**package** lesson01.task16;  
  
**import** java.io.BufferedReader;  
**import** java.io.IOException;  
**import** java.io.InputStreamReader;  
**import** java.util.InputMismatchException;  
**import** java.util.Scanner;  
  
**public class** Calculator {  
  
  
 **public static double** inputNumber(){  
  
 **double** result;  
 BufferedReader bufferedReader=**new** BufferedReader(**new** InputStreamReader(System.***in***));  
  
 **while** (**true**) {  
  
 **try** {  
 result = Double.*parseDouble*(bufferedReader.readLine());  
 **break**;  
 } **catch** (IOException|NumberFormatException e) {  
 System.***out***.println(**"Invalid number, try again"**);  
 }  
  
 }  
  
 **return** result;  
  
 }  
  
 **public static** String inputString(){  
 String result;  
 Scanner scanner=**new** Scanner(System.***in***);  
 result = scanner.next();  
 **return** result;  
 }  
  
 **public static** String inputOperation(){  
 String result;  
  
 System.***out***.println(**"Enter operation( \"+\" or \"-\" or \"\*\" or \"/\")"**);  
 Scanner scanner=**new** Scanner(System.***in***);  
  
 **while** (**true**) {  
 result = scanner.next();  
 **if** (result.length()==1 &&(  
 result.equals(**"+"**)  
 ||result.equals(**"-"**)  
 ||result.equals(**"\*"**)  
 ||result.equals(**"/"**)  
 ))  
 **break**;  
 **else** System.***out***.println(**"Invalid operation. Try again"**);  
 }  
  
 **return** result;  
 }  
  
 **private static double** calculate(**double** firstNumber, **double** secondNumber, String operation){  
  
 **double** result=0;  
  
 **switch** (operation){  
 **case "+"**:  
 result=firstNumber+secondNumber;  
 **break**;  
 **case "-"**:  
 result=firstNumber-secondNumber;  
 **break**;  
 **case "\*"**:  
 result=firstNumber\*secondNumber;  
 **break**;  
 **case "/"**:  
 result=firstNumber/secondNumber;  
 **break**;  
 }  
  
  
 **return** result;  
  
 }  
  
  
 **public static void** main(String[] args) {  
  
 **double** firstNumber,secondNumber, result;  
 String outputFirstNumber, outputSecondNumber, outputResult, operation;  
  
 *//main loop* **while** (**true**) {  
 System.***out***.println(**"For calculating new expression enter any string. For exit enter \"q\" "**);  
 operation=*inputString*();  
 **if** (operation.equals(**"q"**)) {  
 **break**;  
 }  
 System.***out***.println(**"Enter firs number"** );  
 firstNumber=*inputNumber*();  
 operation=*inputOperation*();  
 System.***out***.println(**"Enter second number"** );  
 secondNumber=*inputNumber*();  
  
 **if** (secondNumber==0&&operation.equals(**"/"**)){  
 System.***out***.println(**"Incorrect operation. Division by zero."**);  
 **continue**;  
 }  
  
 result=*calculate*(firstNumber,secondNumber,operation);  
  
 *// ++ explicit type casting* Boolean firstNumberIsLong=((**long**)firstNumber-firstNumber==0);  
 Boolean secondNumberIsLong=((**long**)secondNumber-secondNumber==0);  
 Boolean resultNumberIsLong=((**long**)result-result==0);  
  
 **if** (firstNumberIsLong)  
 outputFirstNumber=**""**+(**long**)firstNumber;  
 **else** outputFirstNumber=**""**+firstNumber;  
  
  
 **if** (secondNumberIsLong)  
 outputSecondNumber=**""**+(**long**)secondNumber;  
 **else** outputSecondNumber=**""**+secondNumber;  
  
  
 **if** (resultNumberIsLong)  
 outputResult=**""**+(**long**)result;  
 **else** outputResult=**""**+result;  
  
 *//--explicit type casting* System.***out***.println(**"\n"**+outputFirstNumber+operation+outputSecondNumber+**"="**+outputResult+**"\n"**);  
  
 }  
 }  
  
  
  
}