**Bat\_Act\_Cum\_percntl= Bat\_Cum\_Freq\_percntl-( Bat\_Freq\_Percntl/2)**

equated\_scr1 = ((element - base\_cperlow) / (base\_cperhigh - base\_cperlow))\* (base\_scrhigh - base\_scrlow) + base\_scrlow

Equated\_scr = ((bat\_percentile at index – cper\_low) / (cper\_high – cper\_low) )\* (cscore\_high – cscore\_low) + cscore\_low

Where,

cper\_low : cumulative percentile at previous point

cper\_high : cumulative percentile at that point

cscore\_high : score at that point

cscore\_low : score at previous point

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Base\_EL\_x** | **Base\_EL\_freq\_Smooth** | **Base\_Freq\_Percntl** | **Base\_Cum\_Freq\_percntl** | **Bat\_EL\_x** | **Bat\_EL\_freq\_Smooth** | **Bat\_Freq\_Percntl** | **Bat\_Cum\_Freq\_percntl** | **Bat\_Act\_Cum\_percntl [Bat\_Cum\_Freq\_percntl-( Bat\_Freq\_Percntl/2)]** |
| -7.50 | 0.00000000 | 0.00000000 | 0.00000000 | -7.50 | 0.34628752 | 0.00047897 | 0.00047897 | 0.00023949 |
| -7.25 | 0.00000001 | 0.00000000 | 0.00000000 | -7.25 | 0.00000003 | 0.00000000 | 0.00047897 | 0.00047897 |
| -7.00 | 0.00000002 | 0.00000000 | 0.00000000 | -7.00 | 0.88765417 | 0.00122777 | 0.00170674 | 0.00109286 |
| -6.75 | 0.00000004 | 0.00000000 | 0.00000000 | -6.75 | 0.41647119 | 0.00057605 | 0.00228279 | 0.00199477 |
| -6.50 | 0.00000005 | 0.00000000 | 0.00000000 | -6.50 | 0.00000004 | 0.00000000 | 0.00228279 | 0.00228279 |
| -6.25 | 0.64083033 | 0.00083205 | 0.00083205 | -6.25 | 3.35042905 | 0.00463419 | 0.00691699 | 0.00459989 |
| -6.00 | 0.00000009 | 0.00000000 | 0.00083205 | -6.00 | 0.00000008 | 0.00000000 | 0.00691699 | 0.00691699 |
| -5.75 | 1.84415785 | 0.00239445 | 0.00322650 | -5.75 | 7.58406683 | 0.01049001 | 0.01740699 | 0.01216199 |
| -5.50 | 0.00000017 | 0.00000000 | 0.00322650 | -5.50 | 11.15277610 | 0.01542612 | 0.03283311 | 0.02512005 |
| -5.25 | 0.00000025 | 0.00000000 | 0.00322650 | -5.25 | 5.15892387 | 0.00713564 | 0.03996875 | 0.03640093 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| index (i) | **Base\_EL\_x** | **Base\_EL\_Smooth** | **Base\_Freq\_Percntl** | **Base\_Cum\_Freq\_percntl** | **Bat\_EL\_x** | **Bat\_EL\_Smooth** | **Bat\_Freq\_Percntl** | **Bat\_Cum\_Freq\_percntl** | **Bat\_Act\_Cum\_percntl (element)** |
| 0 | -7.50 | 0.00000000 | 0.00000000 | 0.00000000 | -7.50 | 0.34628752 | 0.00047897 | 0.00047897 | 0.00023949 |
| 1 | -7.25 | 0.00000001 | 0.00000000 | 0.00000000 | -7.25 | 0.00000003 | 0.00000000 | 0.00047897 | 0.00047897 |
| 2 | -7.00 | 0.00000002 | 0.00000000 | 0.00000000 | -7.00 | 0.88765417 | 0.00122777 | 0.00170674 | 0.00109286 |
| 3 | -6.75 | 0.00000004 | 0.00000000 | 0.00000000 | -6.75 | 0.41647119 | 0.00057605 | 0.00228279 | 0.00199477 |
| 4 | -6.50 | 0.00000005 | 0.00000000 | 0.00000000 | -6.50 | 0.00000004 | 0.00000000 | 0.00228279 | 0.00228279 |
| **5** | -6.25 | 0.64083033 | 0.00083205 | 0.00083205 | -6.25 | 3.35042905 | 0.00463419 | 0.00691699 | 0.00459989 |
| 6 | -6.00 | 0.00000009 | 0.00000000 | 0.00083205 | -6.00 | 0.00000008 | 0.00000000 | 0.00691699 | 0.00691699 |
| 7 | -5.75 | 1.84415785 | 0.00239445 | 0.00322650 | -5.75 | 7.58406683 | 0.01049001 | 0.01740699 | 0.01216199 |
| 8 | -5.50 | 0.00000017 | 0.00000000 | 0.00322650 | -5.50 | 11.15277610 | 0.01542612 | 0.03283311 | 0.02512005 |
| 9 | -5.25 | 0.00000025 | 0.00000000 | 0.00322650 | -5.25 | 5.15892387 | 0.00713564 | 0.03996875 | 0.03640093 |
| 10 | -5.00 | 7.06403337 | 0.00917193 | 0.01239843 | -5.00 | 22.98663240 | 0.03179429 | 0.07176304 | 0.05586590 |

1. “Bat\_Act\_Cum\_percntl” is considered as element in code.
2. Check until “Base\_Cum\_Freq\_percntl” is > 0 and Base\_Cum\_Freq\_percntl> Bat\_Act\_Cum\_percntl.

(E.g.: 0.00083205 is greater than 0.00023949 so value of “i” is 5)

1. If satisfies,
2. base\_cperhigh= Base\_Cum\_Freq\_percntl # base\_cperhigh =float(base\_cumper[i][1])
3. base\_scrhigh= Base\_EL\_x # base\_scrhigh = float(base\_cumper[i][0])

* **If the score is the very first item then,**

base\_cperlow= 0 #

base\_scrlow=0 #

* **Else,**

base\_cperlow= Base\_Cum\_Freq\_percntl of the very previous element

# base\_cperlow = float(base\_cumper[i-1][1])

base\_scrlow= Base\_EL\_x of the very previous element

# base\_scrlow = float(base\_cumper[i-1][0])

1. **if (base\_cperhigh-base\_cperlow) == "%0.8f"%float(0) or (base\_scrhigh-base\_scrlow) == "%0.8f"%float(0):**

* equated\_scr1 = 0

**Else:**

1. **if (base\_cperhigh - base\_cperlow) == 0:**

* equated\_scr1 = 0

1. **Else:**

* equated\_scr1 = ((element - base\_cperlow) / (base\_cperhigh - base\_cperlow))\* (base\_scrhigh - base\_scrlow) + base\_scrlow

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| index (i) | **Base\_EL\_x** | **Base\_EL\_Smooth** | **Base\_Freq\_Percntl** | **Base\_Cum\_Freq\_percntl** | **Bat\_EL\_x** | **Bat\_EL\_Smooth** | **Bat\_Freq\_Percntl** | **Bat\_Cum\_Freq\_percntl** | **Bat\_Act\_Cum\_percntl (element)** | index where (base\_cumper\_Base\_Cum\_Freq\_percntl > 0 **AND** base\_cumper\_Base\_Cum\_Freq\_percntl > Bat\_Act\_Cum\_percntl) | base\_cperhigh | base\_scrhigh | base\_cperlow | base\_scrlow | ((element - base\_cperlow) / (base\_cperhigh - base\_cperlow))\* (base\_scrhigh - base\_scrlow) + base\_scrlow |  |
| 0 | -7.50 | 0.00000000 | 0.00000000 | 0.00000000 | -7.50 | 0.34628752 | 0.00047897 | 0.00047897 | 0.00023949 | 5 | 0.00083205 | -6.25 | 0.00000000 | -6.50 | ((J2-Y2)/(W2-Y2))\*(X2-Z2)+Z2 | -6.42804 |
| 1 | -7.25 | 0.00000001 | 0.00000000 | 0.00000000 | -7.25 | 0.00000003 | 0.00000000 | 0.00047897 | 0.00047897 | 5 | 0.00083205 | -6.25 | 0.00000000 | -6.50 | ((J2-Y2)/(W2-Y2))\*(X2-Z2)+Z3 | -6.35609 |
| 2 | -7.00 | 0.00000002 | 0.00000000 | 0.00000000 | -7.00 | 0.88765417 | 0.00122777 | 0.00170674 | 0.00109286 | 7 | 0.00322650 | -5.75 | 0.00083205 | -6.00 | ((J2-Y2)/(W2-Y2))\*(X2-Z2)+Z4 | -5.97277 |
| 3 | -6.75 | 0.00000004 | 0.00000000 | 0.00000000 | -6.75 | 0.41647119 | 0.00057605 | 0.00228279 | 0.00199477 | 7 | 0.00322650 | -5.75 | 0.00083205 | -6.00 | ((J2-Y2)/(W2-Y2))\*(X2-Z2)+Z5 | -5.8786 |
| 4 | -6.50 | 0.00000005 | 0.00000000 | 0.00000000 | -6.50 | 0.00000004 | 0.00000000 | 0.00228279 | 0.00228279 | 7 | 0.00322650 | -5.75 | 0.00083205 | -6.00 | ((J2-Y2)/(W2-Y2))\*(X2-Z2)+Z6 | -5.84853 |
| **5** | -6.25 | 0.64083033 | 0.00083205 | 0.00083205 | -6.25 | 3.35042905 | 0.00463419 | 0.00691699 | 0.00459989 | 10 | 0.01239843 | -5.00 | 0.00322650 | -5.25 | ((J2-Y2)/(W2-Y2))\*(X2-Z2)+Z7 | -5.21257 |
| 6 | -6.00 | 0.00000009 | 0.00000000 | 0.00083205 | -6.00 | 0.00000008 | 0.00000000 | 0.00691699 | 0.00691699 |  |  |  |  |  |  |  |
| 7 | -5.75 | 1.84415785 | 0.00239445 | 0.00322650 | -5.75 | 7.58406683 | 0.01049001 | 0.01740699 | 0.01216199 |  |  |  |  |  |  |  |
| 8 | -5.50 | 0.00000017 | 0.00000000 | 0.00322650 | -5.50 | 11.15277610 | 0.01542612 | 0.03283311 | 0.02512005 |  |  |  |  |  |  |  |
| 9 | -5.25 | 0.00000025 | 0.00000000 | 0.00322650 | -5.25 | 5.15892387 | 0.00713564 | 0.03996875 | 0.03640093 |  |  |  |  |  |  |  |
| 10 | -5.00 | 7.06403337 | 0.00917193 | 0.01239843 | -5.00 | 22.98663240 | 0.03179429 | 0.07176304 | 0.05586590 |  |  |  |  |  |  |  |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| index (i) | **Base\_EL\_x** | **Base\_EL\_Smooth** | **Base\_Freq\_Percntl** | **Base\_Cum\_Freq\_percntl** | **Bat\_EL\_x** | **Bat\_EL\_Smooth** | **Bat\_Freq\_Percntl** | **Bat\_Cum\_Freq\_percntl** | **Bat\_Act\_Cum\_percntl (element)** | index where (base\_cumper\_Base\_Cum\_Freq\_percntl > 0 **AND** base\_cumper\_Base\_Cum\_Freq\_percntl > Bat\_Act\_Cum\_percntl) | base\_cperhigh | base\_scrhigh | base\_cperlow | base\_scrlow | Eq-Marks |
| 0 | -7.50 | 0.00000000 | 0.00000000 | 0.00000000 | -7.50 | 0.34628752 | 0.00047897 | 0.00047897 | 0.00023949 | 5 | 0.00083205 | -6.25 | 0.00000000 | -6.50 | -6.42804 |
| 1 | -7.25 | 0.00000001 | 0.00000000 | 0.00000000 | -7.25 | 0.00000003 | 0.00000000 | 0.00047897 | 0.00047897 | 5 | 0.00083205 | -6.25 | 0.00000000 | -6.50 | -6.35609 |
| 2 | -7.00 | 0.00000002 | 0.00000000 | 0.00000000 | -7.00 | 0.88765417 | 0.00122777 | 0.00170674 | 0.00109286 | 7 | 0.00322650 | -5.75 | 0.00083205 | -6.00 | -5.97277 |
| 3 | -6.75 | 0.00000004 | 0.00000000 | 0.00000000 | -6.75 | 0.41647119 | 0.00057605 | 0.00228279 | 0.00199477 | 7 | 0.00322650 | -5.75 | 0.00083205 | -6.00 | -5.8786 |
| 4 | -6.50 | 0.00000005 | 0.00000000 | 0.00000000 | -6.50 | 0.00000004 | 0.00000000 | 0.00228279 | 0.00228279 | 7 | 0.00322650 | -5.75 | 0.00083205 | -6.00 | -5.84853 |
| **5** | -6.25 | 0.64083033 | 0.00083205 | 0.00083205 | -6.25 | 3.35042905 | 0.00463419 | 0.00691699 | 0.00459989 | 10 | 0.01239843 | -5.00 | 0.00322650 | -5.25 | -5.21257 |
| 6 | -6.00 | 0.00000009 | 0.00000000 | 0.00083205 | -6.00 | 0.00000008 | 0.00000000 | 0.00691699 | 0.00691699 |  |  |  |  |  |  |
| 7 | -5.75 | 1.84415785 | 0.00239445 | 0.00322650 | -5.75 | 7.58406683 | 0.01049001 | 0.01740699 | 0.01216199 |  |  |  |  |  |  |
| 8 | -5.50 | 0.00000017 | 0.00000000 | 0.00322650 | -5.50 | 11.15277610 | 0.01542612 | 0.03283311 | 0.02512005 |  |  |  |  |  |  |
| 9 | -5.25 | 0.00000025 | 0.00000000 | 0.00322650 | -5.25 | 5.15892387 | 0.00713564 | 0.03996875 | 0.03640093 |  |  |  |  |  |  |
| 10 | -5.00 | 7.06403337 | 0.00917193 | 0.01239843 | -5.00 | 22.98663240 | 0.03179429 | 0.07176304 | 0.05586590 |  |  |  |  |  |  |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| index where (base\_cumper\_Base\_Cum\_Freq\_percntl > 0 **AND** base\_cumper\_Base\_Cum\_Freq\_percntl > Bat\_Act\_Cum\_percntl) | base\_cperhigh | base\_scrhigh | base\_cperlow | base\_scrlow | ((element - base\_cperlow) / (base\_cperhigh - base\_cperlow))\* (base\_scrhigh - base\_scrlow) + base\_scrlow | Eq-Marks |
| 5 | 0.00083205 | -6.25 | 0.00000000 | -6.50 | ((J2-N2)/(L2-N2))\*(M2-O2)+O2 | -6.42804 |
| 5 | 0.00083205 | -6.25 | 0.00000000 | -6.50 | ((J2-N2)/(L2-N2))\*(M2-O2)+O3 | -6.35609 |
| 7 | 0.00322650 | -5.75 | 0.00083205 | -6.00 | ((J2-N2)/(L2-N2))\*(M2-O2)+O4 | -5.97277 |
| 7 | 0.00322650 | -5.75 | 0.00083205 | -6.00 | ((J2-N2)/(L2-N2))\*(M2-O2)+O5 | -5.8786 |
| 7 | 0.00322650 | -5.75 | 0.00083205 | -6.00 | ((J2-N2)/(L2-N2))\*(M2-O2)+O6 | -5.84853 |
| 10 | 0.01239843 | -5.00 | 0.00322650 | -5.25 | ((J2-N2)/(L2-N2))\*(M2-O2)+O7 | -5.21257 |