

Normalization with Decimal Scaling

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Decimal scaling is a data normalization technique like **Z score**, **Min-Max**, and normalization with **standard deviation**. Decimal scaling is a data normalization technique. In this technique, we move the decimal point of values of the attribute. This movement of decimal points totally depends on the maximum value among all values in the attribute.

The formula of decimal scaling:

A value v of attribute A is can be normalized by the following formula

Normalized value of attribute = $(v^i / 10^j)$

Example of Decimal scaling :

<https://t4tutorials.com/>

| CGPA | Formula | CGPA Normalized after Decimal scaling |
|-------------|----------------|--|
| 2 | $2/10$ | 0.2 |
| 3 | $3/10$ | 0.3 |

Example 2:

<https://t4tutorials.com/>

| Salary bonus | Formula | CGPA Normalized after Decimal scaling |
|---------------------|----------------|--|
| 400 | $400 / 1000$ | 0.4 |
| 310 | $310 / 1000$ | 0.31 |

Example 3:

| Salary | Formula https://t4tutorials.com/ | CGPA Normalized after Decimal scaling |
|---------------|--|--|
| 40,000 | $40,000 / 100000$ | 0.4 |
| 31, 000 | $31,000 / 100000$ | 0.31 |

Download Excel File Calculations

| F63 | | | | | | | | |
|-----|---|--------|-------|-------------|------|-----------------|-------------|-----------|
| | A | B | C | D | E | O | P | Q |
| 1 | | | | | | | | |
| 2 | https://T4Tutorials.com | | | | | decimal scaling | | |
| 3 | Id | Depend | Sal | Euclidean | Id | Dep-Norm | Salary-Norm | Euclidean |
| 4 | E101 | 3 | 50000 | | E101 | 0.3 | 0.5 | |
| 5 | E105 | 5 | 50000 | 49999.37304 | E110 | 0.5 | 0.5 | |
| 6 | E110 | 3 | 45000 | 5000 | E113 | 0.3 | 0.45 | |
| 7 | E113 | 3 | 57000 | 7000 | E114 | 0.3 | 0.57 | |
| 8 | E111 | 6 | 43000 | 7000.000643 | E112 | 0.6 | 0.43 | |
| 9 | E114 | 3 | 42000 | 8000 | E107 | 0.3 | 0.42 | |
| 10 | E109 | 5 | 40000 | 10000.0002 | E108 | 0.5 | 0.4 | |
| 11 | E112 | 4 | 39000 | 11000.00005 | E102 | 0.4 | 0.39 | |
| 12 | E108 | 4 | 38000 | 12000.00004 | E104 | 0.4 | 0.38 | |
| 13 | E107 | 3 | 35000 | 15000 | E105 | 0.3 | 0.35 | |
| 14 | E102 | 4 | 65000 | 15000.00003 | E103 | 0.4 | 0.65 | |
| 15 | E104 | 4 | 35000 | 15000.00003 | E109 | 0.4 | 0.35 | |
| 16 | E103 | 3 | 70000 | 20000 | E106 | 0.3 | 0.7 | |
| 17 | E106 | 1 | 30000 | 20000.0001 | E111 | 0.1 | 0.3 | |

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