LANGUAGED-BASED TECHNOLOGY FOR SECURITY
Homework Assignment 1

Due: April 9 2021

In this homework, we will extend the interpreter of the simple functional language into an interpreter of a functional language which includes a dynamic mechanism for enforcing access control checks, along the line of the so-called *stack inspection* algorithm.

Learning objectives

Goals of the homework are

- to appreciate - if it was nott clear from the lectures – the main ideas of stack inspection;
- to understand the capabilities and the limitations of stack inspection;
- to understand the trade-offs in the design and implementation of stack inspection.

The assignment

In this homework you will build an interpreter a simple functional language equipped with security permissions. Each function definition is equipped with a set of permissions (e.g. {read, write}, {}) over a set of security relevant actions. We also assume that the language is equipped with a primitive construct to check a permission. The interpreter executes if permissions are enabled; otherwise, execution fails.