Problem Set 4 Exercise #03: Fold Tray

Reference: Lecture 10 Unit 1 notes

Learning objective: Object-oriented programming

Estimated completion time: 20 minutes

Problem statement:

A client program **PS4_Ex03_FoldTray.java** is provided and should **not** be modified. It computes the minimum perimeter if we fold a rectangle tray into halves once, either along the x-axis or the y-axis.

Below is an illustration of sample run #1:

3×4 3×2 1.5×4

The client program makes use of a **`Tray`** class defined in the file **PS4_Ex03_Tray.java**. You are to complete the **`Tray`** class as follows.

- Add the following two attributes:
  - **`private double length;  // length of a tray`**
  - **`private double width;  // width  of a tray`**
- Write a constructor **`Tray(double side1, double side2)`** to create a tray of given size.
- Write the following two member methods:
  - **`void fold()`** to fold "this" **`Tray`** object into halves once, either along the x-axis or the y-axis such that "this" **`Tray`** object has minimum perimeter after fold.
  - **`double computePerimeter()`** to return the perimeter of "this" tray object.

You must write your **`Tray`** class properly such that running **`FoldTray`** produces the same output as the sample runs shown below.

Sample run #1:

```
Enter lengths of two sides: 3 4
Min perimeter after fold = 10.0
```

Sample run #2:

```
Enter lengths of two sides: 3.2 4.5
Min perimeter after fold = 10.9
```