**Assignment No. 4**

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**Problem Statement**

Write a program for following exception, develop a suitable scenario in which the following exceptions occur:

* 1. divide by zero
  2. Array index out of bounds exception
  3. Null pointer Exception

**Develop a menu driven program for handle the above listed exception.**

**Sample Input and Output**

|  |  |
| --- | --- |
| **Sample Input/Parameter** | **Expected Output** |
| Try to divide a number by zero | You shouldn’t divide a number by zero. |
| Try to access the array index which does not exist. | OOPs!!!Array Index 7 out of bounds for length 6. |
| Try to find the length of String in method (pass parameter string as null) | Null Pointer Exception arises!! |

**Program:**

import java.util.Scanner;

public class Assignment4 {

    public static void main(String[] args) {

        int choice;

        Scanner sc = new Scanner(System.in);

        do {

            System.out.println("\n1. Arithmetic Exception\n2. ArrayIndexOutOfBounds Exception\n3. NullPointer Exception\n0. Exit\nEnter your choice");

            choice = sc.nextInt();

            switch (choice) {

                case 1:

                    int a, b;

                    System.out.println("Enter the first number: ");

                    a = sc.nextInt();

                    System.out.println("Enter the second number: ");

                    b = sc.nextInt();

                    try {

                        System.out.println("The answer is : " +a / b);

                    } catch (ArithmeticException e) {

                        System.out.println("You shouldn't divide the number by zero");

                    }

                    break;

                case 2:

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

                    int ind;

                    System.out.println("Enter the index for which the element is to be accessed");

                    ind = sc.nextInt();

                    try {

                        System.out.println("The element in the array at index " + ind + " is " + arr[ind]);

                    } catch (ArrayIndexOutOfBoundsException e) {

                        System.out.println("OOPs!!!Array Index " + ind + " out of bounds for length " + arr.length);

                    }

                    break;

                case 3:

                    String str = null;

                    try {

                        System.out.println(str.length());

                    } catch (NullPointerException e) {

                        System.out.println("Null Pointer Exception Arises as the string is null");

                    }

                    break;

                case 0:

                    break;

            }

        } while (choice != 0);

    }

}

**Results:**

**Actual Output**

Text

Description automatically generated