**Program 1: Cosmic Distance Calculator (50 points)**

**Objective**

Create a program that calculates an adjusted distance between two fictional planets, factoring in their sizes, and performs various string manipulations on the planet names.

**Program Requirements**

1. Create a Java class named **CosmicDistanceCalculator** with a *main* method.
2. At the top of the class, put a block comment with your name and UID.
3. Display a welcome message to the Cosmic Distance Calculator.
4. Use `Scanner` to prompt the user for the following inputs:
   1. Name of the first planet (String)
   2. Distance of the first planet from the sun (double)
   3. Radius of the first planet (double)
   4. Name of the second planet (String)
   5. Distance of the second planet from the sun (double)
   6. Radius of the second planet (double)
5. Calculate the adjusted distance between the two planets using this formula:
   1. | (distance1 - distance2) \* 1,000,000 - (radius1 + radius2) + 10,000 |
   2. *Note: the pipes | | indicates the* ***absolute value*** *of the calculation, meaning the result should always be positive.*
6. Perform the following string operations:
   1. Create a new string that is the concatenation of both planet names, separated by a hyphen.
   2. Convert this new string to uppercase.
   3. Find the index of the hyphen in the uppercase string.
   4. Extract a substring from the uppercase string, starting from the second character up to the hyphen.
7. Use **DecimalFormat** to format the adjusted distance to 2 decimal places.
8. Display the results, including:
   1. The original planet names
   2. The calculated adjusted distance (formatted)
   3. The uppercase concatenated planet names
   4. The extracted substring

**Sample Runs**

***Run 1:***

Welcome to the Cosmic Distance Calculator!

Enter the name of the first planet: Pluto

Enter Pluto's distance from the sun (million km): 5906.4

Enter Pluto's radius (km): 1188.3

Enter the name of the second planet: Eris

Enter Eris's distance from the sun (million km): 10125

Enter Eris's radius (km): 1163

Calculating cosmic distances...

----- Calculation Results -----

Adjusted distance between Pluto and Eris: 4,218,592,351.30 km

Combined planet name: PLUTO-ERIS

Extracted cosmic code: LUTO

Thank you for using the Cosmic Distance Calculator!

***Run 2:***

Welcome to the Cosmic Distance Calculator!

Enter the name of the first planet: Kepler16b

Enter Kepler16b's distance from the sun (million km): 104.6

Enter Kepler16b's radius (km): 43234

Enter the name of the second planet: Kepler22b

Enter Kepler22b's distance from the sun (million km): 587.1

Enter Kepler22b's radius (km): 15290.4

Calculating cosmic distances...

----- Calculation Results -----

Adjusted distance between Kepler16b and Kepler22b: 482,548,524.40 km

Combined planet name: KEPLER16B-KEPLER22B

Extracted cosmic code: EPLER16B

Thank you for using the Cosmic Distance Calculator!

**Implementation Notes**

1. Use appropriate variable types for each piece of data.
2. For the distance calculation, use ***Math.abs()*** to ensure a positive result.
3. Use ***DecimalFormat*** to format the adjusted distance to 2 decimal places.
4. Utilize string methods such as ***toUpperCase()***, ***indexOf()***, and ***substring()*** for the string manipulations.

**Grading Criteria (50 points total)**

* Correct input prompts and data storage: 10 points
* Accurate adjusted distance calculation: 15 points
* Proper string manipulations: 15 points
* Correct use of DecimalFormat: 5 points
* Appropriate output formatting: 5 points

**Deductions:**

* Compiler errors: -10 points
* Logical errors: -5 points each
* Improper variable types: -2 points each
* Poor naming conventions: -1 point each

**Submission**

Submit a ***ZIPPED FOLDER*** with the name **Program 1 - <your full name>**containing your program, a Java file named **CosmicDistanceCalculator.java**, and the filled-out **Program 1 - Test Data - <your name>.xlsx** Excel document through Canvas.