**ATM Simulation System**

The ATM Simulation System is a personal computer application developed using Java and Java Swing. It simulates the core functions of a real ATM, allowing both administrators and customers to securely interact with the system. The application is designed with two panels Admin Panel and Customer Panel each offering features suited to their role. It provides functionalities such as account creation, deposit, withdrawal, money transfer, transaction viewing, and data storage.

**Project Features –**

### ****Admin Panel Features -****

* **Secure Admin Login**  
  Access to the admin panel is protected by a special 6-digit PIN to keep the system safe and restricted.
* **Create Account**  
  Admins can create a new customer account by entering the customer’s name, date of birth, and NID number. The system checks if the customer is 18 or older and then generates a unique 5-digit account ID automatically.
* **Update Account**  
  Admins can easily update or correct any customer information when needed.
* **Delete Account**  
  If necessary, admins can remove a customer’s account completely from the system.
* **Search Account**  
  Admins can search for any customer using their account ID and instantly see their name and current balance.
* **Transaction Report**  
  Shows a detailed list of all transactions made from the beginning of account creation up to the current date.
* **Data Saving (Persistence)**  
  All account and transaction details are saved securely to files, so no data is lost even after the application is closed.
* **Exit**  
  Allows the admin to log out safely and close the panel when finished.

### ****Customer Panel Features-****

* **Customer Login**  
  Customers can log in easily using their account number and personal PIN for secure access.
* **Session Timeout**  
  For safety, the system automatically logs out the customer after 10 minutes of inactivity.
* **Change PIN**  
  Customers have the option to update their PIN whenever they want to keep their account secure.
* **Deposit Money**  
  Allows customers to deposit money into their account by simply entering the amount.
* **Withdraw Money**  
  Customers can withdraw cash by entering the amount and confirming it with a security code.
* **Transfer Money**  
  To send money to another account, customers enter the amount, the recipient’s account number, and confirm with their own PIN.
* **Mini Statement**  
  Shows the most recent transaction along with the date and time, helping customers keep track.
* **Balance Inquiry**  
  Lets customers view their full transaction history from the time their account was created.
* **Exit**  
  Provides a safe way for customers to log out of their session when they’re done.

**Technologies Used-**

The project is currently in progress and is being developed using **Java** as the main language to build the core logic and functionality. We're using **Java Swing** to create a user-friendly interface for both the admin and customer sections. To make sure all account and transaction data stays saved even after the application is closed, we're planning to use **File I/O and Serialization**. For added security and a more realistic experience, we're also working on adding **session timeouts** using timers or threads, so users are logged out after being inactive. The whole system is being designed with **object-oriented programming (OOP)** to keep everything organized and easy to manage. As we move forward, we may include other tools or technologies if the project requires it.

This project does a good job of simulating real ATM functions in a simple, secure, and interactive way. It’s great for learning the basics of Java, GUI design, file handling, and OOP. Later on, it can be improved with features like database support, better security, or even mobile access.