/\* Chapter No. 9 - Exercise No. 6

File Name: Calculator.java

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Problem Statement: (what you want the code to do)

To make a simple calculator that will allow input an operator and a number

from the user. If the user inserts an incorrect operator, it will throw an

exception.

Overall Plan (step-by-step, how you want the code to make it happen):

1.Create all variables that store answers and result

2.Make an intro into the calc

3.Create 2 while loops, one to end program and one to reset.

4.Use try/catch for operation of equation

5.Store user answer into 2 variables, 1 for op and 1 for number input.

6.Use nested if statements for which operator to use on the result.

7.Throw exception if not +,-,\*,/

8.Print out results answers

9.Make exception class for thrown objects.

10.output final answer.

Classes needed and Purpose (Input, Processing, Output)

main class - Calculator

Exception class - UnknownOperatorException

\*/

import java.util.\*;

public class Calculator

{

public static void main(String[] args)

{

double result = 0.0;

Scanner keyboard = new Scanner(System.in);

boolean done = false;

String equation = "";

String operatorUsed;

double numberUsed;

String escapeOutterLoop;

System.out.println("Calculator is on.");

System.out.println("You can enter your equations below.");

System.out.println("Example: +5. This will equal result plus 5.");

System.out.println("Type 'R' to be done.");

System.out.println();

System.out.println();

System.out.println("Start here:");

while(!done)

{

result = 0.0;

System.out.println("Result = 0.0");

equation = "";

while(!equation.equalsIgnoreCase("r"))

{

try

{

equation = keyboard.nextLine();

equation.trim();

if(!equation.substring(0,1).equalsIgnoreCase("r"))

{

operatorUsed = equation.substring(0,1);

numberUsed = Integer.parseInt(equation.substring(1));

if(operatorUsed.equals("+")||operatorUsed.equals("-")||

operatorUsed.equals("\*")||operatorUsed.equals("/"))

{

if(operatorUsed.equals("+"))

{

result += numberUsed;

}

else if(operatorUsed.equals("-"))

{

result -= numberUsed;

}

else if(operatorUsed.equals("\*"))

{

result \*= numberUsed;

}

else

{

result /= numberUsed;

}

}

else

{

throw new UnknownOperatorException(

"That's not a correct operator! Repeat last line.");

}

System.out.println("Equation:");

System.out.println("Result " + operatorUsed + " " + numberUsed +

" = " + result);

}

}

catch(UnknownOperatorException e)

{

String message = e.getMessage();

System.out.println(message);

}

}

System.out.println("Final Result = " + result);

System.out.println();

System.out.println("Start over? Y/N");

escapeOutterLoop = keyboard.nextLine();

if(escapeOutterLoop.equalsIgnoreCase("N"))

{

System.out.println("Thanks for using this Calc!");

System.out.println("Shutting down.");

done = true;

}

}

}

}

//This extends the calculator, and controls the exceptions

public class UnknownOperatorException extends Exception

{

public UnknownOperatorException()

{

super("Please select an actual operator and try again: ");

}

public UnknownOperatorException(String message)

{

super(message);

}

}