Distributed Systems Group (DS)
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LAB EXERCISES
DISTRIBUTED ALGORITHMS (IN4150)
Exercise 2a
Implementation of election in a unidirectional ring
according to Peterson in Java/RMI

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Assignment

Implement Peterson's algorithm for election in a unidirectional ring with Java/RMI. The implemented program should be **truly distributed** in that it can be demonstrated to run across multiple physical machines. The assignment can be split up into the following three parts.

Part 1

Write the remote interface and the global framework of the `Component` class implementing the components of the distributed algorithm. In addition, create the framework for the `Main` class that will create the `Component` objects and their threads on a single host. It must be possible to specify the number of these components and the `id`'s with which they start, and it can be assumed that the components on a single host form a contiguous part of the ring. Include into `Main` and `Component` the functionality of registering and looking up components.

Part 2

Include into `Component` the functionality for a single round of the algorithm.

Part 3

Include into `Component` the complete algorithm that performs as many rounds as needed for election. Make sure that the output of the algorithm makes it possible to check its correct operation.