Banking Management System Proposal

CS 1103

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Semester Project Presentation

Project Aim & Key Goals

DESIGN A SECURE AND EFFICIENT BANKING SYSTEM

SUPPORT ACCOUNT CREATION, MODIFICATION, AND BALANCE INQUIRY

MANAGE REAL-TIME DEPOSITS, WITHDRAWALS, AND TRANSFERS

GENERATE FINANCIAL REPORTS AND MONTHLY STATEMENTS

IMPLEMENT SECURE LOGINS AND ENCRYPTION

CALCULATE SAVINGS INTEREST AND PROCESS LOANS

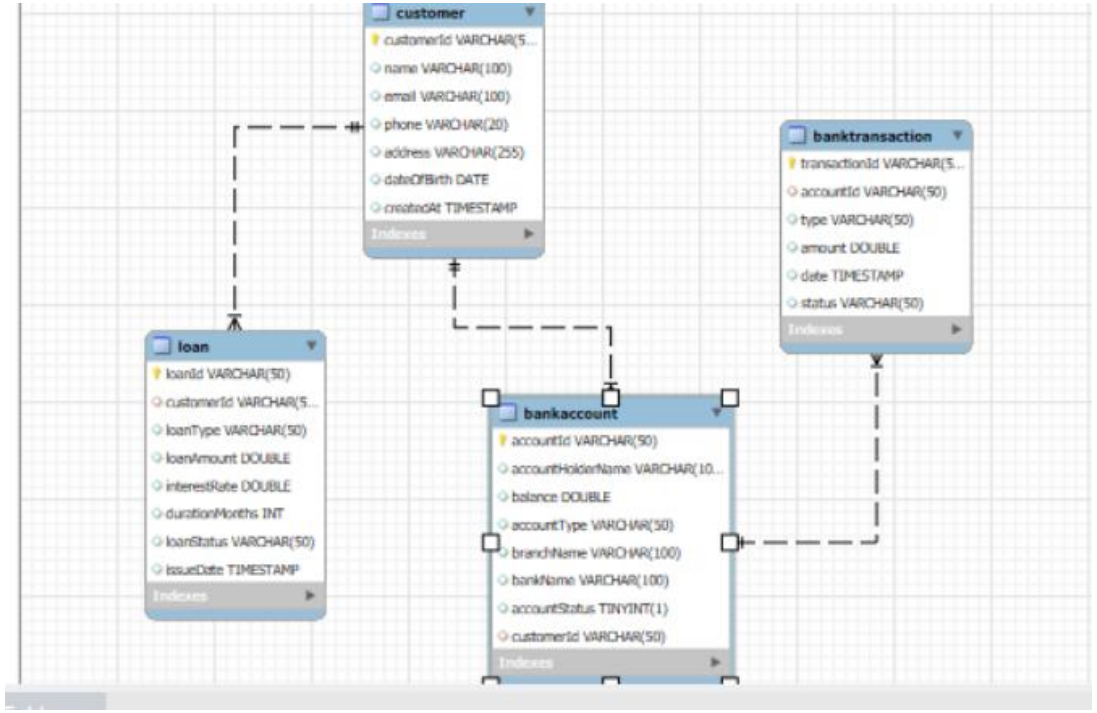
System Entities & Relationships

Entities: Customers, Accounts, Transactions

One customer can have multiple accounts

Each transaction is linked to an account

Entity Relationship Diagram



- Customer → Bank Account →Bank Transaction → Loan

Account Management Features

Create, update, and delete accounts

Retrieve account balances

Manage account types (e.g., savings, checking)

User Registration & Authentication

- Customer signup and login
- Secure password encryption
- Unique customer profiles
- Authentication during transactions

Transaction Management

- Process deposits and withdrawals
- Transfer funds between accounts
- Timestamp each transaction
- Ensure real-time balance updates

Interest & Loan Management

Calculate interest on savings

Store interest rates in account types

Handle loan requests and approvals

Financial Reports & Inquiries

1. Generate account summaries
2. View complete transaction history
3. Provide downloadable monthly statements
4. Show account balances on request

Technical Implementation

Front End HTML

Back-end: Java

Database: SQLite

Connectivity: JDBC

GitHub Repository

Link: https://github.com/Sanjida-49/Banking-Management-System.git

Includes:

- Java source code

- SQL scripts and schema

- Sample data

- Project documentation

Schema Q&A – Structure

Tables: Customer, Bank Account, Bank Transaction, Loan

loan: loaned, customerID, loanType , loanAmount ,interestRate, durationMonths , loan Status , issueDate

- Customer: customerId , name, email , phone , address, dateOfBirth , createdAt

- Account: accountId, accountHolderName, balance,accountType, branchName, bankName, accountStaus and customerID

- Transaction: transactionId, accountId, type, amount, date, status

Schema Q&A – Relationships

1. Customer ↔ BankAccount

- **Type**: One-to-Many

2. BankAccount ↔ BankTransaction

- **Type**: One-to-Many

3. Customer ↔ Loan

- **Type**: One-to-Many

Account Functionality Q&A

- Retrieve balance:
- SELECT balance FROM Account WHERE account_id = ?;
- List customer accounts:
- SELECT * FROM Account WHERE customer_id = ?;

Account & Transaction CRUD Q&A

Create	Create Account:
INSERT	INSERT INTO Account (...) VALUES (...);
Update	Update Balance:
UPDATE	UPDATE Account SET balance = ? WHERE account_id = ?;
Insert	Insert Transaction:
INSERT	INSERT INTO Transaction (...) VALUES (...);

Final Summary

- Secure, practical banking management system
- Real-time handling of transactions
- Comprehensive database schema
- Key learning in database design and Java integration
- Built for scalability and future enhancements