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/************************************************
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Sec: 001B
Date: Mar 14, 2016
This SAS program solves several portions of HW6-NB-SAS Problem 1
No external resourecs were used
************************************************/
options pageno = 1 nodate formdlim = "~";
ods pdf file = "C:\Users\aarahman\Desktop\HW6\HW6-2016-03-14\HW6\HW6-All-
Output.pdf";
/*let us load the data */
data steel;
input y x1 x2 x1sq x2sq x1x2;
cards;
61 21.0 57.0 441.00 3249.00 1197.00
87 28.3 41.5 800.89 1722.25 1174.45
98 27.5 58.0 756.25 3364.00 1595.00
104 26.8 36.5 718.24 1332.25 978.20
102 28.3 40.0 800.89 1600.00 1132.00
63 30.5 34.0 930.25 1156.00 1037.00
27 30.8 37.0 948.64 1369.00 1139.60
14 33.6 20.0 1128.96 400.00 672.00
30 31.3 21.0 979.69 441.00 657.30
67 33.0 24.5 1089.00 600.25 808.50
6 34.3 6.0 1176.49 36.00 205.80
18 33.0 21.0 1089.00 441.00 693.00
42 32.0 28.0 1024.00 784.00 896.00
60 27.8 39.0 772.84 1521.00 1084.20
82 25.0 41.0 625.00 1681.00 1025.00
77 26.0 51.0 676.00 2601.00 1326.00
108 18.0 70.0 324.00 4900.00 1260.00
77 24.8 48.0 615.04 2304.00 1190.40
93 26.0 56.0 676.00 3136.00 1456.00
100 27.1 31.0 734.41 961.00 840.10
118 29.0 41.0 841.00 1681.00 1189.00
74 34.0 25.0 1156.00 625.00 850.00
43 28.3 13.0 800.89 169.00 367.90
19 31.0 19.0 961.00 361.00 589.00
23 31.8 17.0 1011.24 289.00 540.60
25 33.5 18.5 1122.25 342.25 619.75
40 34.5 16.0 1190.25 256.00 552.00
21 34.3 26.0 1176.49 676.00 891.80
23 26.5 26.0 702.25 676.00 689.00
56 27.3 24.5 745.29 600.25 668.85
59 25.8 29.0 665.64 841.00 748.20
89 18.5 53.5 342.25 2862.25 989.75
102 19.0 48.0 361.00 2304.00 912.00
97 16.3 79.5 265.69 6320.25 1295.85
;
```

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run;
quit;
/*Ans to NB-Sas Problem-1 (a) */
/*Implemetation of Model1-4 will be used to answer 1(a) */
/* Model-1: */
proc glm data = steel;
model y = x1 x2 x1x2 x1sq x2sq ;
run;
quit;
/* Model-2: */
proc glm data = steel;
model y = x1 x2 x1sq x2sq ;
run;
quit;
/* Model-3: */
proc glm data = steel;
model y = x1 x2 x1x2 ;
run;
quit;
/* Model-4: */
proc glm data = steel;
model y = x1 x2 ;
run;
quit;

/*Ans to NB-Sas Problem-1 (e) */
proc glm data = steel;
model y = x1sq x2sq ;
run;
quit;

/*Ans to NB-Sas Problem-1 (f) */
proc glm data = steel;
model y = x1x2 x1sq x2sq ;
run;
quit;
/*Ans to NB-Sas Problem-1 (g) */
/* proc GLMSELECT is used to selcted the model in forward fashion with a 0.25
threhold */
proc glmselect data = steel plots=all;
model y = x1 x2 x1x2 x1sq x2sq /selection = forward(select=SL SLE=0.25) ;
run;
quit;
/*Ans to NB-Sas Problem-1 (h) */
/* this snippet uses proc GLM to test the adequacy of the model in the
previous step (g)*/
proc glm data = steel plots=all;
model y = x1 x2sq /SOLUTION CLPARM ;
run;
```

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quit;

/*Ans to NB-Sas Problem-1 (i) */
/* proc GLMSELECT is used to selcted the model in backward fashion with a
0.25 threhold */
proc glmselect data = steel plots=all;
model y = x1 x2 x1x2 x1sq x2sq / selection = backward(select = sl) SLstay =
0.20;
run;
quit;

/*Ans to NB-Sas Problem-1 (j) */
/* this snippet uses proc GLM to test the adequacy of the model in the
previous step (i)*/
proc glm data = steel plots=all;
model y = x1 x1x2 /SOLUTION CLPARM ;
run;
quit;
ods pdf close;
```