

# Exercise 1

## Features and Constructs of Programming Languages

September 30, 2022

For this exercise you have to choose a language construct or aspect of a programming language that you find especially useful, harmful, or interesting for other reasons. During the exercise session you will have the opportunity to discuss the chosen construct with your colleagues.

As a guideline for preparing the discussion you may use the following:

- Description
  - To which programming language does it belong?
  - What are its syntax and its semantics?
  - Provide an example of an application of the construct.
- Classification
  - Which language/core concept(s) does the construct express?
  - Which requirement(s) motivate this language construct?
- Pros and cons
  - Provide examples which show its pros and cons.
- Your personal opinion about the construct
  - Does it provide a reasonable design trade-off?
  - Would it be a good idea to drop the construct? If yes, how could the construct be replaced? If no, how could a future version of the language improve the construct?

Please note that:

- The guidelines provided above are only recommendations. Feel free to add or remove whatever you find appropriate.
- If you are not sure about pros and cons of the chosen language construct you can evaluate its influence on the following language design goals:
  - Simplicity
  - Expressiveness
  - (Static) Safety
  - Modularity
  - Performance
  - Productivity
  - Backwards Compatibility
- There are no “correct” or “incorrect” answers for this exercise. Don’t be shy about sharing your opinion and participating in the discussions.
- You may write down some notes or prepare some slides if you wish, but it is not mandatory.