>> %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

>> % How would you find out it is worth adding the variables X5 and X6 ?

>>

>> Z = [1 1051.8 1503.6 3.6 508 5.9 5873;

1 1078.8 1486.7 3.5 6.7 4.5 7852;

1 1075.3 1434.8 5.0 8.4 4.2 8189;

1 1107.5 2035.6 6.0 6.2 4.2 7497;

1 1171.1 2360.8 5.6 5.4 4.9 8534;

1 1235.0 2043.9 4.9 5.9 5.0 8688;

1 1217.8 1331.9 5.6 9.4 4.1 7270;

1 1202.3 1160.0 8.5 9.4 3.4 5020;

1 1271.0 1535.0 7.7 7.2 4.2 6035;

1 1332.7 1961.8 7.0 6.6 4.5 7425;

1 1399.2 2009.3 6.0 7.6 3.9 9400;

1 1431.6 1721.9 6.0 10.6 4.4 9350;

1 1480.7 1298.0 7.2 14.9 3.9 6540;

1 1510.3 1100.0 7.6 16.6 3.1 7675;

1 1492.2 1039.0 9.2 17.5 0.6 7419;

1 1535.4 1200.0 8.8 16.0 1.5 7923]

Z =

1.0e+03 \*

0.0010 1.0518 1.5036 0.0036 0.5080 0.0059 5.8730

0.0010 1.0788 1.4867 0.0035 0.0067 0.0045 7.8520

0.0010 1.0753 1.4348 0.0050 0.0084 0.0042 8.1890

0.0010 1.1075 2.0356 0.0060 0.0062 0.0042 7.4970

0.0010 1.1711 2.3608 0.0056 0.0054 0.0049 8.5340

0.0010 1.2350 2.0439 0.0049 0.0059 0.0050 8.6880

0.0010 1.2178 1.3319 0.0056 0.0094 0.0041 7.2700

0.0010 1.2023 1.1600 0.0085 0.0094 0.0034 5.0200

0.0010 1.2710 1.5350 0.0077 0.0072 0.0042 6.0350

0.0010 1.3327 1.9618 0.0070 0.0066 0.0045 7.4250

0.0010 1.3992 2.0093 0.0060 0.0076 0.0039 9.4000

0.0010 1.4316 1.7219 0.0060 0.0106 0.0044 9.3500

0.0010 1.4807 1.2980 0.0072 0.0149 0.0039 6.5400

0.0010 1.5103 1.1000 0.0076 0.0166 0.0031 7.6750

0.0010 1.4922 1.0390 0.0092 0.0175 0.0006 7.4190

0.0010 1.5354 1.2000 0.0088 0.0160 0.0015 7.9230

>> X=Z(:,1:4)

X =

1.0e+03 \*

0.0010 1.0518 1.5036 0.0036

0.0010 1.0788 1.4867 0.0035

0.0010 1.0753 1.4348 0.0050

0.0010 1.1075 2.0356 0.0060

0.0010 1.1711 2.3608 0.0056

0.0010 1.2350 2.0439 0.0049

0.0010 1.2178 1.3319 0.0056

0.0010 1.2023 1.1600 0.0085

0.0010 1.2710 1.5350 0.0077

0.0010 1.3327 1.9618 0.0070

0.0010 1.3992 2.0093 0.0060

0.0010 1.4316 1.7219 0.0060

0.0010 1.4807 1.2980 0.0072

0.0010 1.5103 1.1000 0.0076

0.0010 1.4922 1.0390 0.0092

0.0010 1.5354 1.2000 0.0088

>> Y=X(:,7)

Attempted to access X(:,7); index out of bounds because size(X)=[16,4].

>> Y=Z(:,7)

Y =

5873

7852

8189

7497

8534

8688

7270

5020

6035

7425

9400

9350

6540

7675

7419

7923

>> n=16

n =

16

>> k=5

k =

5

>> b=inv(X'\*X)\*X'\*Y

b =

195.6043

6.2084

1.4954

-469.7181

>> e=Y-X\*b

e =

1.0e+03 \*

-1.4101

0.3796

1.5205

0.1998

0.1678

0.0702

0.1525

-0.3820

-0.7301

-0.6902

0.3312

0.5098

-1.4075

0.0278

0.7269

0.5340

>> S=(e'\*e)/(n-k)

S =

8.0553e+05

>> Var=S\*inv(X'\*X)

Var =

1.0e+06 \*

5.8127 -0.0034 -0.0010 0.0171

-0.0034 0.0000 0.0000 -0.0003

-0.0010 0.0000 0.0000 0.0000

0.0171 -0.0003 0.0000 0.0430

>> SE=sqrt(diag(Var))

SE =

1.0e+03 \*

2.4110

0.0020

0.0007

0.2074

>> Ymean=mean(Y)

Ymean =

7.5431e+03

>> bvar=S\*inv(X'\*X)

bvar =

1.0e+06 \*

5.8127 -0.0034 -0.0010 0.0171

-0.0034 0.0000 0.0000 -0.0003

-0.0010 0.0000 0.0000 0.0000

0.0171 -0.0003 0.0000 0.0430

>> TSS=Y'\*Y-n\*Ymean^2

TSS =

2.2222e+07

>> RSS=b'\*X'\*Y-n\*Ymean^2

RSS =

1.3361e+07

>> ESS=TSS-RSS

ESS =

8.8609e+06

>> Rsq=RSS/TSS

Rsq =

0.6013

>> Rbarsq=1-((n-1)/(n-k))\*(1-Rsq)

Rbarsq =

0.4563

>> F=((n-k)/(k-1))\*(Rsq/(1-Rsq))

F =

4.1466

>> MSS\_R=RSS/3

MSS\_R =

4.4537e+06

>> MSS\_E=ESS/2

MSS\_E =

4.4304e+06

>>