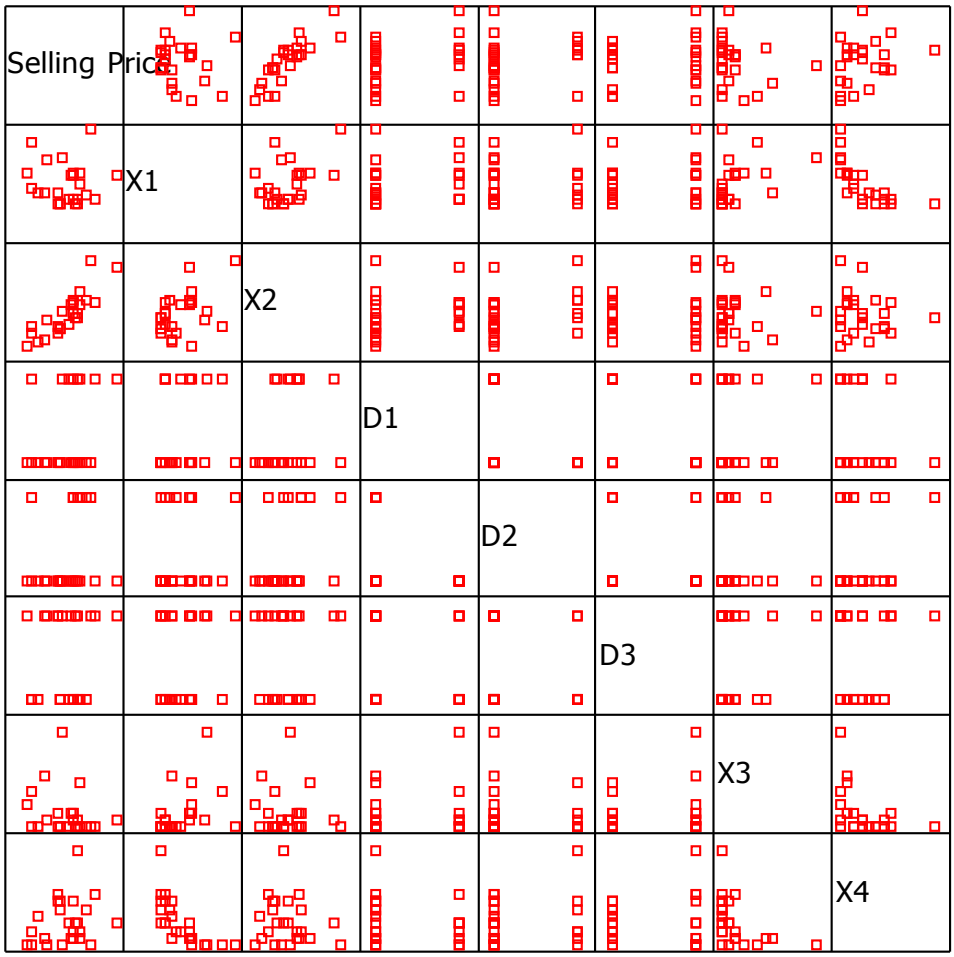
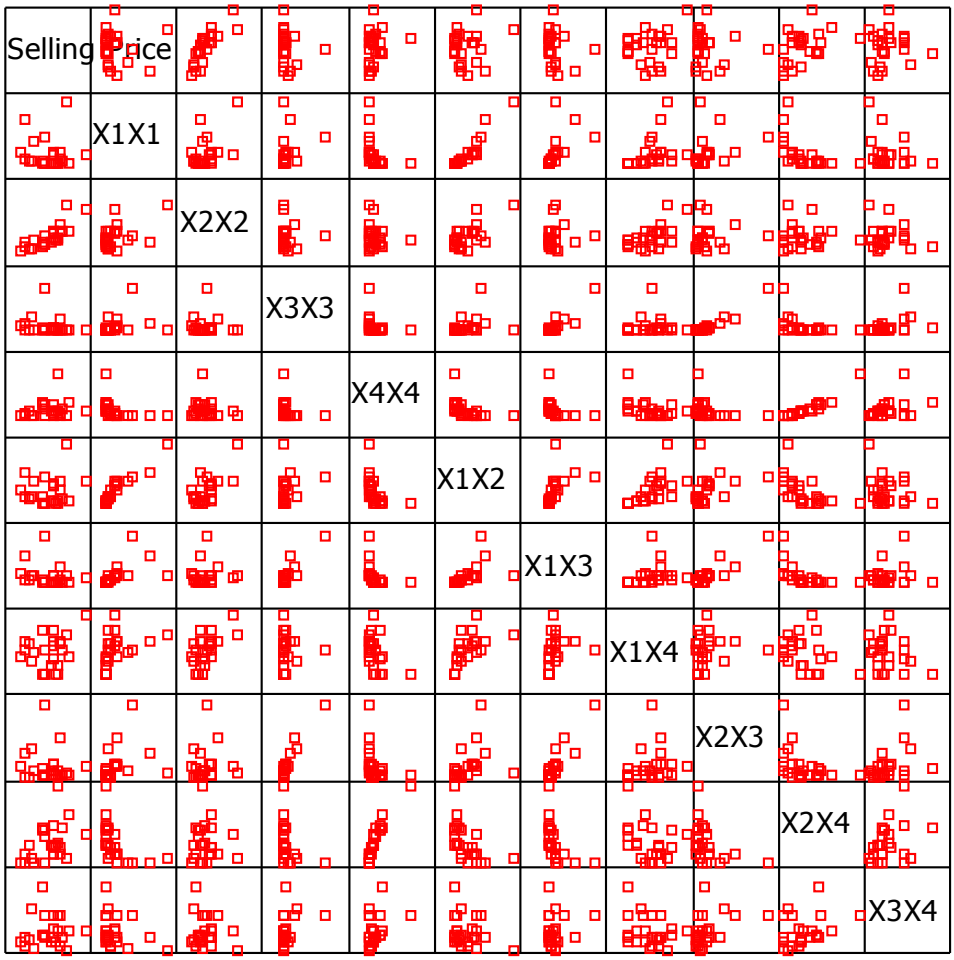
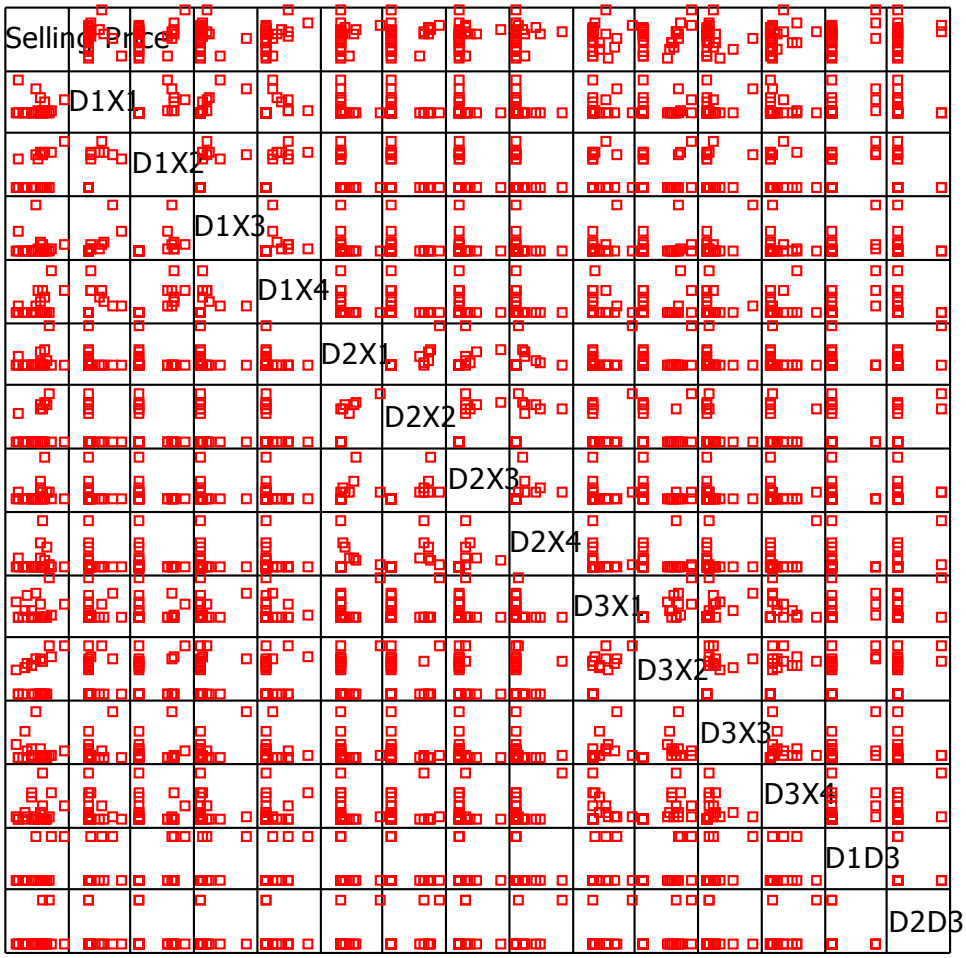
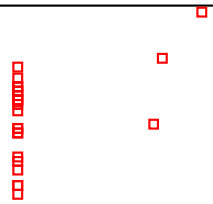
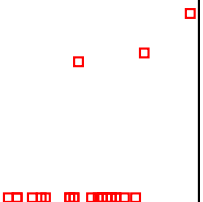
Answer of Exercises

Q1




Selling Price
X1X1
X2X2
X3X3
X4X4
X1X2
X1X3
X1X4
X2X3
X2X4
X3X4


Selling Price
D1X1
D1X2
D1X3
D1X4
D2X1
D2X2
D2X3
D2X4
D3X1
D3X2
D3X3
D3X4
D1D3
D2D3

Selling Price			
	D1D2X2		
		D1D2X3	
			D1D3X2

Model Summary[i]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.842[a]	.709	.696	5129.35	.709	56.032	1	23	.000
2	.978[b]	.956	.952	2030.30	.247	124.802	1	22	.000
3	.985[c]	.970	.965	1732.51	.013	9.213	1	21	.006
4	.992[d]	.985	.982	1263.98	.015	19.454	1	20	.000
5	.994[e]	.989	.986	1097.24	.004	7.540	1	19	.013
6	.996[f]	.992	.990	943.72	.003	7.684	1	18	.013
7	.997[g]	.994	.992	838.39	.002	5.807	1	17	.028
8	.998[h]	.996	.994	719.13	.002	7.106	1	16	.017

a. Predictors: (Constant), X2

b. Predictors: (Constant), X2, X1X2

c. Predictors: (Constant), X2, X1X2, D2

d. Predictors: (Constant), X2, X1X2, D2, D2D3

e. Predictors: (Constant), X2, X1X2, D2, D2D3, X3

f. Predictors: (Constant), X2, X1X2, D2, D2D3, X3, D2X2

g. Predictors: (Constant), X2, X1X2, D2, D2D3, X3, D2X2, D1X2

h. Predictors: (Constant), X2, X1X2, D2, D2D3, X3, D2X2, D1X2, D3X2

i. Dependent Variable: Selling Price

ANOVA[i]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.5E+09	1	1474224120	56.032	.000[a]
	Residual	6.1E+08	23	26310255.6		
	Total	2.1E+09	24			
2	Regression	2.0E+09	2	994336773	241.220	.000[b]
	Residual	9.1E+07	22	4122111.551		
	Total	2.1E+09	24			
3	Regression	2.0E+09	3	672108953	223.919	.000[c]
	Residual	6.3E+07	21	3001578.189		
	Total	2.1E+09	24			
4	Regression	2.0E+09	4	511851818	320.381	.000[d]
	Residual	3.2E+07	20	1597636.371		
	Total	2.1E+09	24			
5	Regression	2.1E+09	5	411297057	341.628	.000[e]
	Residual	2.3E+07	19	1203932.418		
	Total	2.1E+09	24			
6	Regression	2.1E+09	6	343888172	386.127	.000[f]
	Residual	1.6E+07	18	890609.360		
	Total	2.1E+09	24			
7	Regression	2.1E+09	7	295344391	420.181	.000[g]
	Residual	1.2E+07	17	702897.635		
	Total	2.1E+09	24			
8	Regression	2.1E+09	8	258885710	500.605	.000[h]
	Residual	8274324	16	517145.228		
	Total	2.1E+09	24			

a. Predictors: (Constant), X2

b. Predictors: (Constant), X2, X1X2

c. Predictors: (Constant), X2, X1X2, D2

d. Predictors: (Constant), X2, X1X2, D2, D2D3

e. Predictors: (Constant), X2, X1X2, D2, D2D3, X3

f. Predictors: (Constant), X2, X1X2, D2, D2D3, X3, D2X2

g. Predictors: (Constant), X2, X1X2, D2, D2D3, X3, D2X2, D1X2

h. Predictors: (Constant), X2, X1X2, D2, D2D3, X3, D2X2, D1X2, D3X2

i. Dependent Variable: Selling Price

Coefficients[a]

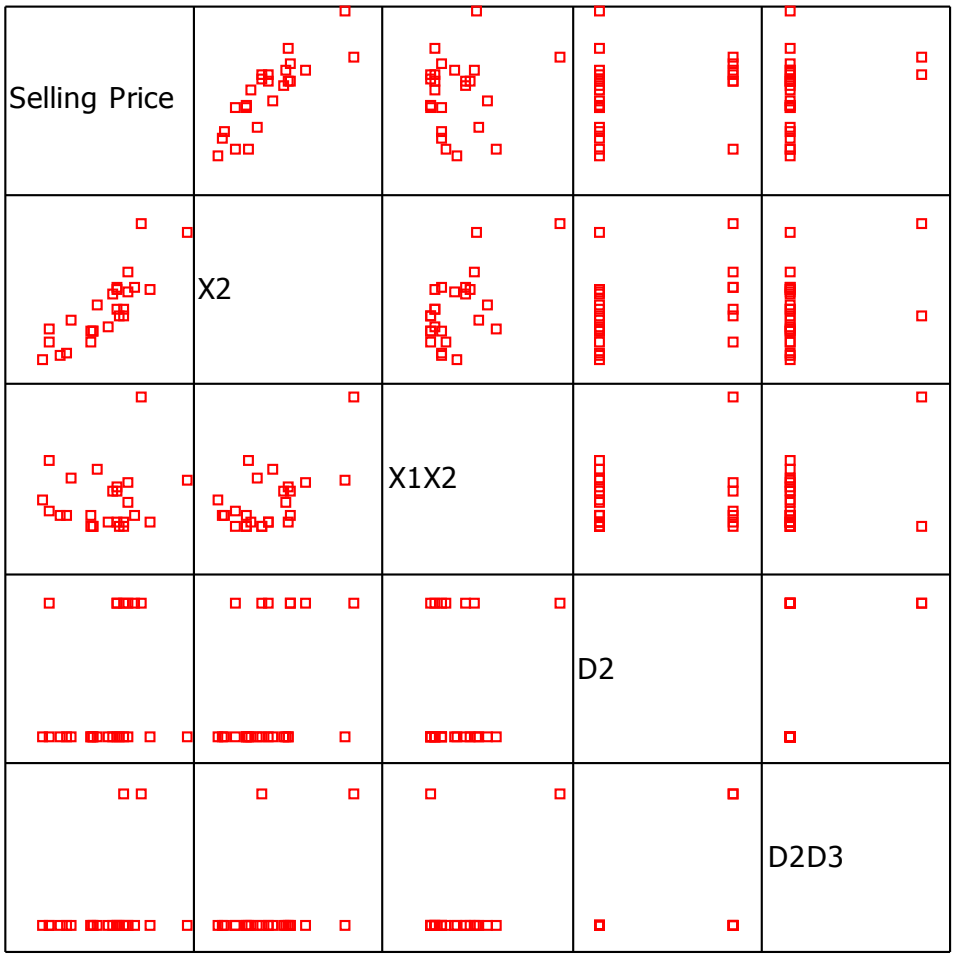
Model		Unstandardized Coefficients		Standardized Coefficients			95% Confidence Interval for B	
		B	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound
1	(Constant)	3678.739	5856.552		.628	.536	-8436.463	15793.941
	X2	43.213	5.773	.842	7.485	.000	31.271	55.155
2	(Constant)	-10876.9	2659.209		-4.090	.000	-16391.806	-5362.082
	X2	62.790	2.880	1.223	21.805	.000	56.818	68.762
	X1X2	-.914	.082	-.627	-11.171	.000	-1.084	-.745
3	(Constant)	-12531.0	2333.688		-5.370	.000	-17384.154	-7677.814
	X2	65.186	2.581	1.270	25.256	.000	59.819	70.554
	X1X2	-.921	.070	-.632	-13.183	.000	-1.067	-.776
	D2	-2507.03	825.964	-.123	-3.035	.006	-4224.719	-789.346
4	(Constant)	-11978.3	1707.183		-7.016	.000	-15539.397	-8417.155
	X2	64.928	1.884	1.265	34.464	.000	60.998	68.857
	X1X2	-.986	.053	-.676	-18.585	.000	-1.097	-.875
	D2	-3723.23	662.686	-.183	-5.618	.000	-5105.568	-2340.890
	D2D3	4988.536	1131.016	.148	4.411	.000	2629.278	7347.793
5	(Constant)	-13606.5	1596.200		-8.524	.000	-16947.382	-10265.612
	X2	66.224	1.702	1.290	38.906	.000	62.661	69.787
	X1X2	-1.057	.053	-.724	-20.019	.000	-1.167	-.946
	D2	-3779.74	575.636	-.186	-6.566	.000	-4984.563	-2574.924
	D2D3	5845.991	1030.278	.174	5.674	.000	3689.595	8002.386
	X3	235.219	85.660	.077	2.746	.013	55.931	414.508
6	(Constant)	-12174.2	1466.881		-8.299	.000	-15256.012	-9092.405
	X2	64.978	1.531	1.266	42.428	.000	61.760	68.195
	X1X2	-1.118	.050	-.766	-22.141	.000	-1.224	-1.012
	D2	-11952.7	2989.620	-.588	-3.998	.001	-18233.688	-5671.773
	D2D3	5365.122	902.948	.160	5.942	.000	3468.098	7262.147
	X3	252.321	73.933	.083	3.413	.003	96.993	407.648
	D2X2	7.875	2.841	.435	2.772	.013	1.907	13.844
7	(Constant)	-9560.37	1695.512		-5.639	.000	-13137.592	-5983.155
	X2	61.747	1.910	1.203	32.324	.000	57.716	65.777
	X1X2	-1.124	.045	-.770	-25.017	.000	-1.219	-1.029
	D2	-14862.6	2917.563	-.732	-5.094	.000	-21018.139	-8707.100
	D2D3	5285.650	802.846	.157	6.584	.000	3591.794	6979.506
	X3	215.115	67.471	.071	3.188	.005	72.762	357.467
	D2X2	11.513	2.941	.636	3.915	.001	5.308	17.717
	D1X2	1.323	.549	.073	2.410	.028	.165	2.480
8	(Constant)	-6789.69	1787.551		-3.798	.002	-10579.129	-3000.250
	X2	57.921	2.178	1.129	26.594	.000	53.304	62.539
	X1X2	-1.127	.039	-.773	-29.236	.000	-1.209	-1.045
	D2	-17136.5	2643.923	-.844	-6.481	.000	-22741.409	-11531.679
	D2D3	3724.756	903.924	.111	4.121	.001	1808.522	5640.990
	X3	144.334	63.674	.047	2.267	.038	9.352	279.316
	D2X2	15.070	2.854	.832	5.281	.000	9.020	21.119
	D1X2	2.291	.595	.127	3.853	.001	1.030	3.552
	D3X2	1.240	.465	.072	2.666	.017	.254	2.227

a. Dependent Variable: Selling Price

Selling Price
= -6789.69 + 57.921X_2 – 1.127X1X_2 – 17136.5D_2 + 3724.756D_2D_3 + 144.334X_3 + 15.070D_2X_2 + 2.291D_1X_2 + 1.240D_3X_2

However, from the model summary, we found that changes in R-square are small for Models 5, 6, 7 and 8. The optimal model is Model 4.

Selling Price
= -11978.3 + 64.928X_2 – 0.986X1X_2 – 3723.2D_2 + 4988.5D_2D_3


Selling Price
X2
X1X2
D2
D2D3