Secure Bank Application

Project report for the "Fondation of Cybersecurity" course

MSc Computer Engineering at University of Pisa

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The objective of this project is to develop a secure client-server application that allows users to perform operations on their bank account. The program is developed in C++ and targets Linux machines. It uses the OpenSSL library for cryptography algorithms and the sqlite3 library for handling the database.

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Introduction

The application's features are described in the requirements document that was assigned for this project. The service is primarely composed of two CLI programs: the `client` and the `server` which communicate using sockets. The client must be started specifying the ip address and the port on which to find the server; meanwhile the server only requires to specify the port it sould listen to.

The list of available functionalities are:

For the client:

- loggin in to the SBA service. This is done automatically at application startup and after each session expiration
- seeing the list of available commands throught the `help` command
- getting the current balance via `balance`
- transferring money to another user using the `transfer` command and specifying the receiver's username and the amount to send
- listing the last 3 (configurable by code on the server side) transfers performed by the user. Every transfer is saved on the database but only the last ones are returned.

For the server:

- terminating the server via the `quit` command. All user's information are saved on the database but all sessions would be lost.

Protocols used