ATM System Code Report

This report documents the implementation of an ATM System developed in Java. The system provides functionality for user registration, login, and ATM operations such as balance checks, deposits, and withdrawals. The code employs best practices in input validation, password hashing, and database connectivity. Additionally, the system integrates Multi-Factor Authentication (MFA) for enhanced security.

Key Features

1. User registration with hashed password storage.
2. Secure login with SHA-256 hashed password verification.
3. Multi-Factor Authentication (MFA) for login security.
4. ATM operations including balance checks, deposits, and withdrawals.
5. Role-based access control for admin operations.
6. Robust input validation for usernames, passwords, and numeric entries.
7. Integration with MySQL database for user data management.
8. Logging for debugging and operational transparency.

Technical Details

1. Programming Language: Java
2. Database: MySQL
3. Security: SHA-256 for password hashing, OWASP Encoder for output encoding.
4. External Libraries: MySQL Connector, OWASP Encoder.
5. Logging: java.util.logging.Logger for debug and operational logs.

Conclusion

This ATM System demonstrates a robust implementation of secure programming practices in Java.

It integrates essential security measures, including password hashing and multi-factor authentication, and provides comprehensive functionality for ATM operations. Future enhancements could include improved user interface and additional features like transaction history and support for multiple currencies.