

Seminar 11

week 11 (11 December 2023– 15 December 2023)

- 1. Discussion the implementation of the following problems (that can be problems for the final practical exam):**
 - **implementation of synchronization mechanisms (lock, countdownlatch, semaphore, barrier, atomic operations),**
 - **implementations of new IO operations (buffered writing/reading, writing to a file)**
 - **implementation of some communications primitives (send/receive) between threads,**
 - **adding procedures to the ToyLanguage.**
 - **other constructions for the ToyLanguage**

- 2. An example of Theoretical Exam from previous years:**
 - 1.(3p). Compare static vs non-static methods in Java.**

 - 2.(3p). Given the following collection**
`List<Integer> numbers = Arrays.asList(1, 2, 3, 4, 5, 6, 7, 8,9,10,11,12,14,15,16);`
Using Java functional style (Java streams),
please write a program that is doing the following operations in the following order:
 - a)eliminates all the numbers which are not multiple of 4;**
 - b)transform each remaining number into its sucesor (eg. 4 is transformed into 5);**
 - c)compute the sum modulo 2 of the remaining numbers (eg. (9 +5) mod 2=0)**
 - d)transform the result into a list**

 - 3.(3p). What is a Semaphore in Java.**