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Software Engineering and Programming Languages
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Functional Programming – WT 2023 / 2024
Reading Guide 3: Higher-Order Functions

1 Material

- Learning Video: Overview HOFs: `https://mediathek.hhu.de/watch/307816b9-9bb4-469e-9a9a-06365ec`
- Alternatives:
  - Clojure for the Brave and True, chapter 4 (Seq Function Examples + Function Functions, more in-depth explanations)
  - 23_hof.clj (basic coverage)
- self-driven exercises!

Timeline: This unit should be completed by 30.10.2023.

Note: This week gives you an overview of a very important concept. Thus, the material is rather little. This does not mean that there is less to do this week: you should focus on practical aspects instead. The REPL session contains pointers on what exercises you should attempt to deepen your understanding.

2 Learning Outcomes

After completing this unit you should be able to

- use built-in higher-order functions.
- write higher-order functions.

3 Highlights

- Higher-Order functions: concept, `map`, `filter`, `reduce`, `apply`, `partial`

4 Exercises

Exercise 3.1 (4clojure Exercise Unlocks — Recommended!)
After completing this unit, you gained the knowledge to solve the following exercises:

- elementary: 17–18, 64
- easy: 19–25, 27, 29–33, 38, 42, 45

- medium: 46, 59 (highly recommended!)

Note that in some exercises you should re-implement a Clojure built-in without calling it or related functions. Please also note that it is not expected that you solve every single one of these problems right now. Next week will unlock only a single new problem.

Questions

If you have any questions, please contact Philipp Körner (`p.koerner@hhu.de`) or post it to the Rocket.Chat group.