Design and Development of a Database for Bank Management System

Course Work for "Design and Development of Databases

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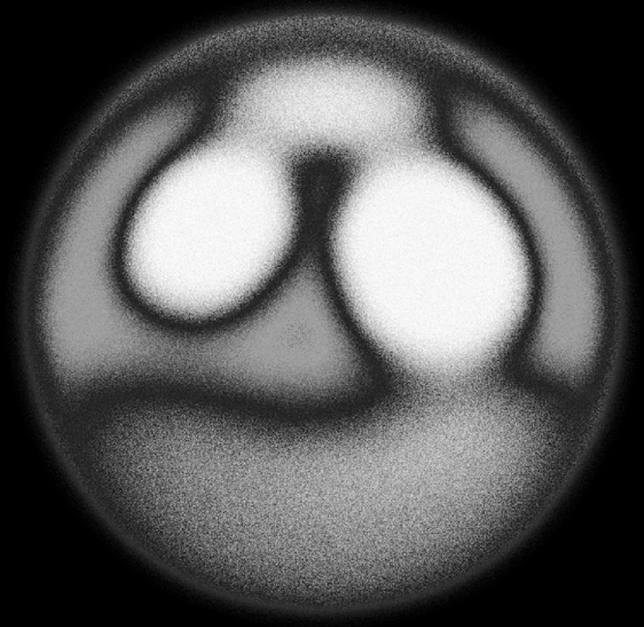
Agenda



Topics Covered

Topic 1 :Introduction

Topic 2: ER Diagram, Logical Data Model, Physical Data Model

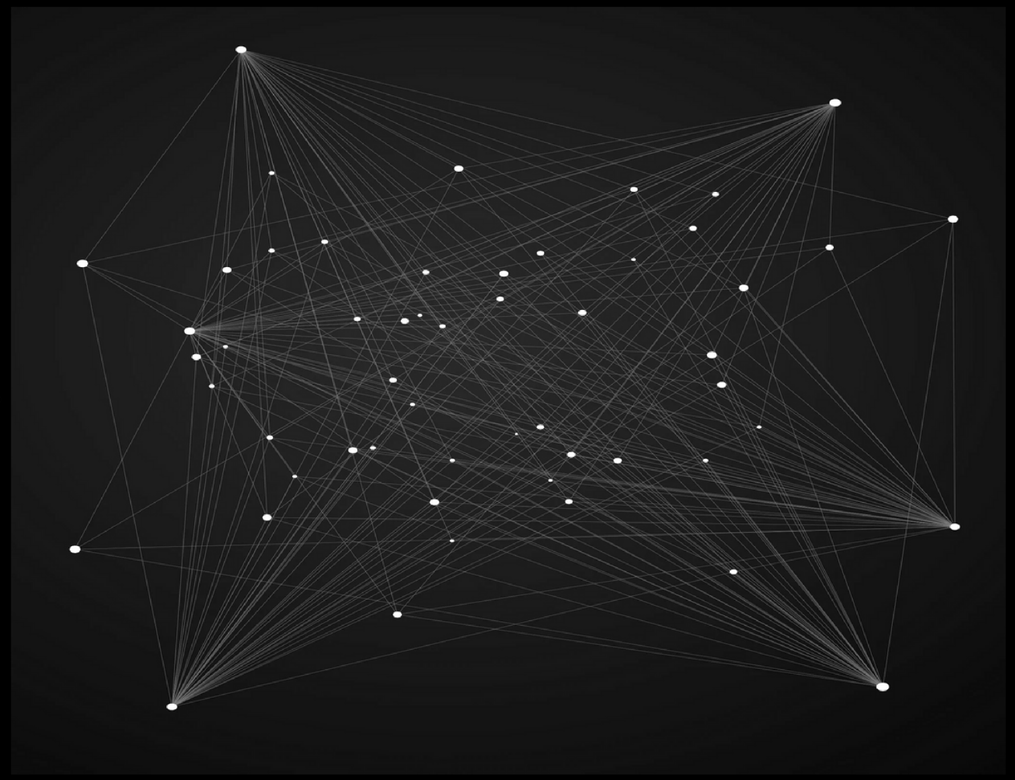
Topic 3 : Implementation in MySQL

Topic 4: Design And_Development Of The Database Application

Introduction

- Objective: Increase productivity of storing and processing information about product supply through the development of an appropriate database.

- Scope: Designing and developing a database to manage clients, accounts, transactions, and loans for a banking system.



Analysis of the Subject Domain

The system of business rules

The bank management system operates within a structured framework governed by various entities and attributes. Bank management system based on the provided system of business rules:

Facts:

Clients are identified by unique account numbers and store personal information such as name, address, and contact details.

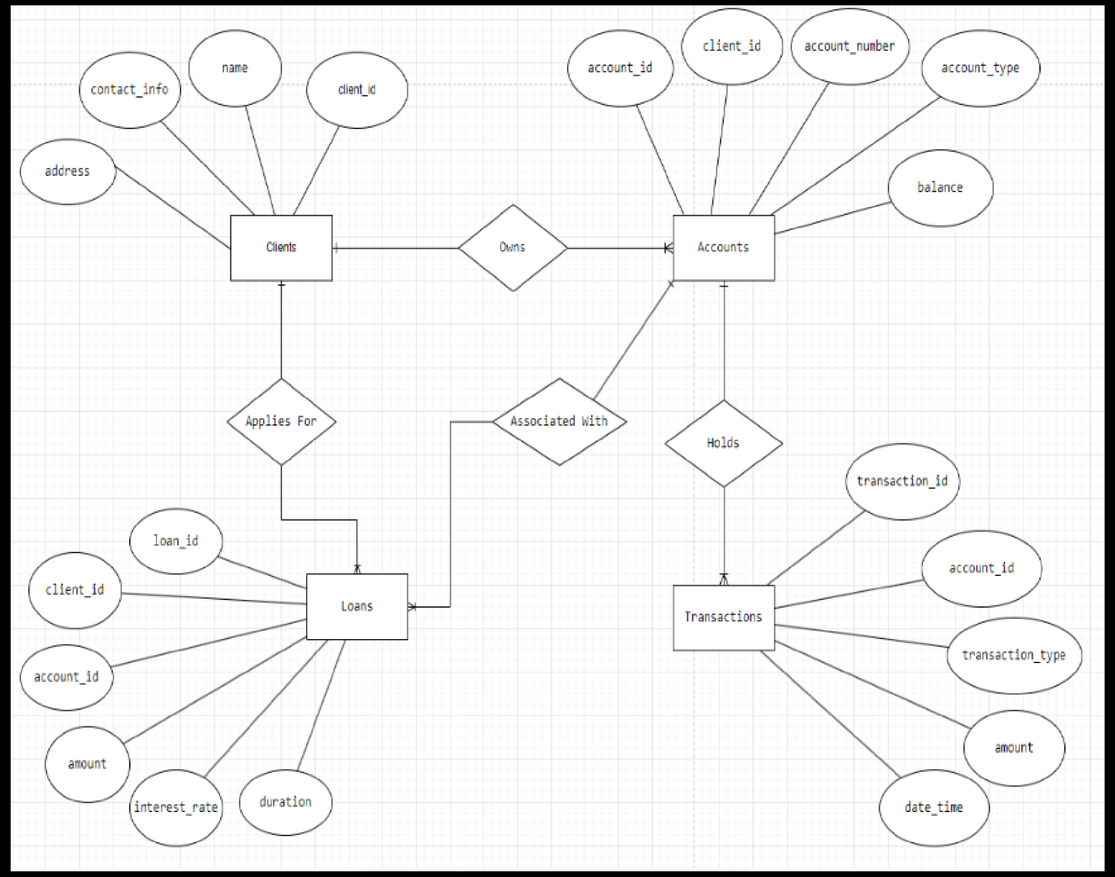
Each client can have multiple accounts, each with a unique account number, account type, and balance.

Transactions are categorized by types (e.g., deposit, withdrawal, transfer) and are associated with specific accounts, including transaction details like amount and date/time.

Loans are issued based on unique contracts with clients, with each loan agreement having a unique loan ID and associated loan details.

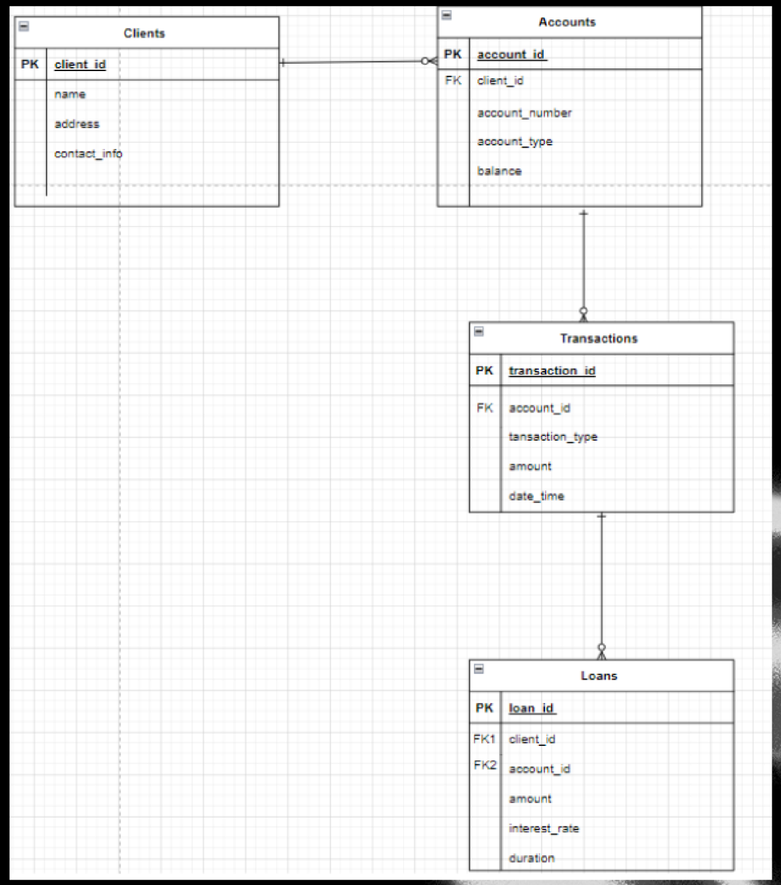
ER Diagram

Visual representation of the relationships between entities (Clients, Accounts, Transactions, Loans)

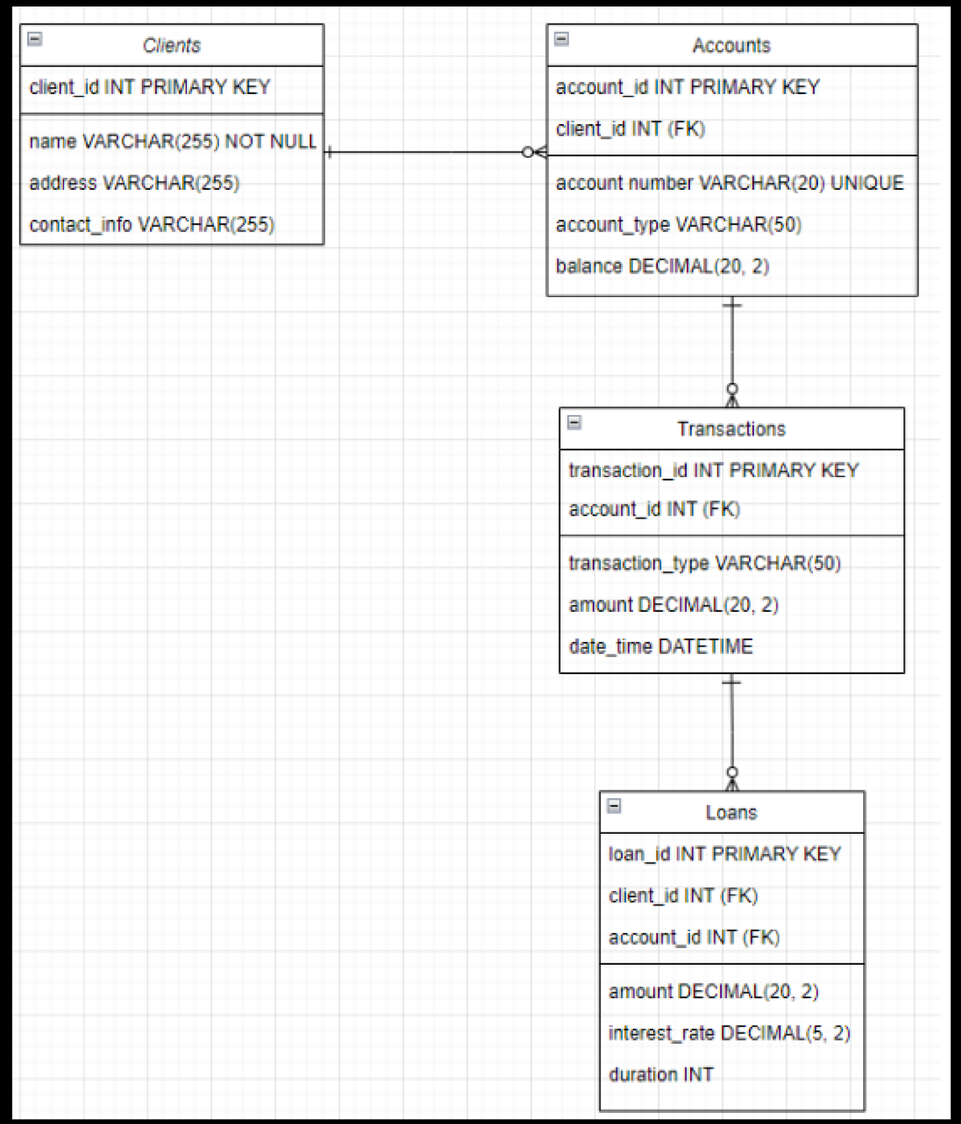


Logical Data Model

Logical structure of the database using IDEF1X notation



Physical Data Model



This ER model captures the relationships between clients, accounts, transactions, and loans in a bank management system, allowing for efficient data management and retrieval.

Implementation in MySQL

The data scheme for the database, which is implemented by MySQL database, is shown in

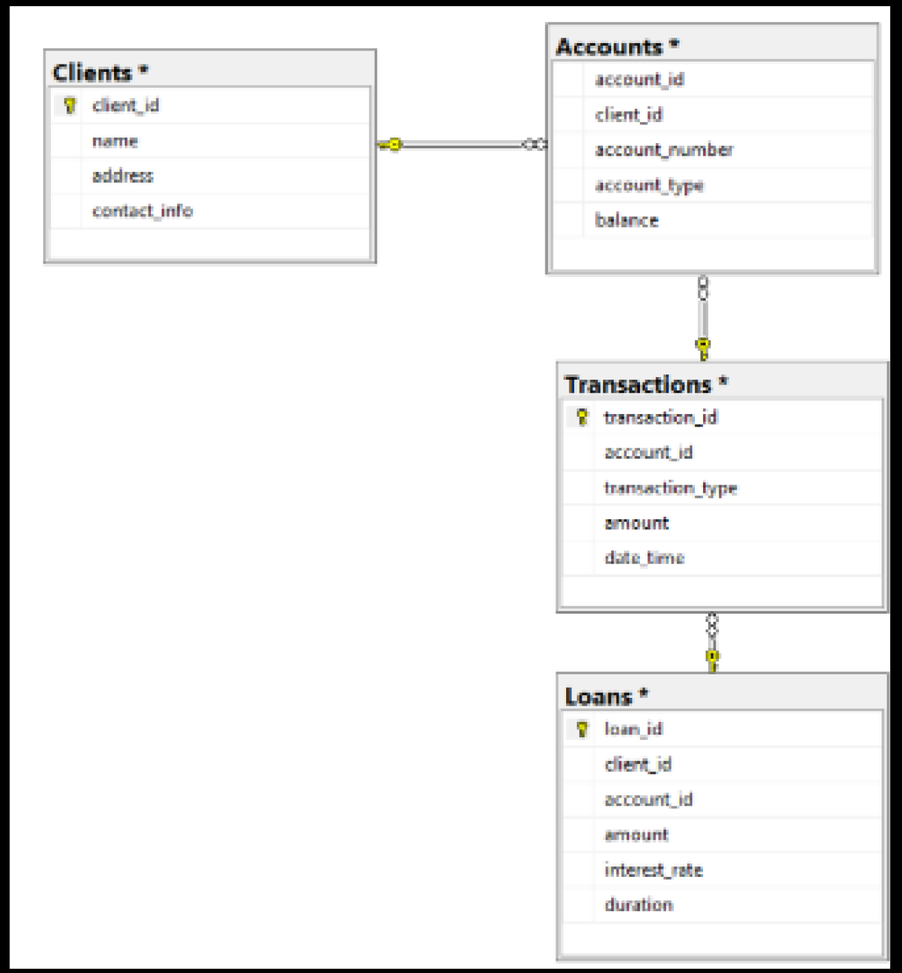
Results | Messages

	client_id	name	address	contact_info
1	1	John Doe	123 Main St, Anytown	john@example.com
2	2	Jane Smith	456 Elm St, Othertown	jane@example.com

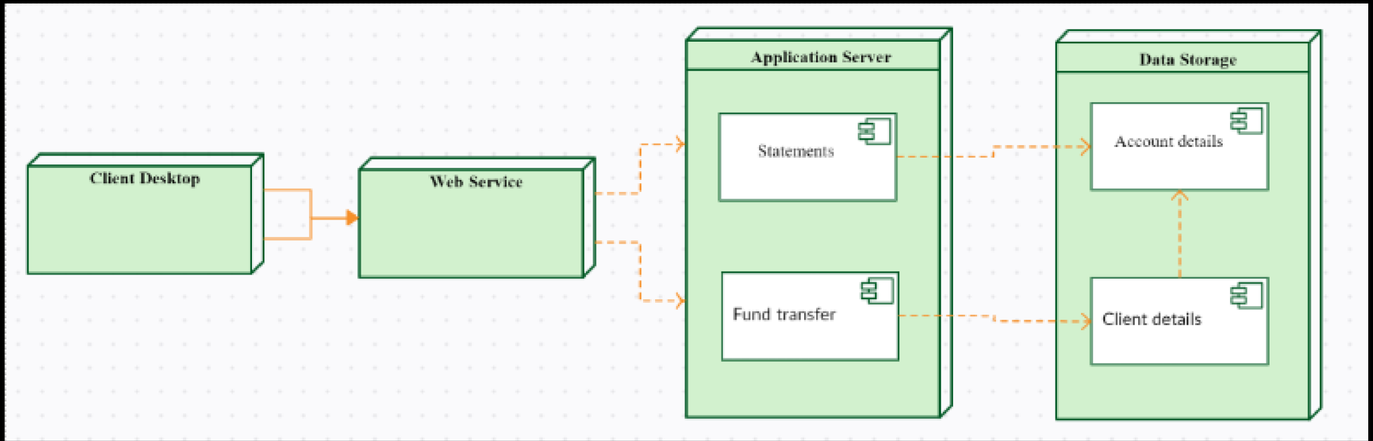
account_id	client_id	account_num...	account_type	balance
1	1	1234567890	Savings	100
2	2	9876543210	Checking	500

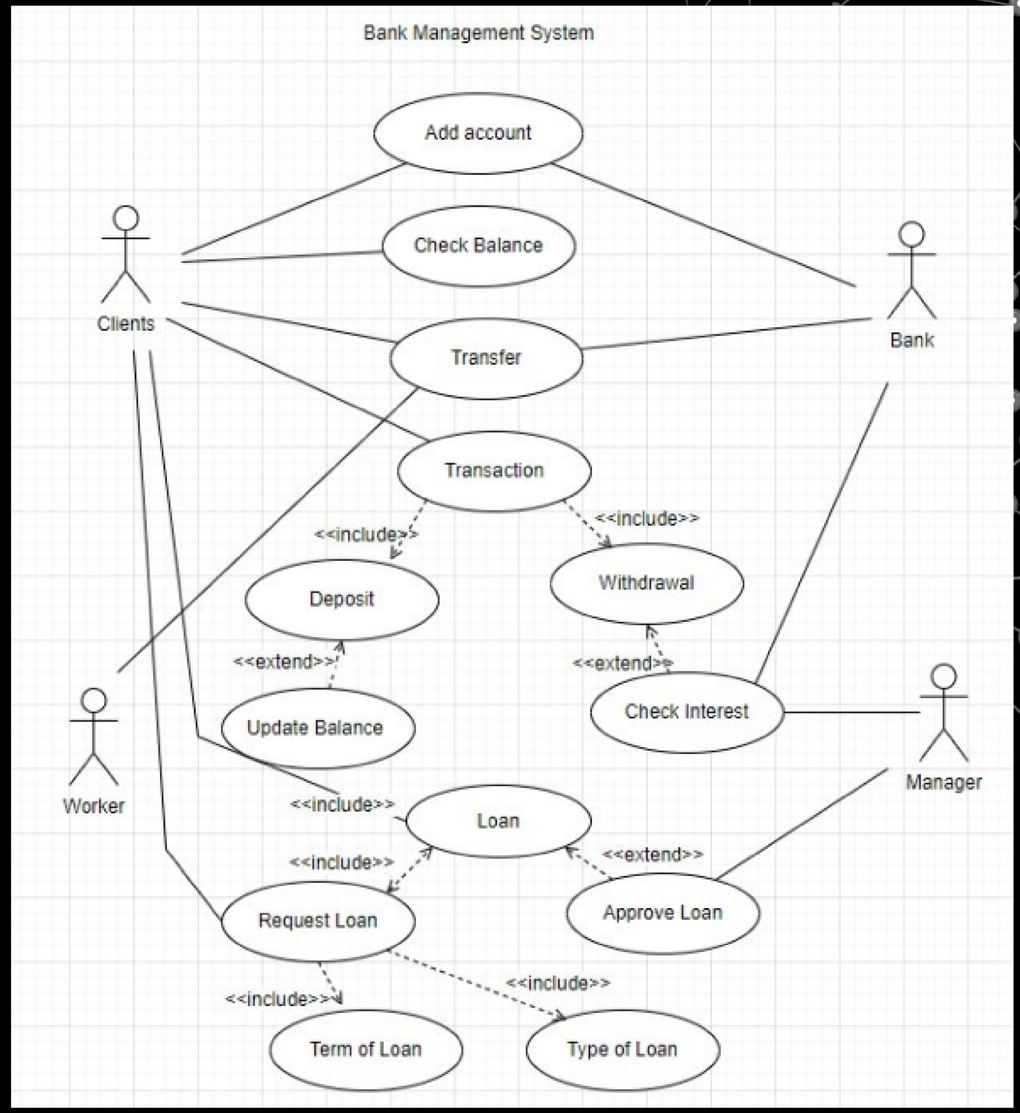
loan_id	client_id	account_id	amount	interest_rate	duration
14	1	1	10000,00	5,00	24
15	2	2	5000,00	6,00	12

transaction_id	account_id	transaction_type	amount	date_time
12	1	Deposit	500	2024-03-10 09:0...
13	2	Withdrawal	100	2024-03-11 14:3...



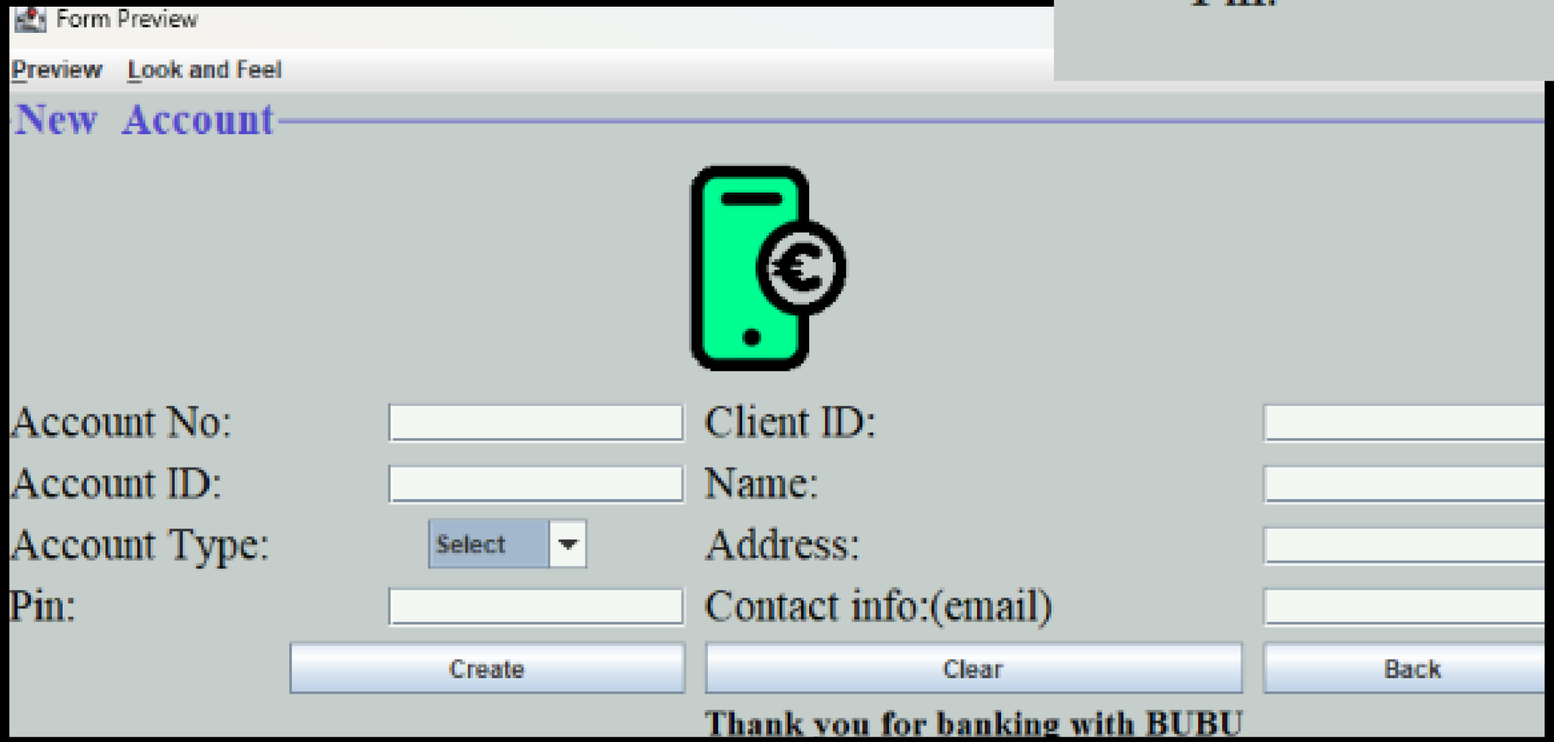
DESIGN AND DEVELOPMENT OF THE DATABASE APPLICATION





The deployment diagram, depicted in the deployment diagram, provides insights into the physical deployment of the database application. It illustrates the distribution of components across different nodes or hardware devices, elucidating how the system architecture ensures scalability, reliability, and performance.
The deployment diagram of the database application is shown in deployment diagram

Database application



Forms:
Client ATM platform interface.
Delivered goods management interface.

Thank you!

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