```
data = readtable("HW3_data.xlsx");
```

```
test = data(1:50,:);
```

```
test = rows2vars(test,"VariableNamesSource","ID_REF")
```

```
test = 62×51 table
```

...

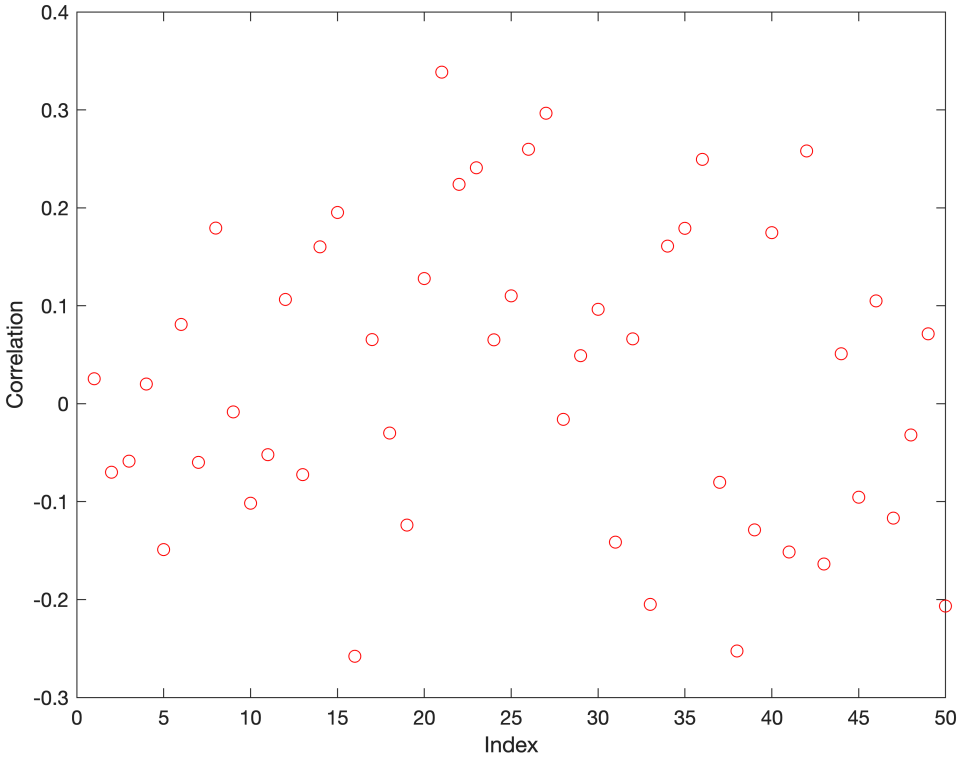
	OriginalVariableNames	A_23_P100001	A_23_P100022	A_23_P100056	A_23_P100074
1	'GENE_SYMBOL'	'FAM174B'	'SV2B'	'RBPMS2'	'AVEN'
2	'GENE_NAME'	'family with ...	'synaptic ves...	'RNA binding ...	'apoptosis, c...
3	'GSM1912920'	-0.7627	-1.9256	0.0954	0.2527
4	'GSM1912921'	-0.3044	-0.7618	-0.1316	0.3192
5	'GSM1912922'	1.2185	3.3993	-0.0304	-3.2000e-04
6	'GSM1912923'	-0.5775	-0.9907	0.1480	-0.2993
7	'GSM1912924'	-0.2872	-0.9955	-0.3438	-0.1211
8	'GSM1912925'	1.7187	2.0193	-0.7914	0.7112
9	'GSM1912926'	-0.0109	-2.1317	0.2839	0.2169
10	'GSM1912927'	-0.6217	0.1635	-0.5156	-0.2667
11	'GSM1912928'	-0.7708	-0.5523	0.0044	0.2406
12	'GSM1912929'	0.7418	3.7746	-0.1001	-0.3898
13	'GSM1912930'	-0.6938	-1.9898	0.4032	0.7016
14	'GSM1912931'	-0.2798	-0.7832	-0.5266	0.4961
15	'GSM1912932'	-0.1552	-0.0182	0.0361	-0.4353
16	'GSM1912933'	0.0806	1.8294	-0.6454	-0.2425
17	'GSM1912934'	0.9945	2.8511	0.2197	0.2366
18	'GSM1912935'	-1.3629	-2.5049	0.3086	0.2072
19	'GSM1912936'	-0.3217	0.5148	-1.3922	0.1896
20	'GSM1912937'	-0.3080	0.5273	0.4981	-0.0170
21	'GSM1912938'	-0.6538	-2.6900	-1.6000e-04	0.4180
22	'GSM1912939'	-0.1308	2.1363	-0.9888	-0.1002
23	'GSM1912940'	0.6237	1.4186	0.4843	0.0962
24	'GSM1912941'	0.1973	-1.4085	0.5965	0.5636
25	'GSM1912942'	0.7181	2.4814	-0.4821	0.0676
26	'GSM1912943'	1.1139	3.8741	1.0512	-0.1627
27	'GSM1912944'	0.3925	-1.5898	-0.2313	0.6132

	OriginalVariableNames	A_23_P100001	A_23_P100022	A_23_P100056	A_23_P100074
28	'GSM1912945'	-0.1274	-0.2717	-0.0709	0.0540
29	'GSM1912946'	-0.6665	-0.1204	1.2944	0.2757
30	'GSM1912947'	-0.5106	-0.4080	-0.1132	0.1935
31	'GSM1912948'	1.1502	1.6366	-0.5307	0.2986
32	'GSM1912949'	0.2481	-1.0331	1.0732	0.5444
33	'GSM1912950'	-0.2896	-2.3375	-0.5747	0.7489
34	'GSM1912951'	-0.5541	-3.9027	-0.0267	-0.1520
35	'GSM1912952'	1.1976	-0.2870	-0.4302	0.5167
36	'GSM1912953'	0.1147	-1.9320	1.2488	0.2899
37	'GSM1912954'	-0.2083	0.0119	0.2086	0.3558
38	'GSM1912955'	0.4832	2.9084	-0.0185	-0.1459
39	'GSM1912956'	-0.5690	-0.0587	-0.5390	-0.8064
40	'GSM1912957'	-0.6856	1.8412	-0.0193	1.1278
41	'GSM1912958'	-0.1603	-1.8307	0.9007	0.5410
42	'GSM1912959'	-0.2057	0.0486	0.3228	0.2271
43	'GSM1912960'	0.6023	-1.9228	-0.2328	0.6402
44	'GSM1912961'	-1.2587	-0.9249	-0.7114	0.1392
45	'GSM1912962'	-0.5358	-1.5935	0.3006	0.1841
46	'GSM1912963'	0.2071	-2.0027	0.2136	0.4465
47	'GSM1912964'	-0.9094	-0.6996	-0.5431	0.2341
48	'GSM1912965'	1.9137	4.2836	0.3887	0.1210
49	'GSM1912966'	-0.4033	-1.4264	-0.5268	-0.3283
50	'GSM1912967'	-0.1709	-0.6571	-0.6376	0.2331
51	'GSM1912968'	-0.6712	-0.3834	0.4676	0.2938
52	'GSM1912969'	-0.2288	-2.4078	0.9923	0.2691
53	'GSM1912970'	-0.2070	-0.5603	0.3426	0.3464
54	'GSM1912971'	-1.1665	-1.3782	-0.7126	0.1026
55	'GSM1912972'	-0.5641	0.6248	-0.3762	0.3817
56	'GSM1912973'	0.6797	-0.0119	0.6731	0.2501
57	'GSM1912974'	0.8004	3.1054	0.4762	0.2427
58	'GSM1912975'	-1.0551	-0.2677	-0.7232	-0.5067
59	'GSM1912976'	-0.2483	1.3500	0.2243	0.0219
60	'GSM1912977'	-0.4369	-0.2512	-0.1712	0.3458
61	'GSM1912978'	-0.7163	-1.9925	-0.6281	-0.1244

	OriginalVariableNames	A_23_P100001	A_23_P100022	A_23_P100056	A_23_P100074
62	'GSM1912979'	-0.1081	-0.2184	-0.2908	0.4339

```
X = cell2mat(test{3:end,2:end});
Y = data{end,4:end}';
```

```
r = corr(X,Y);
plot(r,"ro")
xlabel("Index")
ylabel("Correlation")
```




```
find(abs(r>0.2))
```

```
ans = 7×1
    21
    22
    23
    26
    27
    36
    42
```

```
X_new = X(:,find(abs(r>0.2)))
```

```
X_new = 60×7
```

```
   -0.3024    0.0688   -0.1526   -0.3742    0.5430    0.0241    0.0505
    0.5793    1.4555    1.2965   -0.0222    0.7598    1.0287    0.1744
    0.0405   -0.8742    0.3139    0.8403    0.2531   -0.5873    0.6674
   -2.1395   -0.4983   -1.1117   -1.3763   -1.3044   -0.0360   -1.4992
   -0.0757   -0.2355    0.0076    0.1314   -0.2336    0.5591   -0.4370
    0.6812    0.3273   -0.0210    0.9245   -0.7920   -0.9781    0.1932
    0.5942    0.7368    0.1985    0.4548    1.2571    0.7953    1.0641
    0.0900   -0.2543   -0.2950   -0.5757   -0.2228    0.4158    0.1761
   -0.1393   -0.1142    0.0629   -0.0142    0.2403    0.1028   -0.9016
   -0.0972   -0.6539    0.0593    0.0696   -0.2306   -0.3826   -0.0308
     ⋮
```

```
mdl = fitlm(X_new,Y)
```

```
mdl =
Linear regression model:
    y ~ 1 + x1 + x2 + x3 + x4 + x5 + x6 + x7

Estimated Coefficients:
                   Estimate      SE       tStat       pValue
                   ________    _______    ________    __________

    (Intercept)      565.28     45.101      12.534    2.4479e-17
    x1               184.71     139.34      1.3257       0.19075
    x2               174.24     102.84      1.6944       0.09618
    x3              -211.97     121.19     -1.7491      0.086174
    x4               173.98     100.89      1.7245      0.090564
    x5               72.587     88.659     0.81873       0.41668
    x6               171.44      88.35      1.9405      0.057754
    x7              -80.815     117.21    -0.68946        0.4936


Number of observations: 60, Error degrees of freedom: 52
Root Mean Squared Error: 293
R-squared: 0.249,  Adjusted R-Squared: 0.148
F-statistic vs. constant model: 2.46, p-value = 0.0292
```

```
learner_table = [X,Y];
```

```
learner_table = 60×51
10^3 ×
   -0.0008   -0.0019    0.0001    0.0003    0.0012    0.0000   -0.0001    0.0011 ···
   -0.0003   -0.0008   -0.0001    0.0003    0.0025    0.0000   -0.0001    0.0004
    0.0012    0.0034   -0.0000   -0.0000   -0.0020    0.0004    0.0002   -0.0007
   -0.0006   -0.0010    0.0001   -0.0003   -0.0003   -0.0013    0.0021   -0.0006
   -0.0003   -0.0010   -0.0003   -0.0001    0.0014   -0.0003   -0.0007    0.0000
    0.0017    0.0020   -0.0008    0.0007   -0.0029    0.0001   -0.0001   -0.0010
   -0.0000   -0.0021    0.0003    0.0002   -0.0018    0.0000    0.0004   -0.0004
   -0.0006    0.0002   -0.0005   -0.0003    0.0034   -0.0007    0.0003    0.0008
   -0.0008   -0.0006    0.0000    0.0002    0.0022    0.0002   -0.0004    0.0006
    0.0007    0.0038   -0.0001   -0.0004    0.0014    0.0004    0.0001    0.0004
     ⋮
```