

EKT 720 Assignment 6

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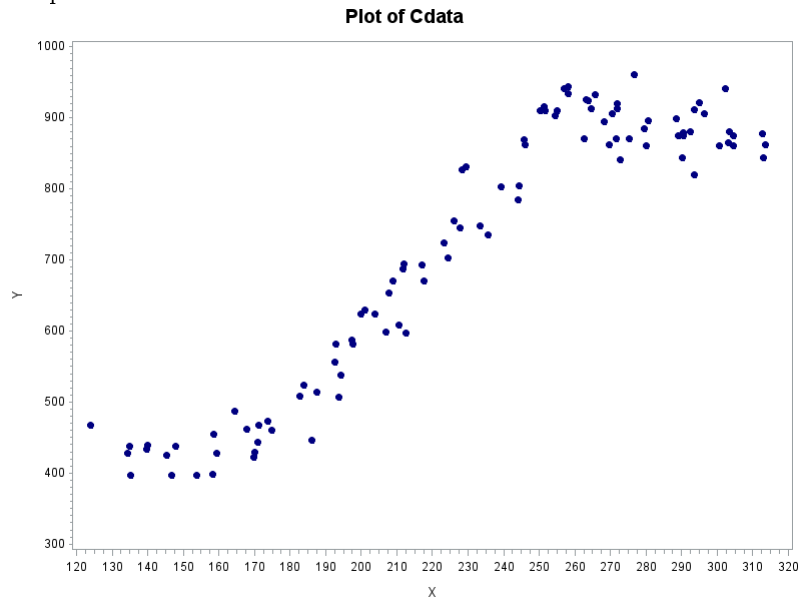
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Question 1

1. Bootstrapping is a procedure of resampling from a given data to analyse certain parameters using the same sample. The procedure can be used to resample using the x y pairs where the pairs are used to estimate a new set of parameters that can be compared with the previously obtain parameters. The procedure can also be used to resample using residuals where the x matrix is fixed since the y's are used in the estimation of the residuals.
2. Using the given SAS programs:
 - (a) the distribution of β 's when bootstrapping the pairs, the average values are:
 $\hat{\beta}_1 = -657.06339$, which is normally distributed since the kurtosis and skewness are close to zero.
 $\hat{\beta}_2 = 26.7782116$, which is relatively normally distributed.
 - (b) the distribution of β 's when bootstrapping the errors, the average values are:
 $\hat{\beta}_1 = -641.76933$, which is normally distributed since the kurtosis and skewness are close to zero.
 $\hat{\beta}_2 = 26.75325$, which is relatively normally distributed.
3. The confidence interval for R^2 ,
 - (a) using pairs (using proc reg):
(0.7289167 ; 0.8449291)
 - (b) using errors (using proc reg):
(0.7289167 ; 0.8449291)

Question 2

1. Graphics:



2. We assume that $X_1^* < X_2^*$,
 $X_1^* = 174.93$ and $X_2^* = 255.33$
3. The confidence interval:
- (a) for X_1^* : (161.07 ; 181.43)
 - (b) for X_2^* : (252.60 ; 258.62)

Graph with estimated regression line(s):
Plot of Cdata Regression

