

Correlations report

Education



Correlation

Introduction

In this project, we are interested in determining if there is any relationship between a dependent variable (GPA) and the independent variables (final marks and the total). In this study, we will use the Pearson correlation coefficient and the Spearman rank correlation coefficient to determine if there is any relationship between a dependent variable and independent variable. We assume that the variables are normally distributed and are continuous.

Data description

In this project, we are using a sample size of 105 and the data has 4 variables gender, GPA, final, and totally. The dependent variable is the GPA, the independent variables are; Final marks, and the total marks. The measurement of these variables is the ordinal, and the sample size is 105.

Testing the assumption of normality

The assumptions of the correlation analysis are that the data are normally distributed. To access these assumptions, we conduct a normal probability plot and determine the kurtosis and skewness of the data.

The alpha is 0. 01.

Results and analysis

Section 1

Research question

Hypothesis

Null hypothesis; there is no correlation between the dependent variable and

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independent variables.

In this section, we will analyze the correlation coefficient of the pair of variables. In this we are determining if there is any relationship between the variables. The variables in this section are; the GPA, the total grade, and the final scores. A Pearson correlation coefficient will be used to determine if there is any relationship between the pairs of variables. A Spearman correlation coefficient will also be determined for every pair of variable.

Results of section 1 analysis

The scatter plot

Step 3

Does there exist a linear relationship between the dependent and independent variables.

Hypothesis

The null hypothesis; there is a relationship between the GPA and the final exam marks.

The alternative hypothesis; there is no relationship between the GPA and the final exam marks.

Section 4

The partial auto correlation (inter-correlation matrix)

The highest correlation coefficient is between total and final that is 0. 881 and a p-value of 0. 000.

Conclusions

I weakness of is, Correlation analysis just indicates if the variables are related or not. In this case, it does the relationship between the variables

and thus it's advisable to use the regression analysis to obtain the nature of relationship between the variables.

The strength correlation analysis is that, it's able to determine if there is any relationship between the dependent variable and independent variables.

References

Gerald Kelle (2014). STATISTICS FOR MANAGEMENT AND ECONOMICS, ISBN-10: 1285425456 (10th ed.). New York: McGraw-Hill/Irwin.