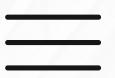




BankBridge

Mini-Project Report

Yassin Manita



BankBridge



"Your bridge to secure and easy banking."

This slogan expresses the idea that the product or service in question offers a practical and secure solution for accessing banking services. It emphasizes security and simplicity, two important values for customers when it comes to managing their finances. The "bridge" represents a gateway between the customer and the bank, emphasizing the idea of connection and accessibility.

INTRODUCTION



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BankBridge is a banking management system that uses graphical interfaces in Java SWING as well as a database with MySQL.

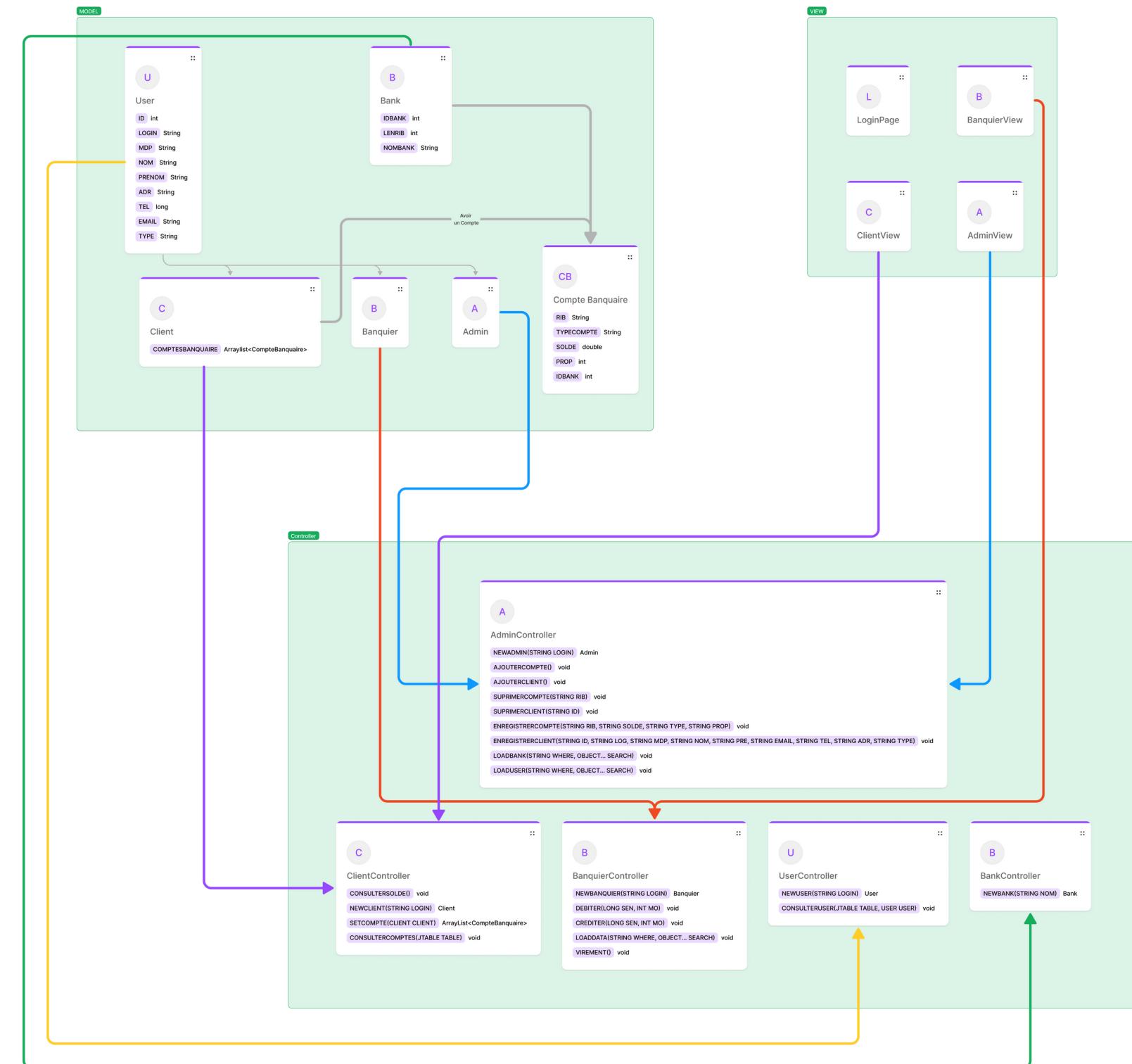
This system manages all data and records related to bank accounts and customers. Features for customer, banker and administrator parts include bank account consultation, account search, debit and credit operations, transfers, account and customer management.

HOW IS THE SYSTEM STRUCTURED?

The BANKBRIDGE system follows the MVC Architecture which divides the application into three distinct layers. The first layer is the MODEL, which includes classes that reproduce the structure and tables of the MySQL database. The second layer is the VIEW, which contains all of the application's GUI windows, made with Java Swing. The last layer is the CONTROLLER, which manages database access and data collection from the system, by connecting classes from the MODEL layer and the VIEW layer.

[**VIEW MODEL**](#)

CLASS DIAGRAM



DESIGN & BRANDING

BankBridge is an application that stands out for its design and branding, highlighting a palette of varied colors, predominantly green. This color symbolizes both growth, stability and confidence, which is perfectly consistent with the banking universe. The typography chosen for the logo is also simple and clear, allowing quick identification of the application. Moreover, the design of the application is modern, ergonomic and easy to use, providing an optimal user experience.

SYSTEM UI

THE USER INTERFACE

The system's user interface is critically important to ensure a smooth and efficient user experience. A well-designed interface allows users to quickly perform their operations without delay while maintaining its visual beauty and functional capabilities.



"Customer" interface

The Client interface serves basic functionality for the client. It helps the customer to consult their bank accounts, check their total balance and verify their personal data stored in the system.

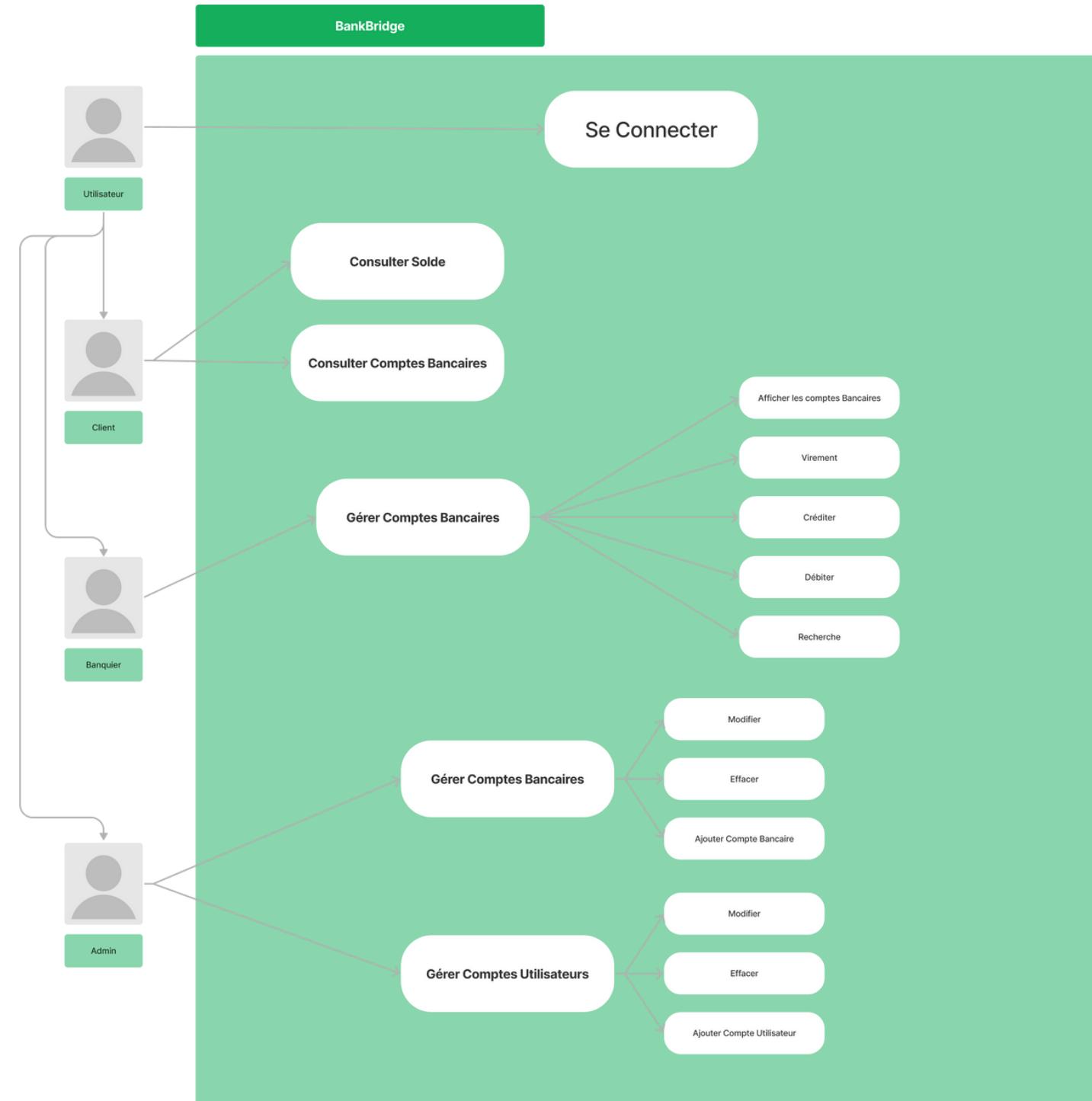
"Banker" interface

The Banker interface facilitates banking operations by allowing bankers to browse all accounts stored in the database, search for them and perform operations such as money transfer or credit/debit of an account.

"Admin" Interface

The Admin interface is used for administrative tasks such as managing user accounts or bank accounts whether for modification or deletion, as well as adding a new user or bank account.

USE CASE DIAGRAM





GOALS SET DURING MODELING

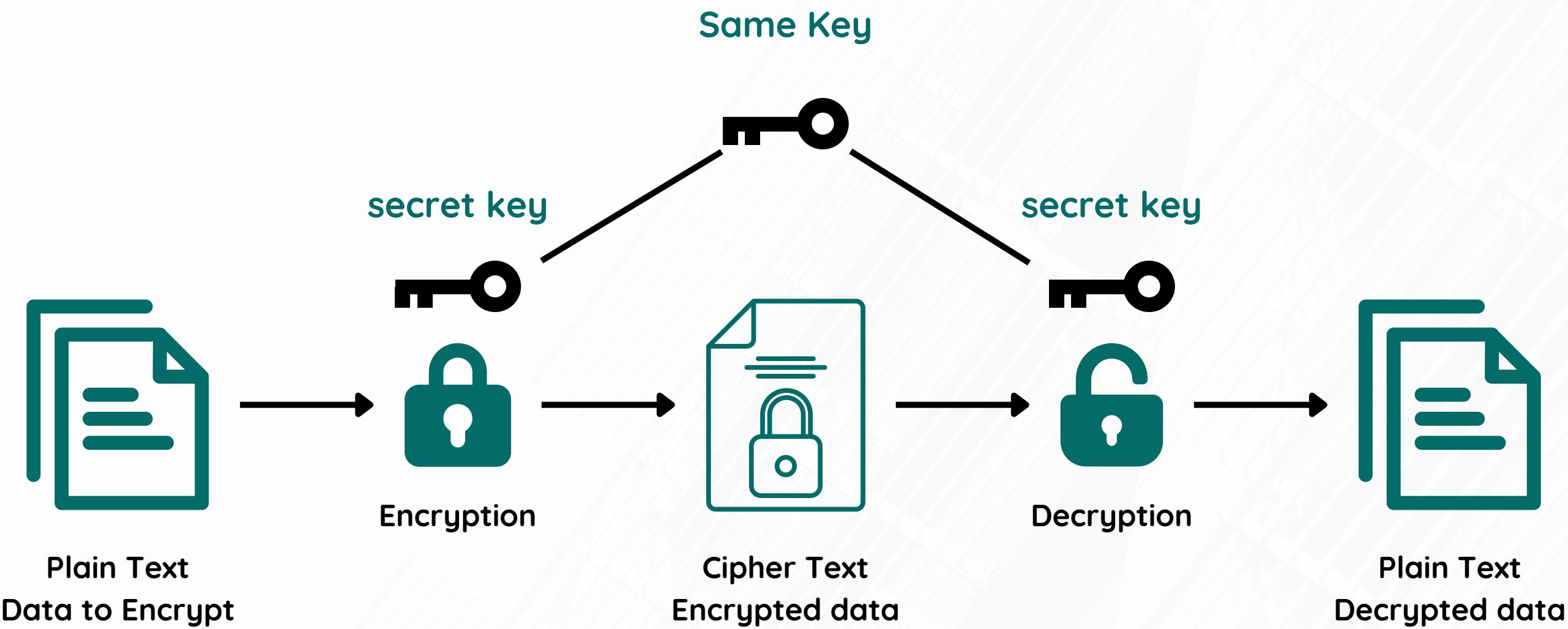
Data security

I managed to add a simple security measure to the user data stored in the database server which is to encrypt user passwords with a 16-bit key using an AES encryption algorithm.

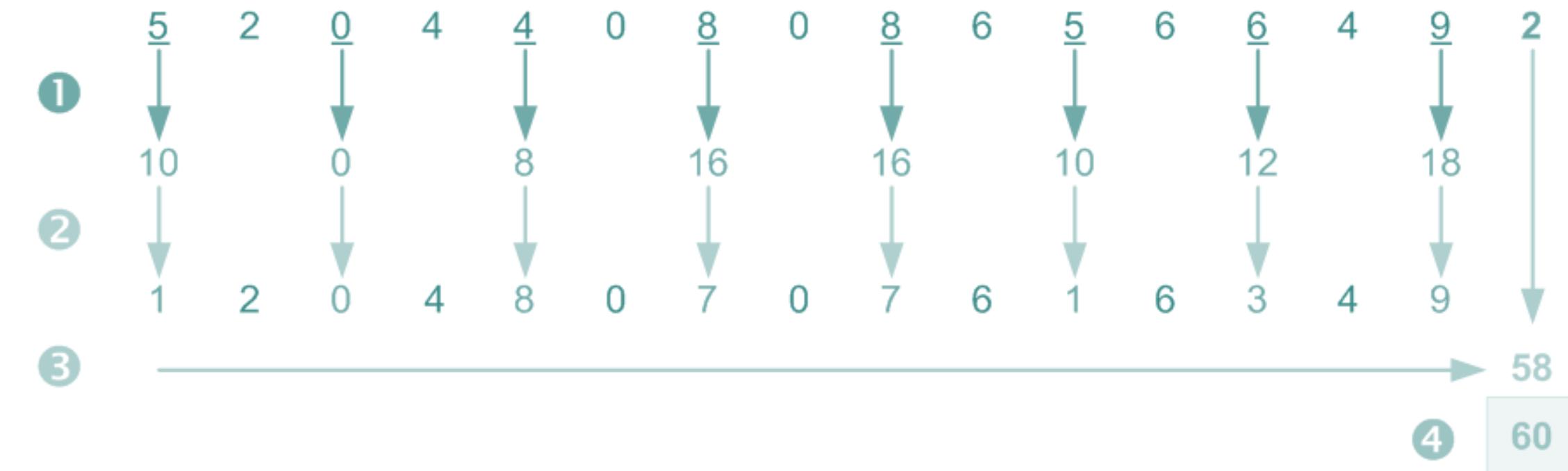
Have valid bank details

By adapting the Luhn verification algorithm for bank card identifiers, I managed to generate valid bank RIBs in the system when creating a new bank account.

ENCRYPTION PRINCIPLE



LUHN ALGORITHM PRINCIPLE



- ① Double every even digit
- ② Add up the digits
- ③ Add up all numbers
- ④ If final sum divides by ten, the number is valid.



HOW IS THE DATA STORED?

The BANKBRIDGE system data backup process uses an efficient method of storing information in a locally hosted MySQL server. To achieve this, the program uses JDBC to establish a connection with the server. This connection then allows the program to submit SQL queries to insert the data gathered from the user's entries into the appropriate tables in the database. To ensure data integrity, the save process uses transactions to ensure that all data is saved successfully. The information stored in the MySQL server can be retrieved and displayed later by the program, providing a more complete and satisfying user experience.

WHY MYSQL?



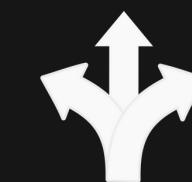
High performance and scalability

MySQL is known for providing excellent performance and scalability. It can efficiently handle large volumes of data and high concurrent connections. It uses various optimization techniques such as query caching, indexing, and multithreading to deliver fast response times even under heavy workloads.



Robust Security

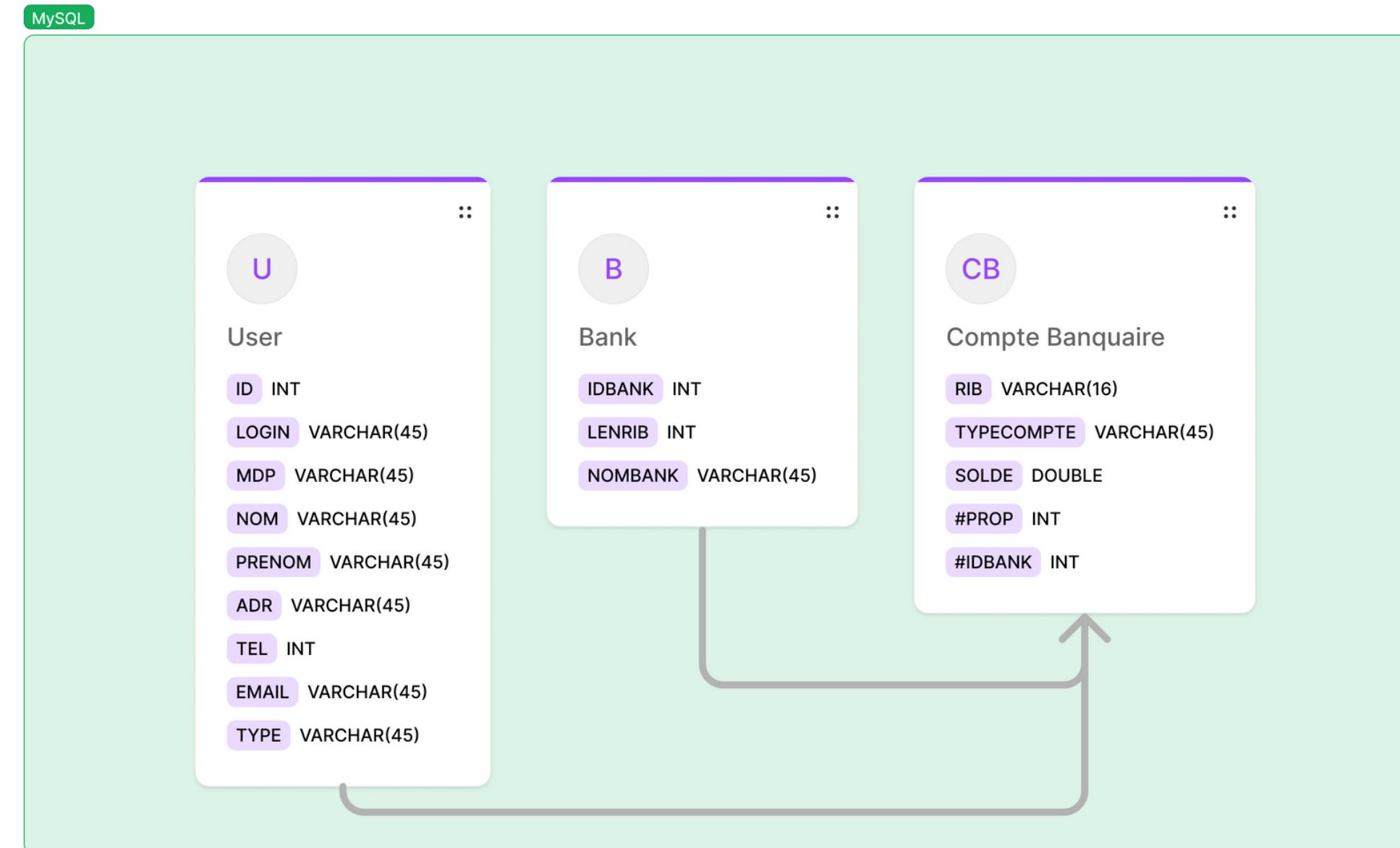
MySQL offers a range of security features to protect sensitive data. It supports secure connections via SSL/TLS protocols, user authentication mechanisms, and granular access control through user privileges and roles. Additionally, it provides encryption options for data at rest and in transit, ensuring data privacy.



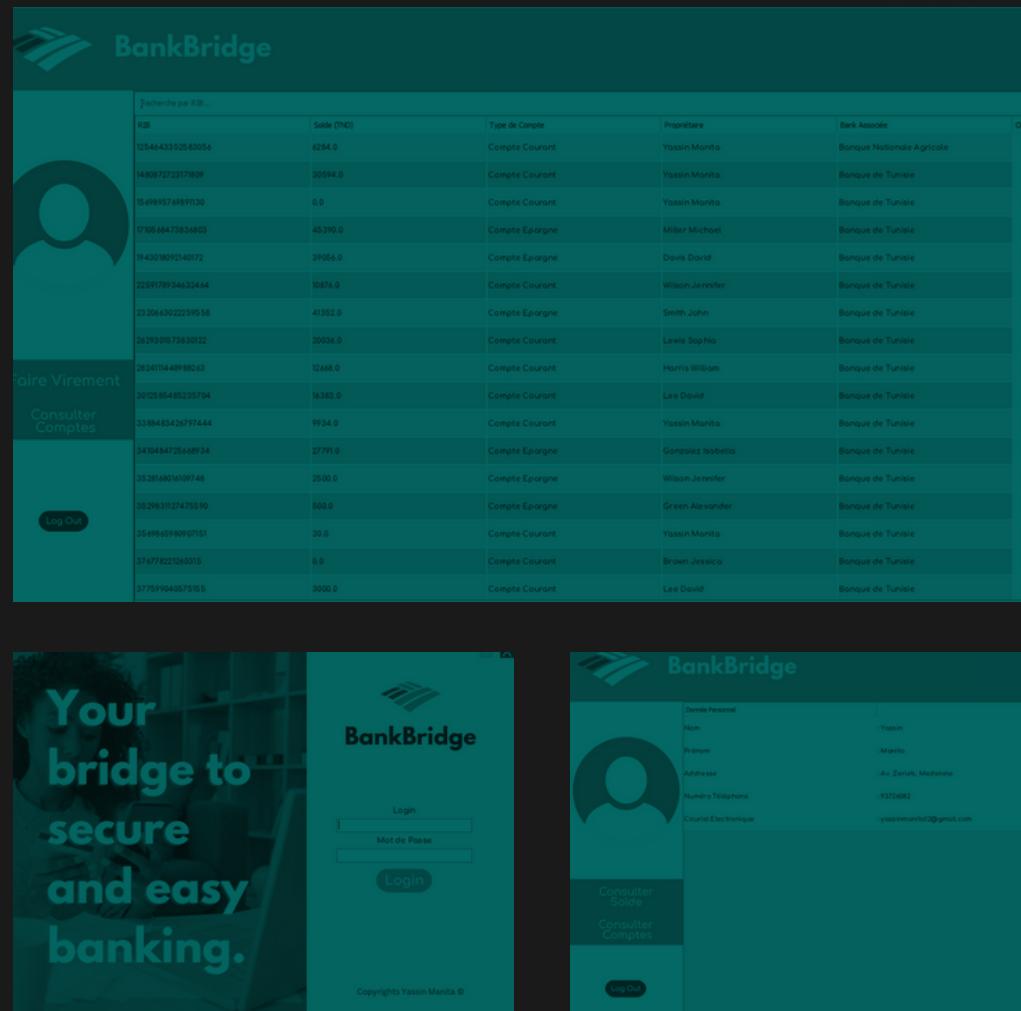
Flexibility and compatibility

MySQL is highly flexible and compatible with various platforms and programming languages. It supports standard SQL syntax and offers wide compatibility with different operating systems, such as Windows, macOS, and Linux. Moreover, it provides connectors and drivers for popular programming languages such as PHP, Java, Python, etc., enabling seamless integration into different application environments.

DATABASE DIAGRAM



SOME SCREENSHOTS

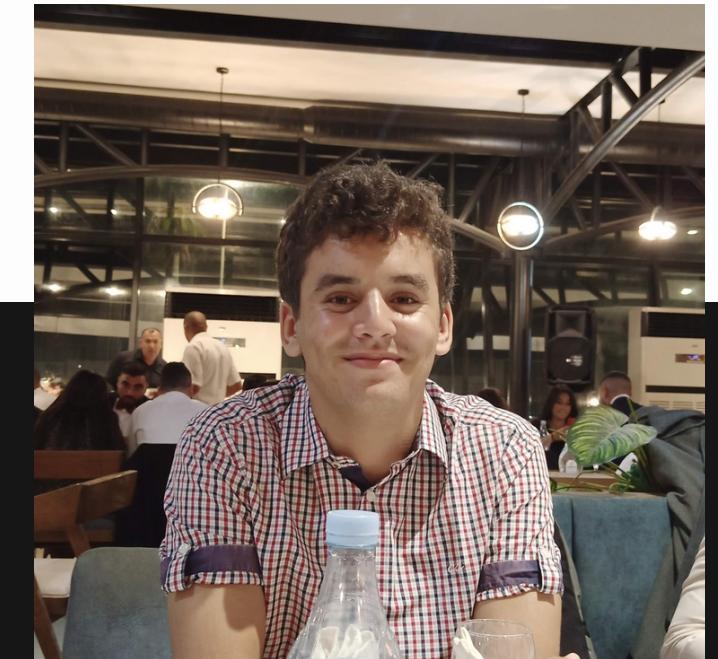


BankBridge

Recherche par Login...

ID	Login	MDP	Nom	Prenom	Adresse	Num Tel	E-mail	Type	Save	Delete
1	1511	1511	Yassin	Manita	Av. Zeriel, Medenine	93726082	yassimanita12@gmail.com	client		
2	wymma	1511	Yassin	Manita	Av. Zeriel	93726082	yassimanita12	banquier		
3	wymma12	1511	Yassin	Manita	Av. Zeriel, Medenine	93726082	yassimanita12@gmail.com	admin		
4	user1	password1	Smith	John	123 Main St	5551234	jsmith@email.com	client		
5	user2	password2	Johnson	Sarah	456 Elm St	5555678	sjohnson@email.com	admin		
6	user3	password3	Davis	David	789 Oak St	5552468	ddavis@email.com	banquier		
7	user4	password4	Wilson	Jennifer	321 Maple St	5557890	jwilson@email.com	client		
8	user5	password5	Taylor	Robert	654 Pine St	5553456	rtaylor@email.com	admin		
9	user6	password6	Brown	Jessica	987 Cedar St	5556789	jbrown@email.com	banquier		
10	user7	password7	Miller	Michael	654 Elm St	5551234	mmiller@email.com	client		
11	user8	password8	Moore	Emily	321 Oak St	5555678	emoore@email.com	admin		
12	user9	password9	Garcia	Mario	789 Maple St	5552468	mgarcia@email.com	banquier		
13	user10	password10	Lee	David	123 Pine St	5557890	dlee@email.com	client		
14	user11	password11	Gonzalez	Isabella	456 Cedar St	5553456	igonzalez@email.com	admin		
15	user12	password12	Horris	William	789 Elm St	5556789	whorris@email.com	banquier		
16	user13	password13	Clark	Olivia	654 Oak St	5551234	oclark@email.com	client		
17	user14	password14	Fisher	Matthew	231 Maple St	5555678	mfisher@email.com	admin		

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THANKS.

In conclusion, thank you for your attention. This project allowed me to develop my skills and put into practice my knowledge acquired during my training. Thanks to everyone who supported me.

If you have any questions, do not hesitate to contact me.

