**National University of Computer and Emerging Sciences**



**Lab Manual 13**

***for***

**Object Oriented Programming (OOP)**

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| **Section** | **B** |
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**Lab 12**

**Enhanced Bank Account Management System**

You are tasked with designing a Bank Account Management System to handle user transactions with enhanced exception handling. The system should include the following functionalities:

**BankAccount Class:**

* Attributes:
  + balance (double), accountNumber (string).
* Functions:
  + void deposit(double amount)
    - Throws an exception if the deposit amount is negative or zero.
  + void withdraw(double amount)
    - Throws exceptions for insufficient balance or invalid amounts.
  + void transfer(BankAccount& other, double amount)
    - Allows transferring money to another account.
    - Throws exceptions for invalid amounts or insufficient funds.
  + void checkBalance()
    - Displays the current balance.

**Custom Exceptions:**

InvalidAmountException: For deposits or withdrawals of negative/zero amounts.

InsufficientFundsException: For withdrawals or transfers exceeding the balance.

Nested Functionality:

Create a global function processTransaction() that invokes deposit(), withdraw(), or transfer() based on user input.

Use nested try-catch blocks to demonstrate re-throwing exceptions.

Main Function:

Create multiple BankAccount objects.

Allow the user to:

Deposit, withdraw, or transfer money between accounts.

Check balances.

Use exception handling for each operation.