Experiment:7

1. **Write a program for creating a Bank class, which is used to manage the bank account of customers. Class has two methods, Deposit () and withdraw Deposit method display old balance and new balance after depositing the specified amount. Withdrew method display old balance and new balance after withdrawing. If balance is not enough to withdraw the money, it throws ArithmeticException and if balance is less than 500rs after withdrawing then it throw custom exception, NotEnoughMoneyException.**

Solution:

```
import java.util.Scanner;

// Custom Exception
class NotEnoughMoneyException extends Exception {
   public NotEnoughMoneyException(String message) {
      super(message);
   }
}

// Bank class
class Bank {
   private double balance;

   // Constructor
   public Bank(double initialBalance) {
      this.balance = initialBalance;
   }

   // Deposit method
   public void deposit(double amount) {
      System.out.println("Old Balance: ₹" + balance);
      balance += amount;
      System.out.println("Deposited: ₹" + amount);
      System.out.println("New Balance: ₹" + balance);
   }
```

```
    // Withdraw method
    public void withdraw(double amount) throws NotEnoughMoneyException {
        System.out.println("Old Balance: ₹" + balance);

        if (amount > balance) {
            throw new ArithmeticException("Insufficient funds! Cannot withdraw ₹" +
amount);
        }

        balance -= amount;

        if (balance < 500) {
            throw new NotEnoughMoneyException("Balance after withdrawal is ₹" +
balance + ", which is below ₹500!");
        }

        System.out.println("Withdrew: ₹" + amount);
        System.out.println("New Balance: ₹" + balance);
    }
}

// Main class to test Bank operations
public class Main {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
        Bank account = new Bank(1000); // Initial balance ₹1000

        try {
            System.out.print("Enter deposit amount: ₹");
            double depositAmount = scanner.nextDouble();
            account.deposit(depositAmount);

            System.out.print("Enter withdrawal amount: ₹");
            double withdrawAmount = scanner.nextDouble();
```

```
            account.withdraw(withdrawAmount);

        } catch (ArithmeticException e) {
            System.out.println("Exception: " + e.getMessage());
        } catch (NotEnoughMoneyException e) {
            System.out.println("Custom Exception: " + e.getMessage());
        } finally {
            System.out.println("Transaction completed.");
            scanner.close();
        }
    }
}
```

Output:

```
PS C:\12302130501036> javac excep.java
PS C:\12302130501036> java excep
Enter deposit amount: $100
Old Balance: $1000.0
Deposited: $100.0
New Balance: $1100.0
Enter withdrawal amount: $1200
Old Balance: $1100.0
Exception: Insufficient funds! Cannot withdraw $1200.0
Transaction completed.
```

2.Write a complete program for calculation average of n +ve integer numbers of Array A.

a. Read the array form keyboard

b. Raise and handle Exception if

i. Element value is -ve or non-integer.

If n is zero.

Solution:

```
import java.util.InputMismatchException;
import java.util.Scanner;

public class AverageCalculator {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);

        try {
            // Read number of elements
```

```
        System.out.print("Enter the number of elements (n): ");
        int n = scanner.nextInt();

        if (n <= 0) {
            throw new IllegalArgumentException("n must be greater than 0.");
        }

        int[] A = new int[n];
        int sum = 0;

        // Read array elements
        System.out.println("Enter " + n + " positive integers:");
        for (int i = 0; i < n; i++) {
            int num = scanner.nextInt();

            if (num < 0) {
                throw new IllegalArgumentException("Negative number encountered: " +
num);
            }

            A[i] = num;
            sum += num;
        }

        // Calculate and display average
        double average = (double) sum / n;
        System.out.println("Average: " + average);

    } catch (InputMismatchException e) {
        System.out.println("Exception: Non-integer value entered!");
    } catch (IllegalArgumentException e) {
        System.out.println("Exception: " + e.getMessage());
    } finally {
        scanner.close();
        System.out.println("Program execution completed.");
    }
}
```

}

Output:

```
PS C:\12302130501036> javac excep.java
PS C:\12302130501036> java excep
Enter the number of elements (n): 5
Enter 5 positive integers:
1 2 3 -1 4
Exception: Negative number encountered: -1
Program execution completed.
```