|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **T** | **X1** | **X2** | **Y** | ***Y pred*** | ***e\_t*** | **abs(e\_t)** | **R\_abs(e\_t)** | **R\_X1** | **R\_X2** | **D1^2** | **D2^2** |
| 1 | 3.92 | 7298 | 0.75 | 0.6765 | 0.0735 | 0.073 | 22 | 15 | 16 | 49 | 36 |
| 2 | 3.61 | 6855 | 0.71 | 0.7133 | -0.0033 | 0.003 | 1 | 11 | 13 | 100 | 144 |
| 3 | 3.32 | 6636 | 0.66 | 0.6991 | -0.0391 | 0.039 | 14 | 6 | 11 | 64 | 9 |
| 4 | 3.07 | 6506 | 0.61 | 0.6722 | -0.0622 | 0.062 | 19 | 2 | 9 | 289 | 100 |
| 5 | 3.06 | 6450 | 0.7 | 0.6838 | 0.0162 | 0.016 | 4 | 1 | 8 | 9 | 16 |
| 6 | 3.11 | 6402 | 0.72 | 0.7076 | 0.0124 | 0.012 | 3 | 3 | 7 | 0 | 16 |
| 7 | 3.21 | 6368 | 0.77 | 0.7398 | 0.0302 | 0.030 | 11 | 4 | 5 | 49 | 36 |
| 8 | 3.26 | 6340 | 0.74 | 0.7586 | -0.0186 | 0.019 | 6 | 5 | 1 | 1 | 25 |
| 9 | 3.42 | 6349 | 0.9 | 0.7943 | 0.1057 | 0.106 | 25 | 7.5 | 2 | 306.25 | 529 |
| 10 | 3.42 | 6352 | 0.82 | 0.7936 | 0.0264 | 0.026 | 9 | 7.5 | 3 | 2.25 | 36 |
| 11 | 3.45 | 6361 | 0.75 | 0.7984 | -0.0484 | 0.048 | 16 | 9 | 4 | 49 | 144 |
| 12 | 3.58 | 6369 | 0.77 | 0.8273 | -0.0573 | 0.057 | 17 | 10 | 6 | 49 | 121 |
| 13 | 3.66 | 6546 | 0.78 | 0.8022 | -0.0222 | 0.022 | 7 | 12 | 10 | 25 | 9 |
| 14 | 3.78 | 6672 | 0.84 | 0.7992 | 0.0408 | 0.041 | 15 | 13 | 12 | 4 | 9 |
| 15 | 3.82 | 6890 | 0.79 | 0.7544 | 0.0356 | 0.036 | 13 | 14 | 14 | 1 | 1 |
| 16 | 3.97 | 7115 | 0.7 | 0.7340 | -0.0340 | 0.034 | 12 | 16 | 15 | 16 | 9 |
| 17 | 4.07 | 7327 | 0.68 | 0.7049 | -0.0249 | 0.025 | 8 | 17 | 17 | 81 | 81 |
| 18 | 4.25 | 7546 | 0.72 | 0.6930 | 0.0270 | 0.027 | 10 | 18 | 18 | 64 | 64 |
| 19 | 4.41 | 7931 | 0.55 | 0.6351 | -0.0851 | 0.085 | 24 | 19 | 19 | 25 | 25 |
| 20 | 4.49 | 8097 | 0.63 | 0.6127 | 0.0173 | 0.017 | 5 | 20 | 20 | 225 | 225 |
| 21 | 4.7 | 8468 | 0.56 | 0.5701 | -0.0101 | 0.010 | 2 | 23 | 21 | 441 | 361 |
| 22 | 4.58 | 8717 | 0.41 | 0.4796 | -0.0696 | 0.070 | 20 | 21 | 22 | 1 | 4 |
| 23 | 4.69 | 8991 | 0.51 | 0.4375 | 0.0725 | 0.073 | 21 | 22 | 23 | 1 | 4 |
| 24 | 4.71 | 9179 | 0.47 | 0.3954 | 0.0746 | 0.075 | 23 | 24 | 24 | 1 | 1 |
| 25 | 4.78 | 9318 | 0.32 | 0.3774 | -0.0574 | 0.057 | 18 | 25 | 25 | 49 | 49 |
|  | **96.34** | **181083** | **16.86** | **16.86** | **0.00** |  |  |  |  | **1901.5** | **2054** |

X1:Revenue, X2: Offices, Y: Profit

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-0.000249

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| **HETEROSCEDASTICITY – Spearman Rank Correlation in between Absolute Residuals and Explanatory (independent) Variables** |

**EXAMPLE 3 (Y:Average Savings, X: Average Salary)**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Y** | **X** | **error** | **Ypred** | **abs(error)** | **rankX** | **rankError** | **D^2** | **Wi=1/X^2** | **WiXi** | **WiYi** | **WiYiXi** | **WiXi^2** |
| 18.6 | 2.6 | 1.867 | 16.733 | 1.86694 | 3 | 3 | 0 | 0.148 | 0.385 | 2.751 | 7.154 | 1.0000 |
| 13.3 | 1.4 | 1.747 | 11.553 | 1.74671 | 2 | 2 | 0 | 0.510 | 0.714 | 6.786 | 9.500 | 1.0000 |
| 75.1 | 13.2 | 12.612 | 62.488 | 12.61226 | 11 | 11 | 0 | 0.006 | 0.076 | 0.431 | 5.689 | 1.0000 |
| 42.5 | 7.2 | 5.911 | 36.589 | 5.91113 | 8 | 8 | 0 | 0.019 | 0.139 | 0.820 | 5.903 | 1.0000 |
| 29.9 | 6.7 | -4.531 | 34.431 | 4.53063 | 7 | 6 | 1 | 0.022 | 0.149 | 0.666 | 4.463 | 1.0000 |
| 33.7 | 8.3 | -7.637 | 41.337 | 7.63699 | 9 | 9 | 0 | 0.015 | 0.120 | 0.489 | 4.060 | 1.0000 |
| 18 | 3.6 | -3.050 | 21.050 | 3.04954 | 4 | 4 | 0 | 0.077 | 0.278 | 1.389 | 5.000 | 1.0000 |
| 27.8 | 4 | 5.024 | 22.776 | 5.02387 | 5 | 7 | 4 | 0.063 | 0.250 | 1.738 | 6.950 | 1.0000 |
| 50.4 | 12.5 | -9.066 | 59.466 | 9.0662 | 10 | 10 | 0 | 0.006 | 0.080 | 0.323 | 4.032 | 1.0000 |
| 12 | 1.3 | 0.878 | 11.122 | 0.87836 | 1 | 1 | 0 | 0.592 | 0.769 | 7.101 | 9.231 | 1.0000 |
| 24.2 | 5.2 | -3.756 | 27.956 | 3.75591 | 6 | 5 | 1 | 0.037 | 0.192 | 0.895 | 4.654 | 1.0000 |
|  |  |  |  |  |  |  | 6 | 1.494714 | 3.152599 | 23.38781 | 66.63556 | 11 |

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**WEIGHTED LEAST SQUARES FOR HETEROSCEDASTICITY**

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