RMI Bank Account System

HAMMOUDI Sarra

1 Introduction

The **RMI Bank Account System** is a distributed application that allows clients to perform banking operations such as creating accounts, depositing money, withdrawing money, and checking balances. The system is built using Java Remote Method Invocation (RMI), which enables remote communication between the client and server components. The system consists of the following key components:

- **BankClient**: The client application that interacts with the server.
- **BankServer**: The server application that hosts the remote object.
- **BankAccountImpl**: The implementation of the remote interface that handles business logic.
- **RMI Registry**: A naming service that allows clients to locate remote objects.

2 Sequence Diagram

The sequence diagram illustrates the interaction between the client and server during a deposit operation. The steps are as follows:

1. The **Client** runs the **BankClient** application.
2. The **BankClient** looks up the `BankService` in the **RMI Registry**.
3. The **RMI Registry** returns the `BankAccount` stub to the **BankClient**.
4. The **BankClient** calls the `deposit` method on the **BankAccountImpl**.
5. The **BankAccountImpl** validates the account and amount on the **BankServer**.
6. The **BankServer** updates the account balance and returns the result to the **BankAccountImpl**.
7. The **BankAccountImpl** returns the result to the **BankClient**, which displays it to the **Client**.

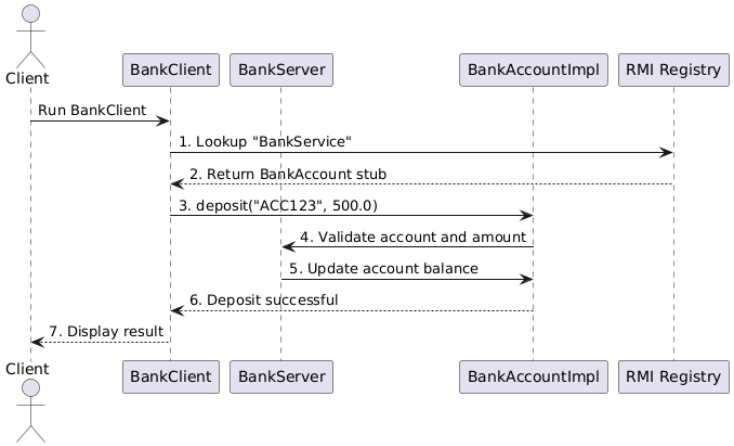

Figure 1: Sequence Diagram for Deposit Operation

3 Component Diagram

The component diagram shows the high-level structure of the system and the flow of transactions between components. The steps are as follows:

1. The **BankClient** looks up the `BankService` in the **RMI Registry**.
2. The **RMI Registry** returns the `BankAccount` stub to the **BankClient**.
3. The **BankClient** makes remote method calls (e.g., `deposit`, `withdraw`) to the **BankAccountImpl**.
4. The **BankAccountImpl** executes the business logic on the **BankServer**.
5. The **BankServer** returns the results to the **BankAccountImpl**.
6. The **BankAccountImpl** returns the results to the **BankClient**.

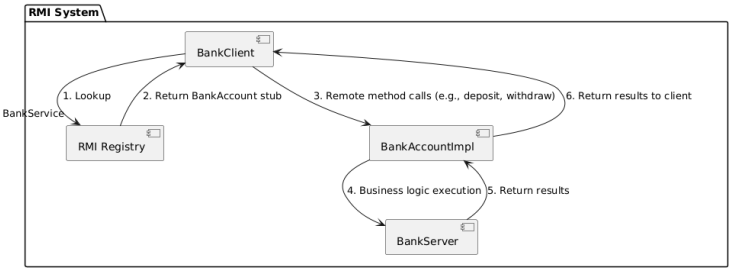

Figure 2: Component Diagram for RMI Bank Account System

4 Conclusion

The RMI Bank Account System demonstrates the use of Java RMI to build a distributed application. The system allows clients to perform banking operations remotely, with the server handling the business logic. The sequence and component diagrams provide a clear understanding of the interactions and flow of transactions within the system.