

Init Report "Replication laboratory"

Gianmaria Casamenti

`gianmaria.casamenti@studio.unibo.it`

Luca Pasini

`luca.pasini8@studio.unibo.it`

November 16, 2023

1 Abstract

This project aims to develop the teaching material to be used during the explanation of the topic "Replication" in distributed systems . Stating with "bolts and nuts" view and then pausing to analyze the different replication methods and the advantages that they introduce .

The materials have to cover the entire duration of 2 laboratory of 2 hours each, including both the theoretical slides and the practical part of exercises and examples, in java language.

2 Goals and Requirements

The overall goal of this project is study and understanding replication topic in order to create didactic material. In the list below we will see the goals more specifically:

- **Understanding replication practice**
Understand the operation and various uses of replication while better understanding the benefits and problems associated with them.
- **Teorical slides**
Develop a series of slides explaining the practice of "replication" and the feature that most impact distributed systems.
- **Code slides**
When needed the slides will contain code for some examples created to stay aligned between the theoretical and practical parts.
- **Exercitations**
Some guided exercises, clonable from GitHub, which can be done by students only at the end of a section after fully understanding that topic.
- **Language and Platform**
Use of the java programming language and its testing unit framework, JUnit, for composing and verify exercitations.

3 Expected Work Plan and Division

3.1 Phase 1: Preliminary understanding

- **Study replication in distributed system:** Conduct an in-depth study about the main topic replication and related literature.
- **Choose the architecture system:** Discuss and explore the best architecture and technology, considering the unique aspects the "Replication laboratory" project.

3.2 Phase 2: Implementation

- **Develop a Gradle project:** Creating a project using the Gradle compilation automation tool.
- **Implement a project:** Development of a series of different examples and exercises with the purpose of explaining replication of distributed systems.
- **Automated Testing:** Preparation of a series of automated tests to ensure the correctness of the exercises to be completed.

3.3 Phase 3: Documentation

Preparazione della relativa documentazione riguardo la replicazione dei sistemi distribuiti e del lavoro svolto durante il progetto, in formato slide e relazione.