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**USE CASE NARRATION 1.0**

**ATM MACHINE APP:**

**Use case name**: Authenticate Customer  
**Actor(s):** Customer, Bank System  
**Goal**: Verify the customer’s identity and establish an authenticated ATM session.  
**Pre-condition**: ATM is online, powered and ready; customer presents a valid ATM card; network connection to the Bank System is available.  
**Post-condition**: Customer is authenticated and the ATM shows the main transaction menu; a secure session is open.  
**Main flow**:

1. Customer inserts ATM card.
2. ATM reads card data and prompts for PIN.
3. Customer enters PIN.
4. ATM sends card + PIN to Bank System for validation.
5. Bank System validates credentials and returns a success response.
6. ATM displays available services (withdrawal, deposit, transfer, etc.).

**Alternative flow:**

* 4a. PIN incorrect: ATM informs customer and allows retry (up to configured attempts). If retries exhausted, card is retained or blocked and session ends.
* 4b. Card unreadable or expired: ATM displays error and requests card removal; session ends.
* 4c. Network/Bank System unreachable: ATM shows temporary service error and offers to retry or cancel.
* 4d. Account locked/fraud flagged: Bank System rejects authentication; ATM displays message and ends session.

**Use case name:** Cash Withdrawal  
**Actor(s):** Customer, Bank System  
**Goal:** Customer withdraws cash from their account.  
**Pre-condition**: Customer is authenticated and account selection is available; ATM has sufficient cash cassettes loaded.  
**Post-condition**: Cash dispensed, account balance is updated (or an authorization/hold recorded) and transaction logged.  
**Main flow**:

1. Customer selects “Withdraw Cash” from the ATM menu.
2. Customer selects account type (e.g., checking) and enters withdrawal amount.
3. ATM checks local cassette availability and sends an authorization request to Bank System.
4. Bank System checks account balance/limits and authorizes the transaction.
5. ATM dispenses the requested cash and updates local cash stock.
6. ATM requests Bank System to update account balance (or receives confirmation that balance is updated).
7. ATM offers/prints a receipt if requested.

**Alternative flow:**

* 3a. Insufficient account balance: Bank System declines; ATM shows insufficient funds and returns to menu.
* 3b. Exceeds daily/transaction limit: Bank System declines; ATM notifies user.
* 2a. ATM has insufficient physical cash: ATM informs customer, offers partial dispensation or cancel.
* 4a. Authorization timeout/network error: ATM aborts dispense and shows error; no cash dispensed.
* Customer cancels at any step: ATM returns card and ends session.

**Use case name**: Deposit Funds  
**Actor(s):** Customer, Bank System  
**Goal:** Customer deposits cash (or cheques/envelopes) into their account.  
**Pre-condition**: Customer is authenticated; ATM deposit slot/function is operational.  
**Post-condition**: Deposit is accepted; either account balance is updated immediately or a pending/cleared hold is recorded; transaction logged.  
**Main flow:**

1. Customer selects “Deposit” and chooses account.
2. ATM prompts for type (cash/envelope/cheque) and amount (or scans/counts cash).
3. ATM validates deposit contents (e.g., cash counting or envelope accepted).
4. ATM sends deposit details to Bank System for posting.
5. Bank System updates account (immediately or marks as pending depending on policy) and returns confirmation.
6. ATM issues receipt (if requested) and returns card.

**Alternative flow:**

* 3a. Deposit validation fails (e.g., unreadable cheque or foreign currency): ATM rejects deposit and returns envelope/cash or instructs customer to visit branch.
* 3b. Network/Bank System unavailable: ATM accepts deposit but marks status as pending; displays message about processing time.
* Printer jam/out of paper when printing receipt: ATM notifies user and logs event.

**Use case name**: Transfer Funds  
**Actor(s):** Customer, Bank System  
**Goal:** Move funds from the customer’s account to another account (same bank or external).  
**Pre-condition**: Customer is authenticated; customer knows recipient account details; transfer limit checks can be performed.  
**Post-condition**: Funds are debited from source account and credited to the target account (or queued/marked pending if external); transaction logged.  
**Main flow:**

1. Customer selects “Transfer Funds.”
2. Customer enters/selects source account, destination account, and amount.
3. ATM displays transfer details for confirmation.
4. Customer confirms transfer.
5. ATM sends transfer request to Bank System for authorization and processing.
6. Bank System authorizes and posts the transfer (or schedules interbank transfer) and returns confirmation.
7. ATM displays confirmation and offers/prints receipt.

**Alternative flow:**

* 2a. Invalid beneficiary account: ATM informs user and requests correction.
* 5a. Insufficient funds or limit exceeded: Bank System rejects; ATM shows error and returns to menu.
* 5b. External transfer requires additional verification: process moves to pending and customer is notified.
* Customer cancels before confirmation: abort and return to menu.

**Use case name**: Print Receipt (extended)  
**Actor(s):** Customer, Bank System (for transaction details)  
**Goal:** Provide a paper receipt summarizing performed transactions.  
**Pre-condition**: A completed transaction exists in the current session.  
**Post-condition**: Receipt printed and transaction logged as printed (or print failure logged).  
**Main flow**:

1. After a transaction, ATM offers receipt option.
2. Customer requests a receipt.
3. ATM formats transaction details and issues print command.
4. Receipt is printed and given to customer.

**Alternative flow:**

* Printer out of paper or jam: ATM notifies user, logs the error and may offer to email receipt (if supported).
* Customer declines receipt: ATM returns to menu.

**Use case name**: Refill Cash / Restock (Technician)  
**Actor(s):** Technician  
**Goal:** Refill ATM cash cassettes and consumables (paper, envelopes) and update ATM stock records.  
**Pre-condition**: Technician authenticated (service key/login); ATM is in service/maintenance mode or scheduled refill window.  
**Post-condition**: Cash cassettes and consumables restocked; ATM status updated and ready for customer use.  
**Main flow:**

1. Technician authenticates to ATM service interface.
2. Technician opens service panel and refills cash cassettes/paper/supplies.
3. Technician updates ATM inventory/stock in the machine’s service menu.
4. Technician closes machine, runs a quick self-test, and logs completion.

**Alternative flow:**

* Authentication fails: Technician cannot access refill functions.
* Jam or hardware fault detected during refill: Technician logs fault and initiates maintenance workflow.
* Cash cassette error (wrong denomination or loading problem): ATM logs error and requires resolution before returning to service.

**Use case name**: Perform Maintenance (Technician)  
**Actor(s):** Technician  
**Goal:** Diagnose and repair hardware/software issues so ATM returns to normal operation.  
**Pre-condition**: Technician authenticated; ATM reports fault or maintenance scheduled.  
**Post-condition**: Faults fixed or escalation created; maintenance log updated.  
**Main flow:**

1. Technician authenticates and sets ATM to maintenance mode.
2. Technician runs diagnostics (paper, printer, card reader, dispenser, sensors).
3. Technician performs repairs or replaces faulty parts.
4. Technician re-runs diagnostics and returns ATM to operational mode.
5. Maintenance actions are logged and reported.

**Alternative flow:**

* Issue requires vendor/parts support: Technician logs a service ticket and places ATM in restricted mode until resolved.
* Diagnostics fail to resolve: escalate to higher-level support.

**Use case name**: Generate Reports (Bank Admin)  
**Actor(s):** Bank Admin, Bank System  
**Goal**: Produce operational, transaction and reconciliation reports for monitoring and auditing.  
**Pre-condition**: Bank Admin authenticated to the reporting system; data synchronization from ATMs is up-to-date.  
**Post-condition**: Requested report is generated and available for download or viewing; any anomalies flagged.  
**Main flow**:

1. Admin selects report type (daily transactions, cash levels, error logs).
2. System gathers data from ATM logs / Bank System and compiles report.
3. Admin reviews and downloads or schedules distribution.

**Alternative flow:**

* Data unavailable or partial: System notifies admin and provides partial results or retry option.
* Permission denied: Admin lacks rights for requested report; request is denied.

**Use case name:** Monitor Transactions / System Health (Bank Admin)  
**Actor(s):** Bank Admin, Bank System  
**Goal:** Continuously monitor ATM transactions and system health; detect fraud, errors, or low-cash conditions.  
**Pre-condition**: Monitoring services are enabled and feeds from ATMs are active.  
**Post-condition**: Alerts are generated for exceptions; status dashboard updated.  
**Main flow:**

1. Admin opens monitoring dashboard.
2. System shows live transactions, cash levels, and recent errors.
3. Admin investigates any alerts and takes action (e.g., dispatch technician, contact bank).

**Alternative flow:**

* False positive alerts: Admin reviews and marks as benign.
* Monitoring feed interruption: System logs the outage and alerts staff to investigate.