```
/*  SAS program to perform model selection with AIC      */
/*  for choosing among regression models.  Response      */
/*  variable Y is an invasive method for determining     */
/*  arterial lung pressure (potentially risky to         */
/*  patient).  Predictor variables:  X1=emptying rate    */
/*  of blood into pumping chamber of heart (radionuclide */
/*  imaging), X2=ejection rate of blood pumped out of    */
/*  heart to lungs (radionuclide imaging), X3=a blood    */
/*  gas concentration.                                   */
/*                                                       */
/*  Data from A. T. Marmor et al. (1986) Chest 89:64-69  */
/*  as adapted by Kutner et al. (2004)  Applied linear   */
/*  regression models, fourth edition.  McGraw-Hill.     */

options nocenter ls=72;
data;
infile 'a:\lungpressure.txt';
input y x1 x2 x3;
x12=x1*x2;
x13=x1*x3;
x23=x2*x3;
proc rsquare;
model y=x1 x2 x3 x12 x13 x23 / aic;
run;
```

Data set is in the form of a text file named lungpressure.txt stored on a computer drive labeled ‘a’:

49.0	45.0	36.0	45.0
55.0	30.0	28.0	40.0
85.0	11.0	16.0	42.0
32.0	30.0	46.0	40.0
26.0	39.0	76.0	43.0
28.0	42.0	78.0	27.0
95.0	17.0	24.0	36.0
26.0	63.0	80.0	42.0
74.0	25.0	12.0	52.0
37.0	32.0	27.0	35.0
31.0	37.0	37.0	55.0
49.0	29.0	34.0	47.0
38.0	26.0	32.0	28.0
41.0	38.0	45.0	30.0
12.0	38.0	99.0	26.0
44.0	25.0	38.0	47.0
29.0	27.0	51.0	44.0
40.0	37.0	32.0	54.0
31.0	34.0	40.0	36.0

The RSQUARE Procedure
Model: MODEL1
Dependent Variable: y

R-Square Selection Method

Number of Observations Read 19
Number of Observations Used 19

Number in Model	R-Square	AIC	Variables in Model
1	0.5589	103.4700	x2
1	0.5169	105.1964	x23
1	0.4574	107.4027	x12
1	0.4423	107.9252	x1
1	0.1825	115.1917	x13
1	0.0501	118.0426	x3
2	0.6135	102.9597	x1 x2
2	0.6063	103.3098	x2 x13
2	0.5808	104.4994	x2 x23
2	0.5780	104.6251	x3 x23
2	0.5693	105.0134	x2 x3
2	0.5613	105.3642	x1 x23
2	0.5611	105.3748	x2 x12
2	0.5287	106.7268	x12 x23
2	0.5176	107.1707	x13 x23
2	0.4898	108.2347	x1 x12
2	0.4862	108.3664	x1 x13
2	0.4797	108.6064	x1 x3
2	0.4646	109.1510	x12 x13
2	0.4578	109.3890	x3 x12
2	0.4566	109.4311	x3 x13
3	0.7922	93.1653	x1 x2 x12
3	0.6889	100.8342	x2 x12 x13
3	0.6166	104.8042	x1 x2 x23
3	0.6165	104.8080	x1 x13 x23
3	0.6144	104.9152	x2 x3 x13
3	0.6143	104.9182	x1 x2 x13
3	0.6141	104.9280	x1 x2 x3
3	0.6129	104.9850	x1 x3 x23
3	0.6080	105.2249	x3 x13 x23

Number in Model	R-Square	AIC	Variables in Model
3	0.6070	105.2758	x2 x13 x23
3	0.5919	105.9920	x2 x12 x23
3	0.5833	106.3856	x3 x12 x23
3	0.5833	106.3872	x2 x3 x23
3	0.5753	106.7501	x2 x3 x12
3	0.5620	107.3332	x1 x12 x23
3	0.5292	108.7072	x12 x13 x23
3	0.5022	109.7663	x1 x12 x13
3	0.4998	109.8573	x1 x3 x12
3	0.4925	110.1341	x3 x12 x13
3	0.4911	110.1861	x1 x3 x13
4	0.7959	94.8276	x1 x2 x12 x23
4	0.7926	95.1276	x1 x2 x12 x13
4	0.7925	95.1380	x1 x2 x3 x12
4	0.7822	96.0585	x2 x3 x12 x13
4	0.7417	99.2998	x1 x12 x13 x23
4	0.7156	101.1317	x2 x12 x13 x23
4	0.7087	101.5869	x1 x3 x12 x23
4	0.6748	103.6753	x3 x12 x13 x23
4	0.6187	106.7003	x1 x2 x13 x23
4	0.6183	106.7225	x1 x2 x3 x23
4	0.6170	106.7855	x1 x3 x13 x23
4	0.6166	106.8052	x2 x3 x13 x23
4	0.6145	106.9077	x1 x2 x3 x13
4	0.5951	107.8393	x2 x3 x12 x23
4	0.5041	111.6922	x1 x3 x12 x13
5	0.8013	96.3162	x1 x2 x12 x13 x23
5	0.7998	96.4600	x1 x2 x3 x12 x23
5	0.7928	97.1137	x1 x2 x3 x12 x13
5	0.7827	98.0204	x2 x3 x12 x13 x23
5	0.7496	100.7069	x1 x3 x12 x13 x23
5	0.6187	108.6989	x1 x2 x3 x13 x23
6	0.8016	98.2913	x1 x2 x3 x12 x13 x23