msgGillardon

Menschen beraten, *Ideen realisieren.*

Restructuring Code: From "Push" To "Pull"

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Our Starting Point

- Business Software
- Very poor code quality
- Planned changes for a module:
  - Bugfixing
  - new features
  - better tests

$\Rightarrow$ A restructuring was required

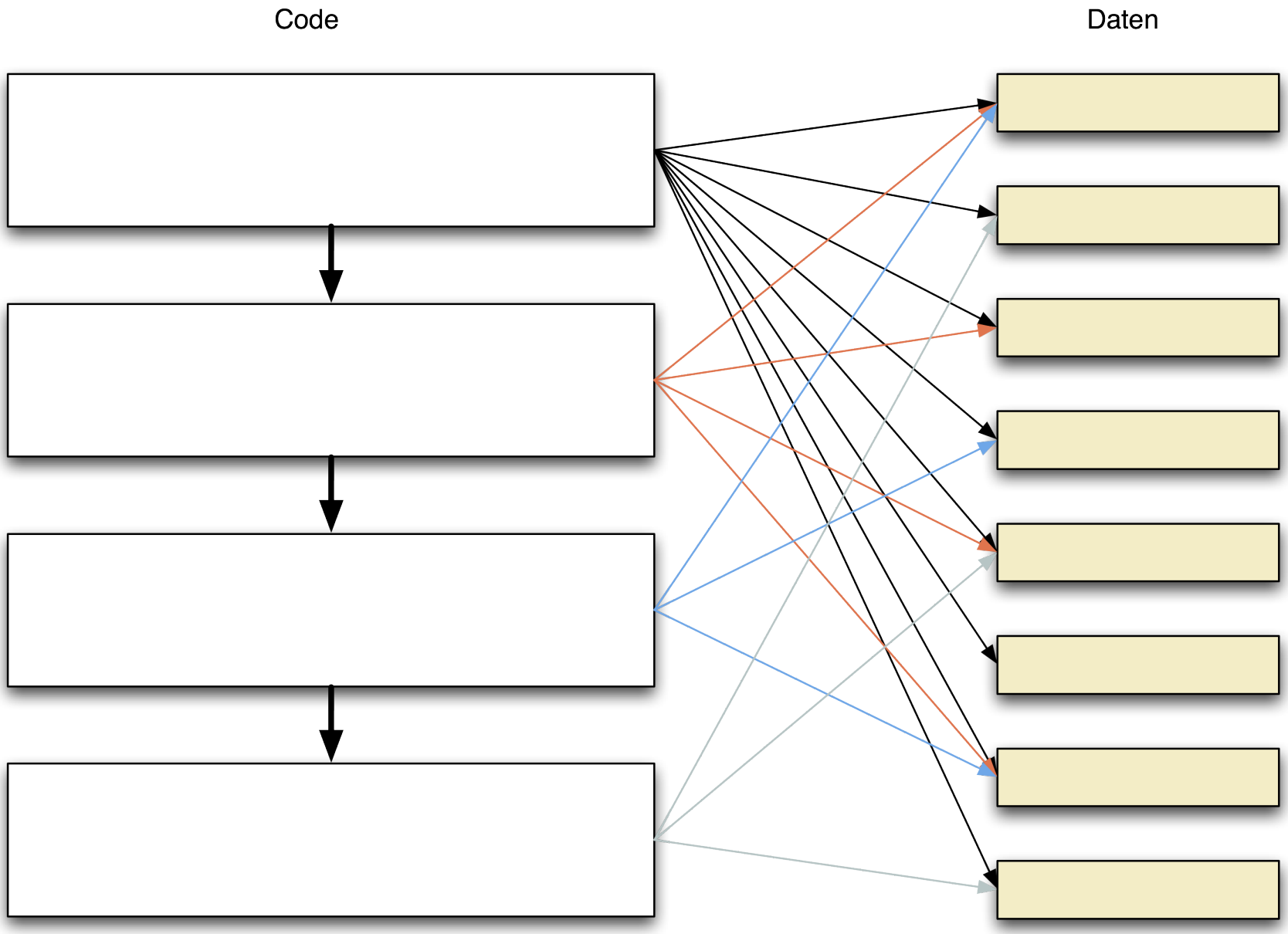
The Domain

- Financial mathematical software
- Calculate for a bank account for each month:
  - Balance at the last day of the month (ultimo)
  - Average balance of the month

Problems of the Existing Code Structure

- Code writes values into separate data objects („Push“)
- Multiple writing operations for one value
- Parts of the code access previously written values
- Code is driven by the view from the inside: What do I need to do in summary to be able to deliver a set of result values?

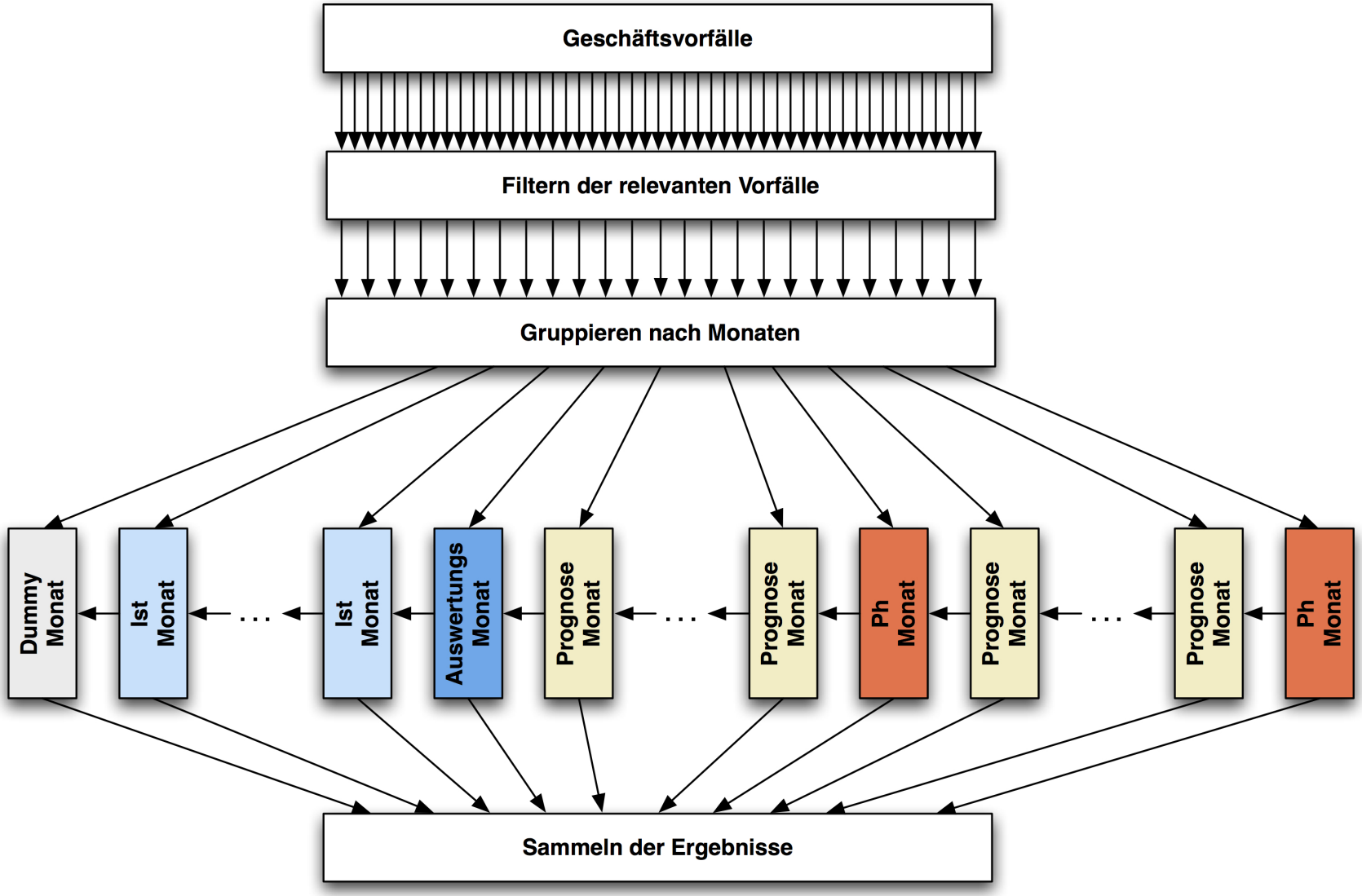
Problems of the Existing Code Structure



Goal

- Structure:
  - Code mirrors the business logic
- View from the outside, driven by the expected results:
  - Which values do I need?
  - How is each value calculated?
  - Which categories of results exist? Similarities, differences?

Goal


Geschäftsvorfälle
Filtern der relevanten Vorfälle
Gruppieren nach Monaten
Dummy Monat
Ist Monat
Ist Monat
Auswertungs Monat
Prognose Monat
Prognose Monat
Ph Monat
Prognose Monat
Prognose Monat
Ph Monat
Sammeln der Ergebnisse

Good Approach

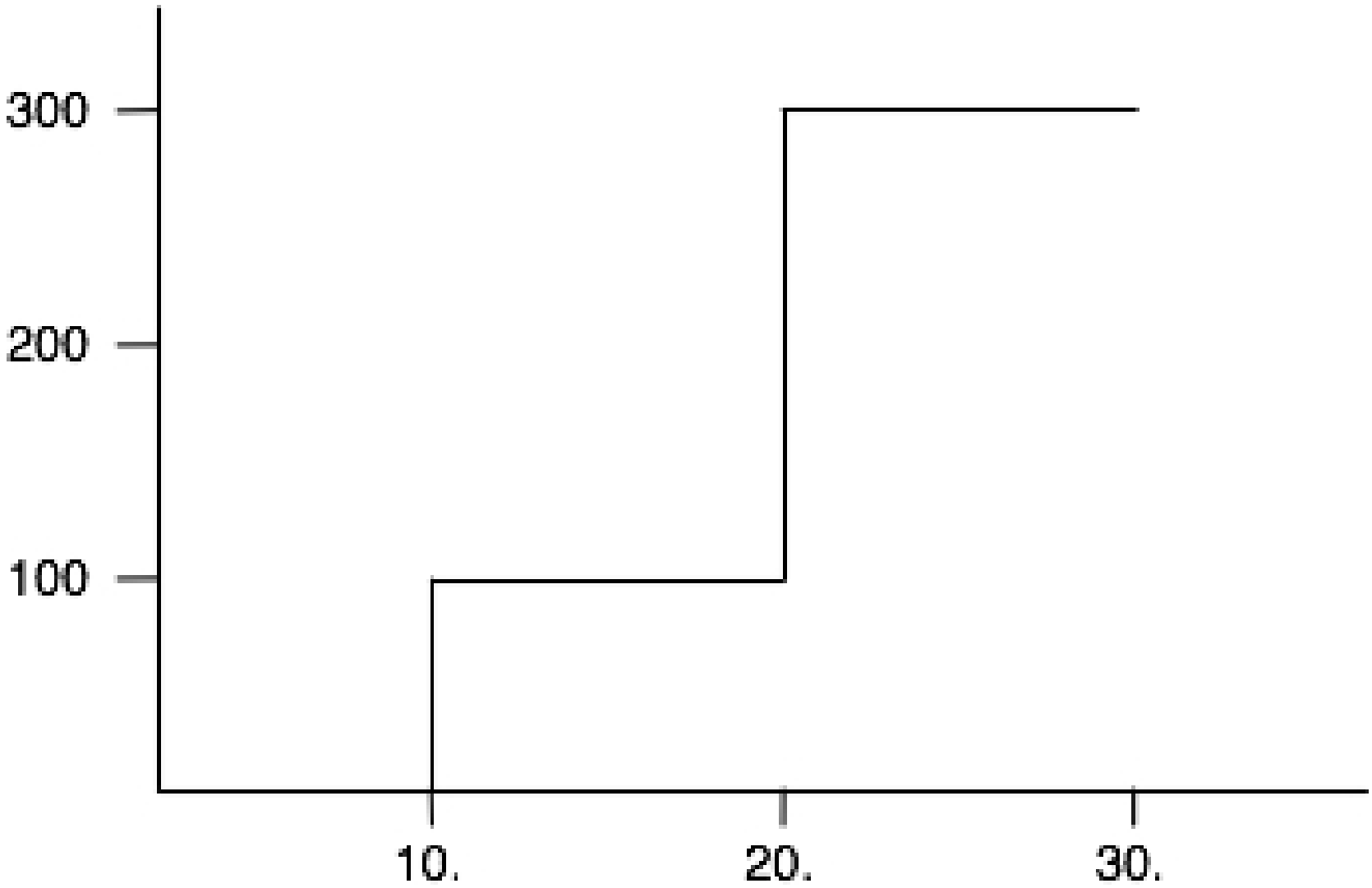
- Feature-toggle to compare the old and the new version
  - Identification or creation of a minimal entry point to the restructured area
  - The API of this entry point must remain unchanged
- Important aspects of the restructuring:
  - Driven by business logic
  - Purely structural
- Technical goal:
  - Separation of Concerns
  - On-demand-calculation of all values („Pull“)
  - Bonus: Value caching via lazy initialization

Important!

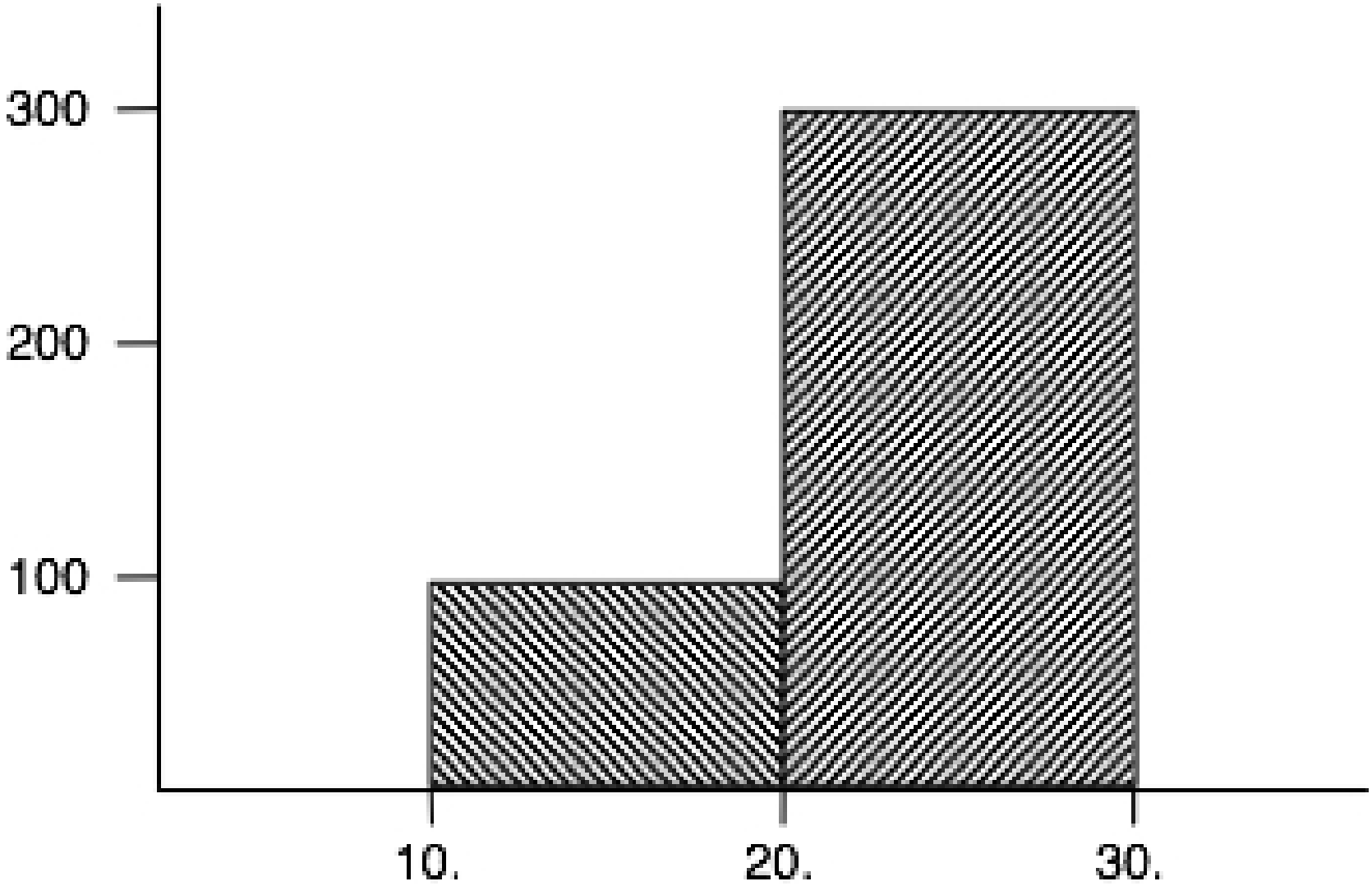
- If in doubt, the existing code shows the correct behaviour!
- Do not change the logic while restructuring!
- Explicit approval of the restructuring
  - It must show identical behaviour (tests, bugs, features)

Workshop

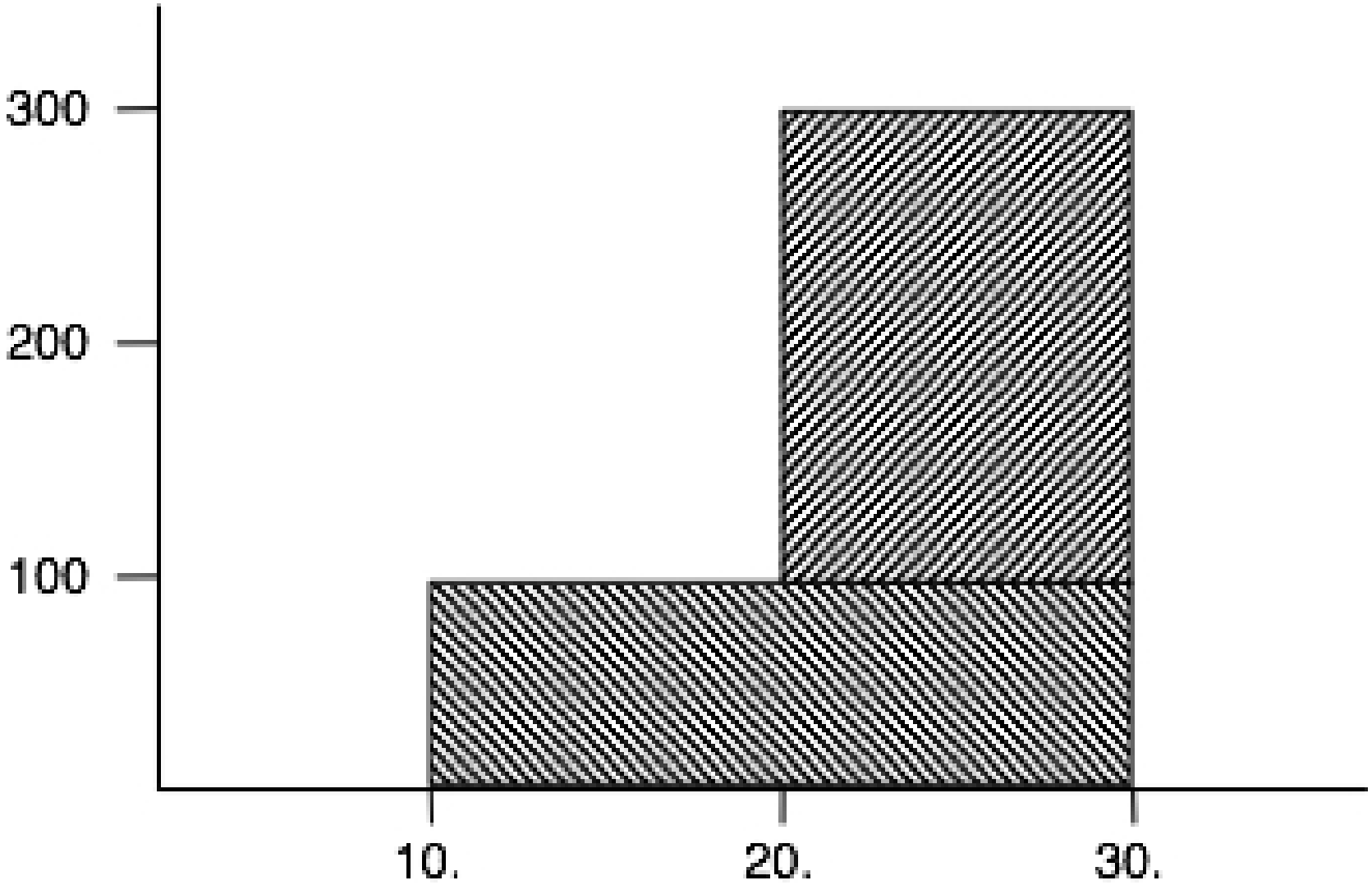
Balance



Initial Average



Final Average



Thank you!

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Code & slides at GitHub:

`https://github.com/NicoleRauch/RefactoringLegacyCode`

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