**Exception Examples**

Example 1 – deriving an exception class

// Example of a new exception that was created by   
// extending the existing Exception class.   
// Kinda simple (and silly) but most exceptions  
// are created this way!  
  
public class OutOfRangeException extends Exception  
{  
 OutOfRangeException(String message)  
 {  
 super(message); // Inheritance concept: super keyword   
 // used to refer to the immediate parent   
 // class instance variable  
 }  
}

Example 2 – using a derived exception class

import java.util.Scanner;   
  
public class ExceptionTest  
{  
 // OutOfRangeException is part of Exception class which is

// part of java.lang package  
 public static void main (String [] args) throws OutOfRangeException   
 {   
 //Create an exception object  
 OutOfRangeException invalid   
 = new OutOfRangeException("Hey dummy, that's an invalid number.");   
   
 int number;  
 Scanner input = new Scanner(System.in);  
   
 System.out.print ("Enter a positive integer: ");  
 number = input.nextInt();  
   
 if (number < 0)  
 throw invalid;   
   
 System.out.print("Ok, your number is " + number + ".\nThank you!");  
 }  
}

Example 3 – using a try catch  
  
import java.util.Scanner;  
public class DivisionMistake  
{  
 public static void main(String[] args)  
 {  
 Scanner input = new Scanner (System.in);  
 int numerator, denominator, result;  
   
 System.out.print("Enter numerator: ");  
 numerator = input.nextInt();  
   
 System.out.print("Enter denominator: ");  
 denominator = input.nextInt();  
   
 try  
 {  
 result = numerator / denominator;  
 System.out.println (numerator + " / " + denominator + " = "  
 + result);   
 }  
 catch (ArithmeticException mistake)   
 //ArithmeticException class is part of java.lang package  
 {  
 System.out.println("Nope! What are you doing?!?");  
   
 // This line allows you to print out the standard error message   
 System.out.println(mistake.getMessage());  
 }   
 }  
}

Example 4 – using a try catch with multiple catches (and a finally block)

import java.util.\*; // for Scanner and InputMismatchException classes  
public class DivisionMistakeVer2  
{  
 public static void main(String[] args)  
 {  
 Scanner input = new Scanner (System.in);  
   
 // initialized to 'safe values' to test exception  
 int numerator = 0, denominator = 1, result = 0;   
   
 try  
 {  
 System.out.print("Enter numerator: ");  
 numerator = input.nextInt();  
   
 System.out.print("Enter denominator: ");  
 denominator = input.nextInt();  
  
 result = numerator / denominator;  
 System.out.println (numerator + " / " + denominator + " = "  
 + result);   
 }  
   
 // A more robust version - corrects the errors  
 catch (ArithmeticException mistake)   
 {  
 while (denominator == 0)  
 {  
 System.out.print("Can't divide by zero. ");  
 System.out.print("Re-enter denominator: ");  
 denominator = input.nextInt();  
 }  
 result = numerator / denominator;  
 System.out.println (numerator + " / " + denominator + " = "  
 + result);   
 }  
   
 catch (InputMismatchException mistake)   
 {   
 System.out.print("Wrong Data Type! ");  
 }   
 finally  
 {  
 System.out.print("This is the end of the program.");  
 }  
   
   
 }  
}

Example 5 – Example code with Dialog Box

import javax.swing.JOptionPane;  
  
public class PayrollDialog  
{  
 public static void main(String[] args)  
 {  
 String inputString; // For reading input  
 String name; // The user's name  
 int hours; // The number of hours worked  
 double payRate; // The user's hourly pay rate  
 double grossPay; // The user's gross pay  
  
 // Get the user's name.  
 name = JOptionPane.showInputDialog("What is " +  
 "your name? ");  
   
 // Get the hours worked.  
 inputString =  
 JOptionPane.showInputDialog("How many hours " +  
 "did you work this week? ");  
  
 // Convert the input to an int.  
 hours = Integer.parseInt(inputString);  
   
 // Get the hourly pay rate.  
 inputString =  
 JOptionPane.showInputDialog("What is your " +  
 "hourly pay rate? ");  
  
 // Convert the input to a double.  
 payRate = Double.parseDouble(inputString);  
   
 // Calculate the gross pay.  
 grossPay = hours \* payRate;  
   
 // Display the results.  
 JOptionPane.showMessageDialog(null, "Hello " +   
 name + ". Your gross pay is $" +  
 grossPay);  
  
 // End the program.  
 System.exit(0);  
 }  
}