Hochschule Landshut SS 2024
Concepts of Modern Programming Languages

Assigned: 10th June 2024
Due: June 13 & June 27th, in lab

Assignment 4:
GO

This time, we are going to get some practical experience with Go to witness the Go design goals in practice. When writing your code in this and the following sections, make sure you follow the guidelines explained in http://golang.org/doc/effective_go.html to ensure that your Go code follows best Go practices.
As a high-level overview and to learn about the design goals of the Go language, you want to read the paper "Go at Google: Language Design in the Service of Software Engineering" available in Moodle and at https://go.dev/talks/2012/splash.article.

1. Go to http://golang.org/doc/ and follow the instructions on how to install Go on your computer and how to set up your Go source tree. Once done, implement, compile and run your first "Hello World" program in Go.
2. Implement the "dining philosopher" problem using concurrent go routines. If you don't remember the problem, https://en.wikipedia.org/wiki/Dining_philosophers_problem has a description.
3. Implement a web server ("Effective Go" has a nice example of how to implement one in Go) that accepts an expression in RPN (reverse Polish notation), evaluates it, and outputs the result as well as the input. https://en.wikipedia.org/wiki/Reverse_Polish_notation describes RPN in case you are not familiar with it as well as the postfix algorithm to evaluate an arbitrary RPN formula. For simplicity, you can restrict your calculator to integers only if this makes your life easier.