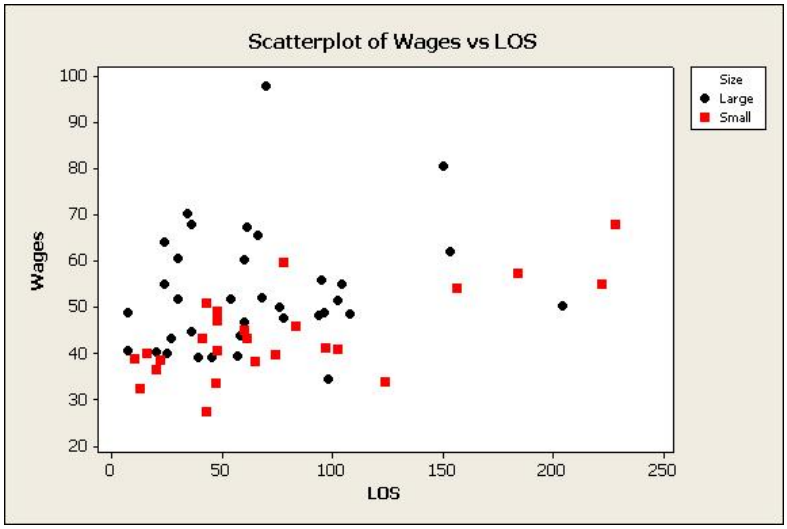
# Example: Wages vs Length of Service and Size of Company

**Data from table 10.1 in textbook**




**Coding of size of company: small = 0 large = 1**

**Regression Analysis: Wages versus LOS, size, LOS*size**

```
The regression equation is
Wages = 35.9 + 0.104 LOS + 13.6 size - 0.0483 LOS*size

Predictor       Coef  SE Coef      T      P
Constant      35.914    3.562  10.08  0.000
LOS          0.10424  0.03632   2.87  0.006
size          13.631    4.910   2.78  0.007
LOS*size    -0.04828  0.05634  -0.86  0.395

S = 10.9612   R-Sq = 26.6%   R-Sq(adj) = 22.7%

Analysis of Variance
Source          DF      SS     MS     F      P
Regression       3  2438.1  812.7  6.76  0.001
Residual Error  56  6728.3  120.1
Total           59  9166.4

Source    DF  Seq SS
LOS        1   843.5
size       1  1506.3
LOS*size   1    88.2
```

**Regression Analysis: Wages versus LOS, size**

The regression equation is
Wages = 37.5 + 0.0842 LOS + 10.2 size

| Predictor | Coef | SE Coef | T | P |
|---|---|---|---|---|
| Constant | 37.466 | 3.061 | 12.24 | 0.000 |
| LOS | 0.08417 | 0.02770 | 3.04 | 0.004 |
| size | 10.228 | 2.882 | 3.55 | 0.001 |

S = 10.9357  R-Sq = 25.6%  R-Sq(adj) = 23.0%

Analysis of Variance

| Source | DF | SS | MS | F | P |
|---|---|---|---|---|---|
| Regression | 2 | 2349.9 | 1174.9 | 9.82 | 0.000 |
| Residual Error | 57 | 6816.6 | 119.6 | | |
| Total | 59 | 9166.4 | | | |

| Source | DF | Seq SS |
|---|---|---|
| LOS | 1 | 843.5 |
| size | 1 | 1506.3 |

Unusual Observations

| Obs | LOS | Wages | Fit | SE Fit | Residual | St Resid |
|---|---|---|---|---|---|---|
| 15 | 70 | 97.68 | 53.59 | 1.85 | 44.09 | 4.09R |
| 22 | 222 | 54.95 | 56.15 | 4.57 | -1.21 | -0.12 X |
| 29 | 98 | 34.34 | 55.94 | 2.05 | -21.60 | -2.01R |
| 42 | 228 | 67.91 | 56.66 | 4.71 | 11.25 | 1.14 X |
| 47 | 204 | 50.17 | 64.87 | 4.26 | -14.69 | -1.46 X |

R denotes an observation with a large standardized residual.
X denotes an observation whose X value gives it large influence.