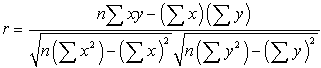
**Correlation Analysis using Excel**

**The quantity *r*, called the *linear correlation coefficient*, measures the strength and   the direction of a linear relationship between two variables. The linear correlation       coefficient is sometimes referred to as the *Pearson product moment correlation coefficient* in    honor of its developer Karl Pearson.  
 http://mathbits.com/MathBits/TISection/Statistics2/yellowbullet.gif  The mathematical formula for computing *r* is:**

****

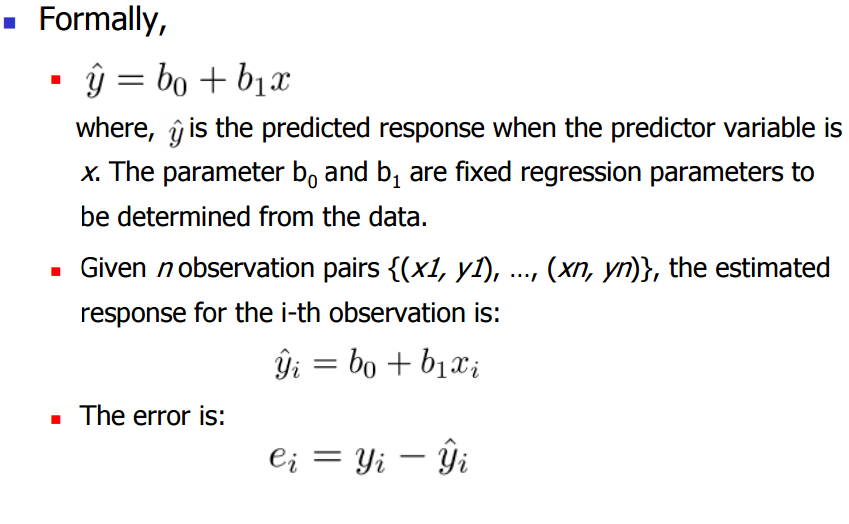
**where *n* is the number of pairs of data.**

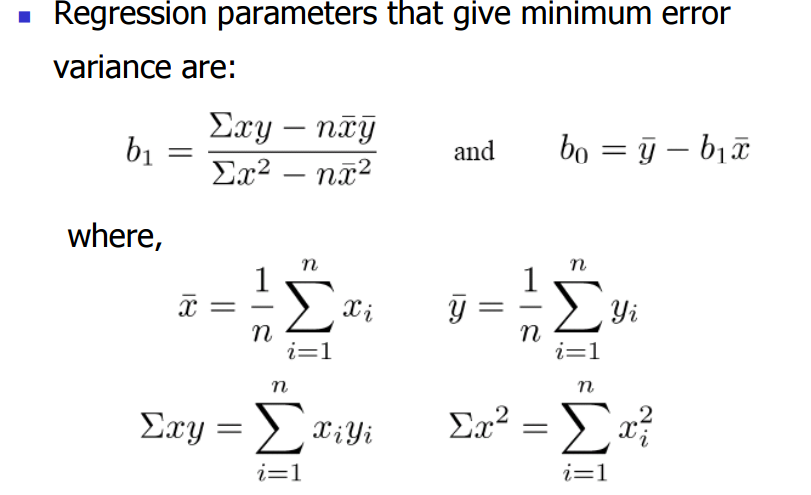
Example

Calculate the Correlation coefficients between the following variables

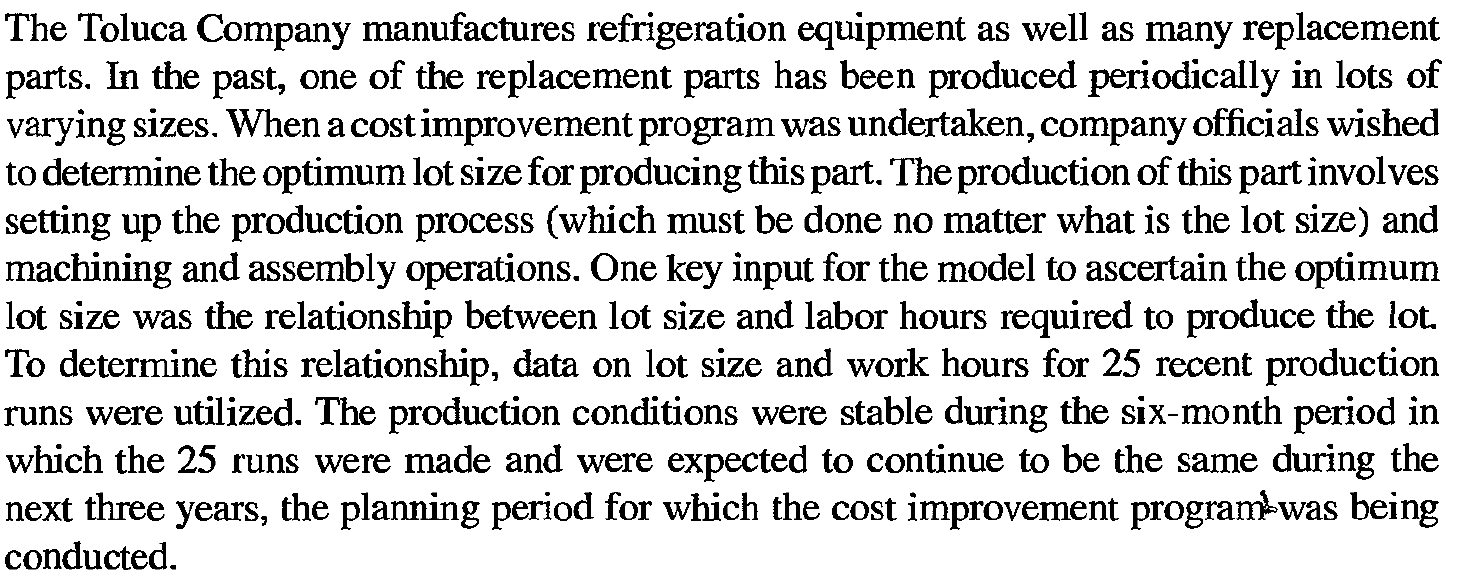
|  |  |  |  |
| --- | --- | --- | --- |
| x | y | z | w |
| 2 | 6 | 3 | 2 |
| 4 | 7 | 9 | 4 |
| 6 | 9 | 7 | 2 |
| 7 | 2 | 6 | 5 |
| 2 | 4 | 2 | 8 |
| 9 | 5 | 1 | 9 |

**Simple Linear Regression Model using Excel**





Example



Le X be the production lot

Y the worked hours

|  |  |
| --- | --- |
| x | y |
| 80 | 399 |
| 30 | 121 |
| 50 | 221 |
| 90 | 376 |
| 70 | 361 |
| 60 | 224 |
| 120 | 546 |
| 80 | 352 |
| 100 | 353 |
| 50 | 157 |
| 40 | 160 |
| 70 | 252 |
| 90 | 389 |
| 20 | 113 |
| 110 | 435 |
| 100 | 420 |
| 30 | 212 |
| 50 | 268 |
| 90 | 377 |
| 110 | 421 |
| 30 | 273 |
| 90 | 468 |
| 40 | 244 |
| 80 | 342 |
| 70 | 323 |

Estimation the regression model and interpret the results