CALCULATOR II

BACKGROUND

In a previous lab, we looked at getting the user to input two numbers and performing a mathematical operation on those two numbers (Calculator). This lab is an enhancement to that lab - we will wrap it into a loop. The intention is that the program will run, but this time, at the end, it will ask the user if they would like to play again. If they do, great! Repeat the experience for them. If they elect not to, end the program.

WALKTHROUGH

This software has three phases:

STEP 1: Run Calculator As Normal
You do not have to do anything special here - the description is in the previous lab.

STEP 2: Output a Menu and Capture a Choice from the User
Display the menu (as seen in the sample output) and capture the user's choice.

STEP 3: Output Result of the Operation the User Selected
Using a `switch` statement, perform the indicated task on the phrase the user entered. Note that some tasks (such as choice `6` - `substring`) may have more than one component.

SPECIFICATIONS

PROJECT NAME: `P06-CalculatorGame`
PACKAGE NAME: `calculatorGame`
CLASS NAME: `CalculatorGame`

- Pay particular attention to the formatting - the output on the screen should look identical to the output in the sample output.

- You will have to cast some of the values to different types for some of the calculations - implicit casting is acceptable.

- You should use a `while` loop that iterates until a certain condition is `false`.

NOTES
- As in the original Calculator lab, there are two methods (`/` and `%`) that will

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result in an exception being thrown and terminating your program (not gracefully, either). Be sure that you check to see that there is no division by zero happening before attempting these operations.

- Also preserved from the original, users may use lowercase letters instead of uppercase (even though the menu options only advertise capital letters). Code a solution such that the user can use either uppercase or lowercase letters.

- To conserve space (and paper for those who want to print this description out) the sample output is incomplete - it does not print out the prompts to the user (entering the first two numbers) and the menu each time. However, those should be displayed to the user every time the program is run.

SAMPLE OUTPUT

```
Please enter the first number: 7
Please enter the second number: 9

Please pick from the following menu of options:
     A. Add the two numbers
     B. Subtract the two numbers
     C. Multiply the two numbers
     D. Divide the two numbers
     E. Mod the two numbers
     F. Exponentiate the two numbers
     G. Find the maximum of the two numbers

Your choice: a
The sum of 7 and 9 is 16

Would you like to play again (Y/N)? Y


Please enter the first number: 10
Please enter the second number: 9

Please pick from the following menu of options:
     A. Add the two numbers
     B. Subtract the two numbers
```

```
        C. Multiply the two numbers
        D. Divide the two numbers
        E. Mod the two numbers
        F. Exponentiate the two numbers
        G. Find the maximum of the two numbers

Your choice: C
The product of 10 and 9 is 90

Would you like to play again (Y/N)? y


Please enter the first number: -8
Please enter the second number: -4

Please pick from the following menu of options:
        A. Add the two numbers
        B. Subtract the two numbers
        C. Multiply the two numbers
        D. Divide the two numbers
        E. Mod the two numbers
        F. Exponentiate the two numbers
        G. Find the maximum of the two numbers

Your choice: d
The quotient of -8 and -4 is 2

Would you like to play again (Y/N)? n

Game over. Thanks for playing!
```

REFERENCE MATERIAL

IDEAS FOR GETTING STARTED

while Loops
The following code is psuedocode that is intended to help you get started while experimenting. `        String keepPlaying = "Y"`

```
    while (keepPlaying.equalsIgnoreCase("y") { // Controls the row number

        // Multiple lines of code
        // (basically the entire Calculator software)

        System.out.println("Would you like to play again (Y/N)? ");
        keepPlaying = scanner.nextLine();

    }
```