Homework 1 – Classes, Instance Data, Encapsulation, Constructors

Authors: Rachna Sahasrabudhe

Problem Description

This assignment will test your knowledge of classes, instance data, encapsulation, and constructors.

Solution Description

You will be creating a `SkyBison` class, which will have the instance variables: name, fluffiness, and health. The `SkyBison` will also have the methods: attack, protect, eatSnack (two of them), as well as getters/setters, constructors and a main method.

The `SkyBison` class should have…

Instance variables:
- A String `name`
- An integer variable for `fluffiness`
- An integer value for `health`
- The instance variables should only be accessible in the SkyBison class.

Constructors:
- A constructor that takes in a `name, fluffiness, and health.`
    - If provided a negative health, set the health to 0.
- A constructor that takes in a `name` and sets `fluffiness` and `health` to 100.

Methods:
- Getters and setters for `name`, `health`, and `fluffiness`. If the method would make the health go below 0, then it should become 0.
- An `eatSnack` method that takes in an array of integers, iterates through, and adds the values to health. This method should not return anything.
- Another `eatSnack` method that takes in an integer and adds it to health. This method should not return anything.
- A `fly` method, which takes in an integer number of hours, and subtracts 10 from the SkyBison's health for each hour. If the method would make the health go below 0, then it should become 0.

Main Method
- The main method should instantiate at least 2 SkyBison, and it should call all the methods listed above at least once. (This is a good place to check that your methods work as expected by using print statements).

Submitting

To submit, upload the files listed below to the corresponding assignment on Gradescope:
- `SkyBison.java`

Make sure you see the message stating "Homework 1 submitted successfully." We will only grade your last submission be sure to **submit *every file* each time you resubmit.**

Import Restrictions

You may only import the Scanner and Random classes.

Feature Restrictions

There are a few features and methods in Java that overly simplify the concepts we are trying to teach or break our auto grader. For that reason, do not use any of the following in your final submission:
- `var` (the reserved keyword)
- `System.exit`

Collaboration

No collaboration is allowed on this assignment. See syllabus for more details.
In addition, note that it is not allowed to upload your code to any sort of public repository. This could be considered an Honor Code violation, even if it is after the homework is due. Only post code on Piazza in a **private** post.

Important Notes (Don't Skip)

- Non-compiling files will receive a 0 for all associated rubric items
- Do not submit `.class` files.
- Test your code in addition to the basic checks on Gradescope
- Submit every file each time you resubmit
- Read the "Allowed Imports" and "Restricted Features" to avoid losing points
- Check on Piazza for all official clarifications
- Make sure to test your program manually based on the assignment instructions and expected outputs. The Gradescope autograder visible to you is **NOT** comprehensive. A few test cases will be hidden when you submit. This is done intentionally so that you learn to write your own test cases for your assignments.