ATM Banking System - Project Report

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Project Overview

Console-based application simulating ATM functions.

User authentication using Account Number and PIN.

Supports Balance Check, Deposit, Withdrawal, Transfer, and Mini Statement.

Tools & Technologies

- Java

- JDBC (Java Database Connectivity)

- MySQL

- MySQL Workbench

- IDE: IntelliJ / Eclipse

Database Design

Table: accounts

- account_no (INT, Primary Key)

- name (VARCHAR)

- balance (DOUBLE)

- pin (INT)

System Features

- User Authentication

- Check Balance

- Deposit Money

- Withdraw Money

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- Transfer Money

- Mini Statement

- Transaction Safety

Login Module

- User inputs Account Number and PIN.

- Credentials validated using SELECT SQL query.

- Invalid credentials exit the program.

Check Balance

Uses SQL: SELECT balance FROM accounts WHERE account_no = ?

Displays user's current balance.

Deposit / Withdraw

Deposit: balance = balance + amount

Withdraw:

- Checks for sufficient balance.

- balance = balance - amount

Money Transfer

- Two SQL queries for debit and credit.

- Transaction managed with conn.setAutoCommit(false).

- Rollback if error occurs.

Mini Statement

Displays account_no, name, and balance.

Simple SELECT query on accounts table.

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Error Handling

- Handled via try-catch blocks.

- Rollback on transaction failure.

- Validates balance sufficiency before operations.

Future Enhancements

- Transaction history table.

- Encrypted PINs for security.

- GUI using JavaFX or Swing.

- Mobile/Desktop version.