THOMAS EAPEN · SELECTED WORK

Turning a distribution into useful bands

A small worked example of quartile thresholds, repeated observations and a compact statistical summary.

Synthetic example · independently invented data

One-page print edition · A3 landscape

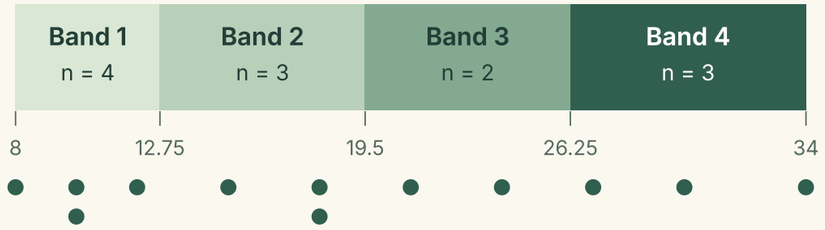
12	10	4	4 · 3 · 2 · 3
invented observations	distinct values	descriptive bands	observations per band

SYNTHETIC INPUT / MINUTES

Keep the distribution visible

8	10	10	12	15	18	18	21	24	27	30	34

The threshold calculation uses each distinct value once. The counts include every observation, including repeated 10s and 18s.



Duration in minutes · each dot is one invented observation

Quartile boundaries divide the distinct-value range; they do not guarantee equal observation counts.

Counts in the computed bands

Band	Duration range	Count
Band 1	[8, 12.75]	4
Band 2	(12.75, 19.5]	3
Band 3	(19.5, 26.25]	2
Band 4	(26.25, 34]	3

THE METHOD / PYTHON

Calculate, then count

```
from bisect import bisect_left
from math import isfinite
from statistics import quantiles

def quartile_bands(values):
    observed = [float(value) for value in values]
    if not observed or not all(isfinite(v) for v in observed):
        raise ValueError('Use finite observations.')
    unique = sorted(set(observed))
    if len(unique) < 2:
        raise ValueError('At least two distinct values are needed.')
    cuts = quantiles(unique, n=4, method='inclusive')
    edges = [unique[0], *cuts, unique[-1]]
    bins = [bisect_left(cuts, value) for value in observed]
    counts = [bins.count(index) for index in range(4)]
    return {'edges': edges, 'bins': bins, 'counts': counts}
```

Selected code from the new demonstration that computes these results.

Read the band, then inspect the case. These are descriptive groups from an invented dataset, not performance targets. Values exactly on a threshold stay in the lower band; the minimum is included.

Thomas Eapen
nowlabs.net/tangerine-woa

New illustrative material explaining the approach. Values, configurations and results shown here are not historical workplace records.