Homework 2

Due February 4, 9:30am

50 points

CS 2235

Data Structures and Algorithms

Dr. Leslie Kerby

1. Write a Java program to simulate an ecosystem containing two types of creatures, ***bears*** and ***fish***. The ecosystem consists of a river, which is modeled as a relatively large array (i.e. 500 cells). Each cell of the array should contain an Animal object, which can be a bear, a fish, or **null**. Initialize the array to randomly contain these three types. In each time step, based on a random process, each bear/fish either attempts to move into an adjacent array cell or stay where it is. If two animals of the same type are about to collide in the same cell, then they stay where they are, but they create a new instance of that type of animal, which is placed in an empty (i.e. previously **null**) cell in the array. If a bear and a fish collide, then the fish dies (i.e., it disappears). Provide summary information on the array after each time step (time step number and how many bears, fish, and **null**). Run the simulation until the ecosystem contains all bears.

Demonstrate that your program works. Submit your source code and output screenshots.