**Exception handing**

Question 01

Write a Java program that takes two integers as input and performs division on them. Implement exception handling to catch and handle the ArithmeticException that occurs when dividing by zero.

Print an appropriate error message if the denominator is zero.

**import java.util.Scanner;**

**public class DivisionWithExceptionHandling {**

**public static void main(String[] args) {**

**Scanner scanner = new Scanner(System.in);**

**try {**

**System.out.print("Enter the numerator: ");**

**int numerator = scanner.nextInt();**

**System.out.print("Enter the denominator: ");**

**int denominator = scanner.nextInt();**

**int result = divide(numerator, denominator);**

**System.out.println("Result of division: " + result);**

**} catch (ArithmeticException ex) {**

**System.out.println("Error: Cannot divide by zero!");**

**} catch (Exception ex) {**

**System.out.println("Error: Invalid input!");**

**}**

**scanner.close();**

**}**

**public static int divide(int numerator, int denominator) {**

**return numerator / denominator;**

**}**

**}**

Question 02

Write a Java program that creates an array of integers and attempts to access an index that is out of bounds. Implement exception handling to catch and handle the ArrayIndexOutOfBoundsException.

Print an appropriate error message if an invalid index is accessed.

**import java.util.Scanner;**

**public class ArrayOutOfBoundsHandling {**

**public static void main(String[] args) {**

**Scanner scanner = new Scanner(System.in);**

**try {**

**int[] arr = { 10, 20, 30, 40, 50 };**

**System.out.print("Enter the index to access: ");**

**int index = scanner.nextInt();**

**int element = getElementAtIndex(arr, index);**

**System.out.println("Element at index " + index + ": " + element);**

**} catch (ArrayIndexOutOfBoundsException ex) {**

**System.out.println("Error: Invalid index. Index is out of bounds!");**

**} catch (Exception ex) {**

**System.out.println("Error: Invalid input!");**

**}**

**scanner.close();**

**}**

**public static int getElementAtIndex(int[] arr, int index) {**

**return arr[index];**

**}**

**}**

Question 03

Write a Java program that attempts to read a file that does not exist. Implement exception handling to catch and handle the FileNotFoundException.

Print an appropriate error message if the file is not found.

**import java.io.File;**

**import java.io.FileNotFoundException;**

**import java.util.Scanner;**

**public class FileNotFoundHandling {**

**public static void main(String[] args) {**

**Scanner scanner = new Scanner(System.in);**

**try {**

**System.out.print("Enter the file path: ");**

**String filePath = scanner.nextLine();**

**File file = new File(filePath);**

**Scanner fileScanner = new Scanner(file);**

**while (fileScanner.hasNextLine()) {**

**String line = fileScanner.nextLine();**

**System.out.println(line);**

**}**

**fileScanner.close();**

**} catch (FileNotFoundException ex) {**

**System.out.println("Error: File not found!");**

**} catch (Exception ex) {**

**System.out.println("Error: An unexpected error occurred!");**

**}**

**scanner.close();**

**}**

**}**