THOMAS EAPEN · SELECTED WORK

Four reporting methods, with the checks made visible

A synthetic four-panel study of time allocation, membership auditing, staged summaries and completion exceptions, preserving the original emphasis on testing and refinement.

Original tools: **Excel / VBA** · Example calculations: **Python**

Synthetic example · independently invented data · One-page A2 landscape

01 / TIME BUCKETS

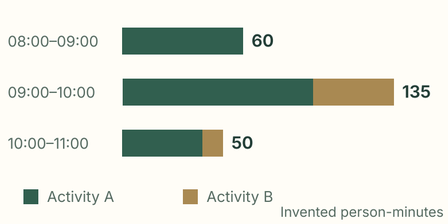
Resolve the interval, then allocate it

A whole-shift entry has no explicit bounds. Its linked synthetic shift supplies the interval before allocation.

Three invented activity records

Event	Activity	Start	End
E1	Activity A	08:50	09:35
E2	Activity B	09:20	10:10
E3	Activity A	—	—

E3 resolves from the linked shift: 08:10–10:40. No time is invented when a lookup is missing.



245 person-minutes. Bucket instance counts are 2 / 3 / 2; one event can contribute to more than one bucket.

```
def overlap_minutes(start, end, lower, upper):
    return max(0, min(end, upper) - max(start, lower))
```

This exact function is executed in the new example. Half-open buckets avoid double-counting boundary minutes.

02 / SKILL-LIST AUDIT

Generate the intended membership

Use an explicit active/group rule, compare it with the current list, and keep the changes reviewable.

Synthetic roster; identifiers are invented

Member	Group	Active	In current list
A	Focus	Yes	Yes
B	Focus	Yes	No
C	Focus	No	Yes
D	General	Yes	No
E	Focus	Yes	No

The current list is A, C, X. X is absent from this roster; C is no longer active.

Active members in the Focus group

Desired membership: A, B, E.

Keep	Add	Remove
A	B, E	C, X

Tool-ready list: A, B, E

- Current + additions − removals = desired.
- Inactive and other-group members are excluded explicitly.
- The illustration generates a list; it does not change any live system.

> 3 current members + 2 additions − 2 removals = 3 intended members.

03 / STAGED PERFORMANCE REPORTING

Summarise once, then reuse the result

An intermediate table separates raw-record handling from the final reporting view.

6 rows — 15-minute source records → **3 rows** — 30-minute intermediate table → **1 row** — Whole-period summary

New synthetic interval counts

Start	Offered	Answered
08:00	18	16
08:15	22	20
08:30	16	15
08:45	24	21
09:00	20	19
09:15	14	13

Computed half-hour summary

Start	Offered	Answered	Unanswered
08:00	40	36	4
08:30	40	36	4
09:00	34	32	2

114	104	10
offered	answered	unanswered

> Control totals match at every stage. This fixture classifies every offered interaction as answered or unanswered; it does not estimate service levels or claim a measured speedup.

04 / TRAINING-COMPLETION EXCEPTIONS

Find the missing set without losing the denominator

Compare the required cohort with recorded completions; keep duplicates and out-of-cohort entries separate.

One invented module and five synthetic members

Member	Required	Completion recorded	Result
A	Yes	Yes	Complete
B	Yes	No	Follow up
C	Yes	Yes	Complete
D	Yes	No	Follow up
E	No	No	Not required



Missing: B, D

Completion input: A, A, C, X.

- 1 duplicate row contributes no extra completion.
- X is outside the cohort and is not counted.
- E is not required and is excluded from the denominator.

Follow-up list: B, D

Required = Complete ∪ Follow up, with no overlap between those sets.

Test the result, then refine the design with its users

✓ Allocated minutes reconcile ✓ Membership changes reconcile ✓ Reporting totals survive each stage ✓ Completion sets partition the required cohort

In the original work, I compared revised reports with their predecessors, incorporated colleagues' feedback, and simplified the reporting stages when longer timeframes exposed a performance problem. These new examples make the same habit of checking intermediate results visible.

New illustrative implementations. The original projects used Excel/VBA. These independently invented records and newly written calculations explain the techniques; they do not reproduce historical staff lists, training outcomes, report values or source screenshots.

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