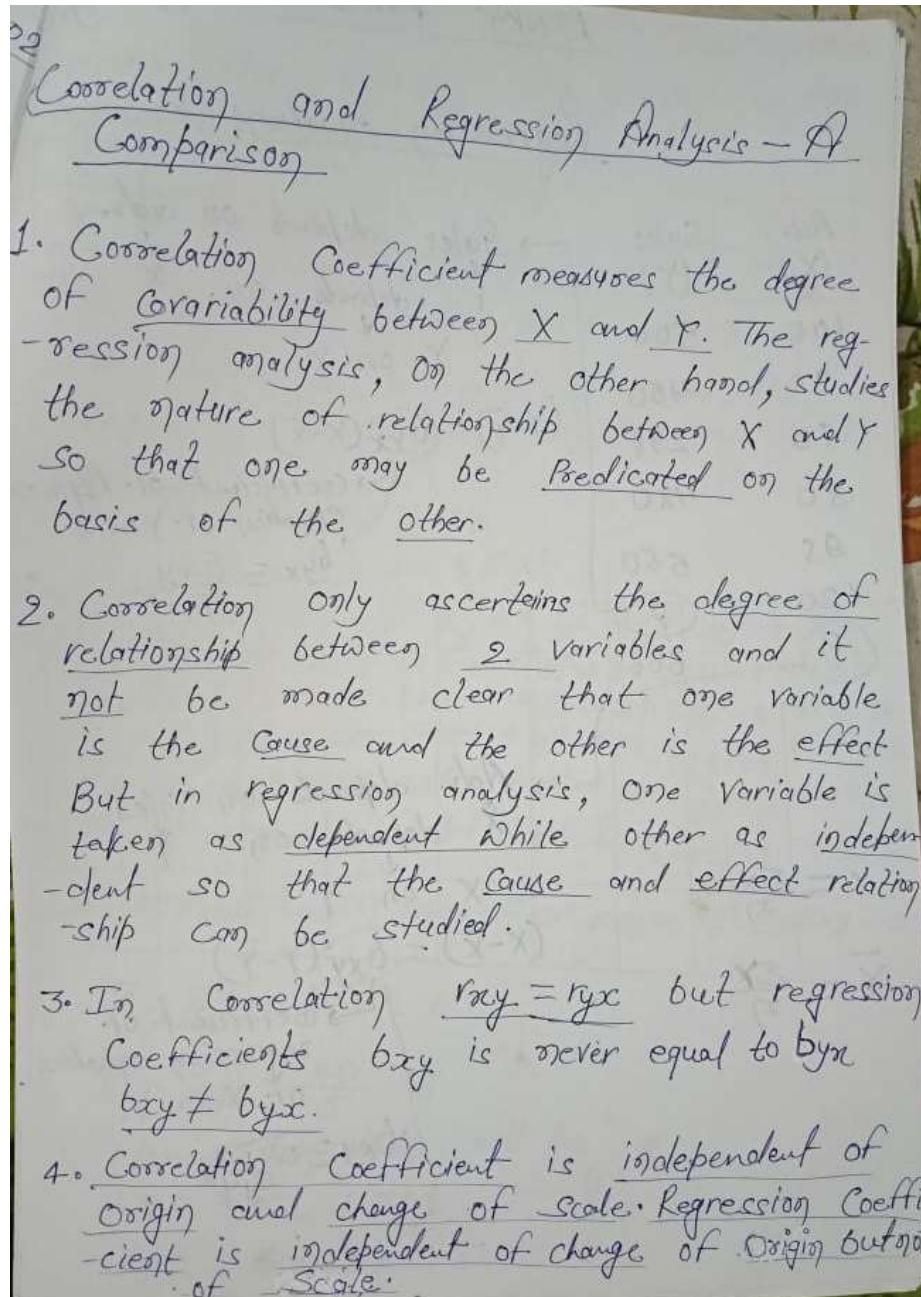Pinky Rani
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Correlation and Regression Analysis – A Comparison

1. Correlation Coefficient measures the degree of Covariability between X and Y. The regression analysis, On the other hand, studies the nature of relationship between X and Y so that one may be Predicated on the basis of the other.

2. Correlation only ascertains the degree of relationship between 2 variables and it not be made clear that one variable is the Cause and the other is the effect But in regression analysis, One Variable is taken as dependent while other as independent so that the Cause and effect relationship can be studied.

3. In Correlation $r_{xy} = r_{yx}$ but regression Coefficients b_{xy} is never equal to b_{yx} $b_{xy} \neq b_{yx}$.

4. Correlation Coefficient is independent of origin and change of scale. Regression Coefficient is independent of change of Origin but not of Scale.

* **Properties of Regression Coefficients** *

1. Both the regression coefficients will always have the same either +ve or -ve.

2. The value of regression coefficient also lie between -1 to +1.

3. The correlation coefficient and the regression coefficient will bear the same sign either +ve or -ve.

4. Regression coefficients are independent of change of origin but not to scale.

5. The correlation coefficient is the geometric mean between the regression coefficient.

$$r = \sqrt{bxy \cdot byx}$$