James Hahn
STAT1221
Homework #5
MINITAB Output

Chapter 9

7a)
Regression Analysis: Y versus X1, X2, X3
Analysis of Variance

Source	DF	Adj SS	Adj MS	F-Value	P-Value
Regression	3	1518.14	506.05	24.02	0.000
X1	1	30.29	30.29	1.44	0.248
X2	1	94.91	94.91	4.51	0.050
X3	1	200.35	200.35	9.51	0.007
Error	16	337.06	21.07		
Total	19	1855.20			

Model Summary

S	R-sq	R-sq(adj)	R-sq(pred)
4.58978	81.83%	78.43%	44.49%

Coefficients

Term	Coef	SE Coef	T-Value	P-Value	VIF
Constant	-36.76	7.01	-5.24	0.000	
X1	0.000763	0.000636	1.20	0.248	1.06
X2	1.192	0.562	2.12	0.050	2.99
X3	4.72	1.53	3.08	0.007	3.08

Regression Equation

Y = -36.76 + 0.000763 X1 + 1.192 X2 + 4.72 X3

Fits and Diagnostics for Unusual Observations

Obs	Y	Fit	Resid	Std Resid		
8	35.70	25.67	10.03	2.26	R	
11	14.50	19.16	-4.66	-2.31	R	X

R Large residual
X Unusual X

7b & 7c)

Regression Analysis: Y versus X2, X1, X3

Analysis of Variance

Source	DF	Adj SS	Adj MS	F-Value	P-Value
Regression	3	1518.14	506.05	24.02	0.000
X2	1	94.91	94.91	4.51	0.050
X1	1	30.29	30.29	1.44	0.248
X3	1	200.35	200.35	9.51	0.007
Error	16	337.06	21.07		
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Regression Equation

Y = -36.76 + 1.192 X2 + 0.000763 X1 + 4.72 X3

Fits and Diagnostics for Unusual Observations

Obs	Y	Fit	Resid	Std Resid		
8	35.70	25.67	10.03	2.26	R	
11	14.50	19.16	-4.66	-2.31	R	X

R Large residual
X Unusual X

Chapter 10

4a & 4d)

Regression Analysis: Y versus X3

The regression equation is
Y = - 28.53 + 7.080 X3

Model Summary

S	R-sq	R-sq(adj)
5.09685	74.80%	73.39%

Analysis of Variance

Source	DF	SS	MS	F	P
Regression	1	1387.60	1387.60	53.41	0.000
Error	18	467.60	25.98		
Total	19	1855.20			

Regression Analysis: Y versus X1, X3

Analysis of Variance

Source	DF	Adj SS	Adj MS	F-Value	P-Value
Regression	2	1423.23	711.62	28.01	0.000
X1	1	35.63	35.63	1.40	0.253
X3	1	1414.88	1414.88	55.68	0.000
Error	17	431.97	25.41		
Total	19	1855.20			

Model Summary

S	R-sq	R-sq(adj)	R-sq(pred)
5.04083	76.72%	73.98%	41.71%

Coefficients

Term	Coef	SE Coef	T-Value	P-Value	VIF
Constant	-31.60	7.22	-4.38	0.000	
X1	0.000827	0.000698	1.18	0.253	1.06
X3	7.352	0.985	7.46	0.000	1.06

Regression Equation

Y = -31.60 + 0.000827 X1 + 7.352 X3

Fits and Diagnostics for Unusual Observations

Obs	Y	Fit	Resid	Std Resid		
8	35.70	25.54	10.16	2.09	R	
11	14.50	19.04	-4.54	-2.05	R	X

R Large residual
X Unusual X

4d)

Regression Analysis: Y versus X2, X1, X3

Analysis of Variance

Source	DF	Adj SS	Adj MS	F-Value	P-Value
Regression	3	1518.14	506.05	24.02	0.000
X2	1	94.91	94.91	4.51	0.050
X1	1	30.29	30.29	1.44	0.248
X3	1	200.35	200.35	9.51	0.007
Error	16	337.06	21.07		
Total	19	1855.20			

Model Summary

S	R-sq	R-sq(adj)	R-sq(pred)
4.58978	81.83%	78.43%	44.49%

Coefficients

Term	Coef	SE Coef	T-Value	P-Value	VIF
Constant	-36.76	7.01	-5.24	0.000	
X2	1.192	0.562	2.12	0.050	2.99
X1	0.000763	0.000636	1.20	0.248	1.06
X3	4.72	1.53	3.08	0.007	3.08

Regression Equation

Y = -36.76 + 1.192 X2 + 0.000763 X1 + 4.72 X3

Fits and Diagnostics for Unusual Observations

Obs	Y	Fit	Resid	Std Resid		
8	35.70	25.67	10.03	2.26	R	
11	14.50	19.16	-4.66	-2.31	R	X

R Large residual
X Unusual X