Guidelines

- Form two groups according to your preferences (groups' size should be at least 2) and chose one of the projects below
- The groups should work on different projects
- Besides the addressing the assignement, you can include aspects of your interest (e.g., testing your solution)
- The exam consists of
    - a short report (2-3 pages) discussing salient aspects of your solutions and explaining the approach you followed
    - a presentation
- You can use LLMs; if you do so, the report should describe how LLMs were used and give a critical assessment of their adoption
- Deadlines:
    - report: April 28, 2026 (email emilio.tuosto@gssi.it and rocco.denicola@imtlucca.it)
    - presentation: April 29, 2026 (venue and times will be communicated in due course)

Project 1:

In [1] the smart house scenario described in [2] has been used as a case study for the analysis of the fair join pattern mechanism implemented in the Scala library described in the course. Give a realisation of the smart house scenario in XKlaim and one in Erlang, compare your solutions with the one described in [1], and analyse how the different models of distribution and concurrency compare with each other.

Explore the possibility of letting XKlaim processes and Erlang's actor interact with each other.

[1] Philipp Haller, Ayman Hussein, Hernán Melgratti, Alceste Scalas, Emilio Tuosto. Fair Join Pattern Matching for Actors. ECOOP 2024. and Philipp Haller, Ayman Hussein, Hernán Melgratti, Alceste Scalas, Emilio Tuosto. Fair Join Pattern Matching for Actors. Artefact at ECOOP 2024

[2] Humberto Rodríguez-Avila, Joeri De Koster, and Wolfgang De Meuter. Advanced join patterns for the actor model based on CEP techniques. Art Sci. Eng. Program., 5(2):10, 2021. doi:10.22152/programming-journal.org/2021/5/10.

Project 2:

Implement in XKlaim and in Erlang the following features of Go:

- synchronous and asynchronous communication
- channel mobility
- close operation

You can assume that only basic types such numerals, strings, booleans, etc. and channels can be exchanged in the communication of your encoding.