**Case Study: Banking System**

**Context:**

You are required to develop a console-based Banking System using Core Java. The application will allow bank employees to manage customer accounts, perform transactions, and generate reports. The application will utilize Java Collections for storing account and transaction information, implement Object-Oriented Programming principles, and include exception handling to manage potential errors.

**Requirements:**

**Features:**

1. **Add and Remove Accounts:**
   * Allow bank employees to add new customer accounts to the system.
   * Allow bank employees to remove customer accounts from the system.
2. **Update Account Details:**
   * Allow bank employees to update details of existing customer accounts, such as balance and account type.
3. **Deposit and Withdraw Funds:**
   * Allow bank employees to deposit funds into customer accounts.
   * Allow bank employees to withdraw funds from customer accounts.
4. **Transfer Funds:**
   * Allow bank employees to transfer funds between customer accounts.
   * Ensure that the transfer does not exceed the available balance.

**Classes and Objects:**

1. **Account Class:**
   * Attributes: id, customerId, balance, accountType.
   * Methods: Constructors, getters and setters, toString method.
2. **Transaction Class:**
   * Attributes: id, accountId, transactionType, amount, transactionDate.
   * Methods: Constructors, getters and setters, toString method.
3. **BankingSystem Class:**
   * Attributes: HashMap<Integer, Account> accounts, ArrayList<Transaction> transactions.
   * Methods:
     + addAccount(Account account): Adds a new account to the system.
     + removeAccount(int accountId): Removes an account from the system.
     + updateAccount(int accountId, Account updatedAccount): Updates details of an existing account.
     + depositFunds(int accountId, double amount): Deposits funds into an account.
     + withdrawFunds(int accountId, double amount): Withdraws funds from an account.
     + transferFunds(int fromAccountId, int toAccountId, double amount): Transfers funds between accounts.
     + Helper methods for input validation and exception handling.

**Deliverables:**

1. Complete source code for the Banking System.
2. Documentation including:
   * How to run the application.
   * Instructions for each feature.
   * Explanation of the exception handling implemented.
3. A brief report on the application design and how Object-Oriented principles were applied.

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