

Exercises

Q1

A regression analysis procedure is used on the condominium (各戶有獨立產權的公寓) sales data given below:

Selling Price (Y) \$	X ₁	X ₂	D ₁	D ₂	D ₃	X ₃	X ₄
44000	0	880	0	0	0	1	6
50000	1	1000	0	1	0	2	7
52000	0	970	0	1	1	1	14
32000	16	900	1	0	0	6	1
32000	4	830	0	1	0	1	3
50000	8	1100	1	0	0	3	2
51000	0	970	0	0	1	1	4
38000	11	940	0	0	1	2	1
43000	3	890	0	0	1	1	7
53000	5	1090	1	0	0	1	3
30000	8	730	0	0	1	4	1
53000	8	1200	0	1	0	7	2
49000	7	1080	0	0	1	3	2
59000	1	1100	1	0	1	1	8
35000	3	760	0	0	0	1	5
52000	1	1000	1	0	0	2	4
55000	2	1120	0	1	0	1	6
50000	7	1120	0	1	0	3	3
69000	7	1410	1	0	1	2	4
43000	0	830	0	0	1	3	8
44000	0	880	0	0	0	1	7
57000	19	1460	0	1	1	1	1
45000	12	1030	1	0	1	14	1
37000	3	770	0	0	1	8	2
48000	1	910	1	0	0	1	4

The variables are as follows:

X₁ = age in years

X₂ = square footage

D₁ = 1 if two bedroom, 0 otherwise

D₂ = 1 if three bedroom, 0 otherwise

D₃ = 1 if covered parking, 0 otherwise

X₃ = the floor number for main entrance

X₄ = miles to center of town

Additional terms considered in the model are X_1^2 , X_2^2 , X_3^2 , X_4^2 , the two way interaction terms X_1X_2 , X_1X_3 , X_1X_4 , X_2X_3 , X_2X_4 , X_3X_4 , D_1X_2 , D_2X_2 , D_3X_2 , D_1D_3 , D_2D_3 , and the three-way interaction terms $D_1D_3X_2$, $D_2D_3X_2$.

Find the selling price model by stepwise method.