

Object Oriented Programming with JAVA

Lab -5 Interface and Exception Handling

Core:

- 1 Write a java program as per the given description to demonstrate use of interface.
 - Define an interface RelationInterface.
 - Write three abstract methods: isGreater, isLess and isEqual. All methods have return type of Boolean and take an argument of type Line with which the caller object will be compared.
 - Write Line class implements RelationInterface interface. It has 4 double variables for the x and y co-ordinates of the line.
 - Write a constructor in Line class that initializes these 4 variables.
 - Write a method getLength() that computes length of the line.
 - $[\text{double length} = \text{Math.sqrt}((x_2 - x_1)^2 + (y_2 - y_1)^2)]$.
 - Implement the methods in interface.
 - In class CompareLines.java, create two objects of Line class, call the three methods to compare the lengths of the lines.
- 2 Write a program that catches divide-by-zero exception using **try-catch** mechanism.
 - Take a numeric value and perform division by zero. Catch the ArithmeticException.
- 3 Write a program that demonstrates use of **multiple catch blocks**. Observe the importance of order of exception being caught in various catch blocks.
 - Take an integer array a[] of size 5. Divide the element a[5] by zero. Catch ArithmeticException, ArrayIndexOutOfBoundsException and superclass Exception in the respective catch blocks.
- 4 Write a program to demonstrate the use of instanceof operator

Plus:

- 1 Write a java program as per the given description to demonstrate use of interface for multiple inheritance.
Define two interfaces named Terrestrial and Aquatic.
 - In Terrestrial interface, write two methods eats() and walks(). Both methods have return type void and take no arguments.
 - In Aquatic interface, write two methods eats() and swims(). Both methods have return type void and take no arguments.
 - Write a class Amphibian that implements both the interfaces. Write all methods.
 - In DemoMultipleInterface class, create Frog object of Amphibian and call all the methods.