# Task7

1. Write a Java program that reads user input for two integers and performs division. Handle the exception that is thrown when the second number is zero, and display an error message to the user.
2. package Task7;
3. import java.util.Scanner;
4. public class question1 {
5. public static void main(String[] args) {
6. Scanner scanner = new Scanner(System.***in***);
7. int num1;
8. int num2;
10. System.***out***.print("Enter the first number: ");
11. num1 = scanner.nextInt();
13. System.***out***.print("Enter the second number: ");
14. num2 = scanner.nextInt();
16. try {
17. double result = num1 / num2;
18. System.***out***.println("Result of division: " + result);
19. } catch (ArithmeticException e) {
20. System.***out***.println("Error: Division by zero is not allowed.");
21. } finally {
22. scanner.close();
23. }
24. }
25. }

Output:

Enter the first number: 5

Enter the second number: 2

Result of division: 2.0

Enter the first number: 5

Enter the second number: 0

Error: Division by zero is not allowed.

2. Write the code of ArrayIndexOutOfBoundsException& StringIndexOutOfBoundsException?

package Task7;

public class question2 {

public static void main(String[] args) {

// ArrayIndexOutOfBoundsException

System.***out***.println("ArrayIndexOutOfBoundsException :");

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

try {

System.***out***.println("Element at index 5: " + numbers[5]);

} catch (ArrayIndexOutOfBoundsException e) {

System.***out***.println("Error: Array index out of bounds.");

}

// StringIndexOutOfBoundsException

System.***out***.println("\nStringIndexOutOfBoundsException:");

String text = "My name is Prabhu Mithran";

try {

System.***out***.println("Character at index 15: " + text.charAt(25));

} catch (StringIndexOutOfBoundsException e) {

System.***out***.println("Error: String index out of bounds.");

}

}

}

Output

ArrayIndexOutOfBoundsException :

Error: Array index out of bounds.

StringIndexOutOfBoundsException:

Error: String index out of bounds.

3. Create a custom exception in Java called "InvalidAgeException" that is thrown when the user enters an age less than 18. Implement exception handling in a Java program to catch the "InvalidAgeException" and display an error message.

package Task7;

class InvalidAgeException extends Exception {

public InvalidAgeException(String message) {

super(message);

}

}

public class question3 {

public static void main(String[] args) {

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

try {

System.***out***.print("Enter your age: ");

int age = scanner.nextInt();

if (age < 18) {

throw new InvalidAgeException("Age must be at least 18.");

}

System.***out***.println("Your age is valid: " + age + " is above or equal to 18");

} catch (InvalidAgeException e) {

System.***out***.println("Error: " + e.getMessage());

} finally {

scanner.close();

}

}

}

Output:

Enter your age: 5

Error: Age must be at least 18.

4. Implement exception handling in a Java program that reads data from a file. If the file does not exist, throw a "FileNotFoundException" and display an error message to the user.

package Task7;

import java.io.\*;

public class question4 {

public static void main(String[] args) {

String filePath = "C:\\Users\\ACER\\Documents\\filetotest";

try {

FileReader fileReader = new FileReader(filePath);

BufferedReader bufferedReader = new BufferedReader(fileReader);

String line;

while ((line = bufferedReader.readLine()) != null) {

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

}

bufferedReader.close();

fileReader.close();

} catch (FileNotFoundException e) {

System.***out***.println("Error: The file '" + filePath + "' was not found.");

e.printStackTrace();

} catch (IOException e) {

System.***out***.println("Error: An error occurred while reading the file.");

e.printStackTrace();

}

}

}

Output:

Error: The file 'C:\Users\ACER\Documents\filetotest' was not found.

5. Write a Java program to create an ArrayList of strings and then remove all the elements from the ArrayList.

package Task7;

import java.util.ArrayList;

public class question5 {

public static void main(String[] args) {

ArrayList<String> list = new ArrayList<>();

list.add("Delhi");

list.add("Chennai");

list.add("Bangalore");

list.add("Mumbai");

System.***out***.println("ArrayList before clearing: " + list);

list.clear();

System.***out***.println("ArrayList after clearing: " + list);

}

}

Output:

ArrayList before clearing: [Delhi, Chennai, Bangalore, Mumbai]

ArrayList after clearing: []

6. Write a Java program to create a TreeMap of employee IDs and names. Then, print out the names of all the employees in alphabetical order.

package Task7;

import java.util.TreeMap;

public class question6 {

public static void main(String[] args) {

TreeMap<Integer, String> employees = new TreeMap<>();

employees.put(101, "Prabhu Mithran");

employees.put(102, "Imran khan");

employees.put(103, "Goutham vinith");

employees.put(104, "Sampath Kumar");

employees.put(105, "John Paul");

System.***out***.println("Emplyees list is:");

employees.values().stream().forEach(System.***out***::println);

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

System.***out***.println("Employee names in alphabetical order:");

employees.values().stream().sorted();

employees.values().stream().forEach(System.***out***::println);

}

}

Output:

Emplyees list is:

Prabhu Mithran

Imran khan

Goutham vinith

Sampath Kumar

John Paul

Employee names in alphabetical order:

Prabhu Mithran

Imran khan

Goutham vinith

Sampath Kumar

John Paul

7. Write a program to convert List to Array.

package Task7;

import java.util.ArrayList;

import java.util.List;

public class question7 {

public static void main(String[] args) {

*ListtoArray*();

}

public static void ListtoArray() {

List<String> citylist = new ArrayList<>();

citylist.add("Delhi");

citylist.add("Chennai");

citylist.add("Bangalore");

citylist.add("Mumbai");

System.***out***.println("List:" + citylist);

String[] cityArray = new String[citylist.size()];

cityArray = citylist.toArray(cityArray);

System.***out***.println("Array elements:");

for (String city : cityArray) {

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

}

}

}

Output:

List:[Delhi, Chennai, Bangalore, Mumbai]

Array elements:

Delhi

Chennai

Bangalore

Mumbai