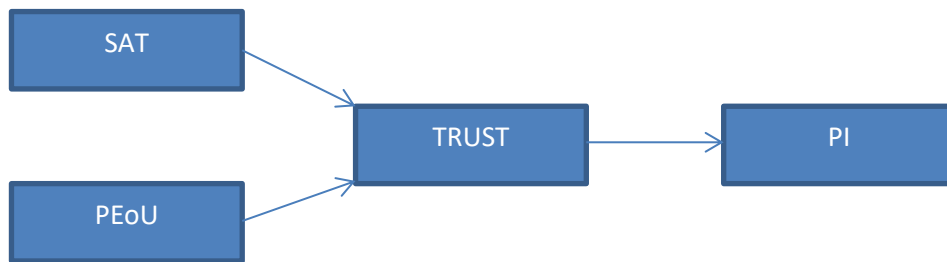


ISYS3401 – IT Evaluation

Week 4 – Tutorial (Regression)

Q1. Multivariate Regression

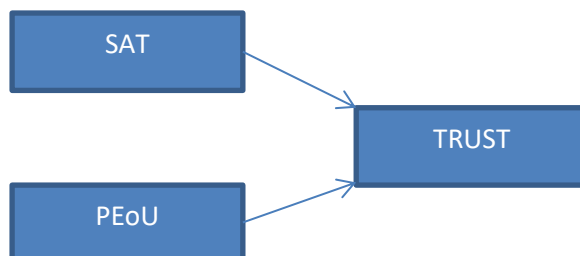
Implement the following model using the data given in Class Activities.



- a) Perform a univariate linear regression with a Line Fit plot for TRUST on PI



- b) Perform multivariate regression with a Line Fit plot for SAT and PEoU on TRUST.



- c) Looking at the numbers in (b), you decide to employ one of the selection techniques (forward, backward or stepwise) to explore the model further. Comment on your findings.
- d) Next, repeat (b) and (c), but this time focus on Store A and Store B individually. Comment on your findings (Homework, please submit your answer in Canvas, and will be discussed in Lecture).

Q2. Multivariate Regression (Interactions)

Salary Data tab provides salary and age data for 35 employees, along with an indicator of whether or not the employees have an MBA (Yes and No). The MBA indicator variable is categorical. Since regression analysis requires numerical data, we could include them by coding the variables. For example, coding “No” as 0 and “Yes” as 1.

a) Convert variable MBA to binary values (No→0 and Yes→1)

b) Perform two separate simple linear regressions for

(i) Age and Salary and

(ii) MBA and Salary.

Write a brief report summarising your results (including the regression models).

c) Perform multivariate regression for Age and MBA on Salary. Write a brief report summarising your results (including regression model).

d) Compare the coefficient estimates between results in (c) and (d). Discuss about changes in the coefficient estimates Age and MBA

e) What will be the best regression model? [Note: This is a bit advanced and will be discussed in lecture next week]

Q3 Univariate Regression

If you have not done this question in class, then do it as your homework.

The data below are the measures of two variables: study factor (independent variables) X and outcome factor (dependent variable) Y.

X	Y
1305	11
1000	12
1175	13
1495	14
1060	15
800	16
1005	16
710	17
1150	18
605	20
690	21
700	23
625	24
610	27
450	30

- Using EXCEL – Data Analysis Tool, carry out a simple linear regression with a Line Fit plot using these data.
- Fill in the blanks below without looking at the answer in (a):

SUMMARY OUTPUT						
Regression Statistics						
Multiple R	0.813680325					
R Square						
Adjusted R Square	0.636081492					
Standard Error	3.380903287					
Observations	15					
ANOVA						
	df	SS	MS	F	Significance F	
Regression		291.1367419			0.000223707	
Residual		148.5965915				
Total	14	439.7333333				
	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	31.91255948	2.803609497	11.3826692	3.92706E-08	25.85572941	37.96938955
X	-0.015073871	0.00298682		0.000223707	-0.021526503	-0.008621239

- Write a brief report summarising your results and conclusions.