Exceptions Assignment

Problem: Understanding Runtime Exceptions

Problem Statement:
Identify and handle different types of runtime exceptions in Java. Implement separate code snippets to demonstrate each exception and provide appropriate exception handling using try-catch blocks.

Requirements:
- Write separate Java programs for at least five different runtime exceptions.
- Use try-catch blocks to handle exceptions gracefully.
- Provide meaningful error messages when an exception occurs.

Exceptions to Cover:
1. ArithmeticException - Division by zero.
2. NullPointerException - Accessing a method or property of a null object.
3. ArrayIndexOutOfBoundsException - Accessing an invalid index in an array.
4. NumberFormatException - Converting an invalid string to a number.
5. ClassCastException - Incorrect type casting.

Input Format:
Each program should take an input that can potentially cause the exception.

Constraints:
- Handle exceptions properly without crashing the program.
- Use appropriate messages to inform the user about the error.

Output Format:
- Print a meaningful message when an exception occurs.
- Ensure program execution continues smoothly even after an exception.

Example:
Example for ArithmeticException:

Input:
Enter numerator: 10
Enter denominator: 0

Output:
Error: Division by zero is not allowed.