Distributed Systems – Fault Tolerance

Lab 0

2020/2021

Client/Server Bank

Consider a server providing a basic bank account service with the following two operations:

- The *balance* operation returns the current value in the account.

- The *movement* operation:

    - With a positive parameter, deposits the amount in the account and returns true;

    - With a negative parameter, withdraws the amount from the account if the resulting balance is not negative, returning true. Otherwise it returns false.

Steps

1. Create the bank interface and its implementation.

2. Create a testing application that runs a very large number of random requests on the bank implementation and checks whether the final balance is the one expected.

3. Create a remote invocation mechanism for the bank interface using sockets, separating client stub and server skeleton functionality.

Learning Outcomes   Recall client/server programming with remote method invocation. Characterize the behavior of the replicated server in terms of consistency criteria.