Algorithms and Distributed Systems 2019/2020 (Lab One)

MIEI - Integrated Master in Computer Science and Informatics
Specialization block

João Leitão (jc.leitao@fct.unl.pt)

FACULDADE DE CIÊNCIAS E TECNOLOGIA
UNIVERSIDADE NOVA DE LISBOA

Class structure:

- How to write pseudo-code.
- Link abstractions.
- Project and the Babel Framework (if time allows).

Class structure:

- **How to write pseudo-code.**
- Link abstractions.

Fair Loss Model

- A model that captures the possibility of messages being lost albeit in a fair way:

- Properties:
  - FL1 (Fair-Loss): Considering two correct processes i and j; if i sends a message to j infinite times, then j delivers the message infinite times.

  - FL2 (Finite Duplication): Considering two correct processes i and j; if i sends a message m to j a finite number of times, then j cannot deliver m infinite times.

  - FL3 (No Creation): If a correct process j delivers a message m, then m was sent to j by some process i.
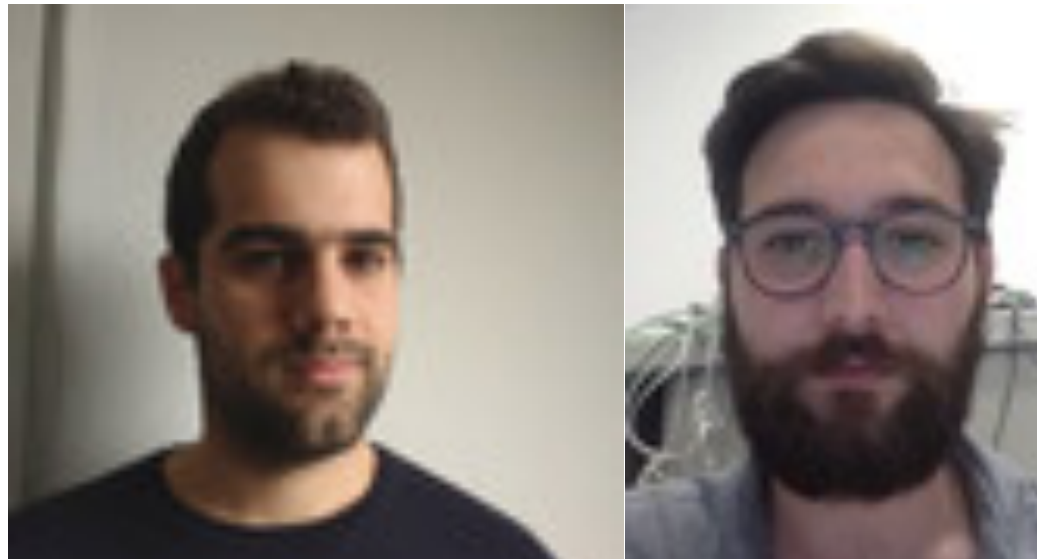
Stubborn Model

- A stronger model that assumes that processes communicate in a stubborn way:

- Properties:
  - SL1 (Stubborn Delivery): Considering two correct processes i and j; if i sends a message to j, then j delivers the message an infinite number of times.
  - SL2 (No Creation): If a correct process j delivers a message m, then m was sent to j by some process i.

Perfect Link Model (also called Reliable):

- A stronger model that assumes the links between processes are well behaved:

- Properties:
  - PL1 (Reliable Delivery): Considering two correct processes i and j; if i sends a message to j, then j **eventually** delivers m.
  - PL2 (No Duplication): No message is delivered by a process more than once.
  - PL3 (No Creation): If a correct process j delivers a message m, then m was sent to j by some process i.

Babel

- Internal framework developed (during the last week) at NOVA LINCS.

- Developers: João Leitão, Pedro Fouto, Pedro Ákos Costa.

Why Babel?

- Honestly, we could not think of a better name.

- Best proposal before this was: Javasil (related with Yggdrasil -- long story).

- Anyhow… since this is going to allow you to stack protocols, and you are going to build great things with it… it was adequate.

Resources

- Moodle: Discussion board will serv as a support forum for babel (in addition to other goals).

- Javadoc: http://asc.di.fct.unl.pt/~jleitao/babel/docs

- Example: Available in clip (in documentation -> others).

- (The protocols in the example can be used temporarily to replace the two bottom layers in the project).