**Name**

**Advanced Programming in Java**

**Lab Exercise 10/23/2023**

In this exercise, you will make an application that simulates a frog migration in an environment of a swamp. This is an example of a random walk.

1. I am providing you with the Frog, Marsh, and Location classes which can be found in

\\Ada\Data Files\Java\Frogger Class Files

1. Write a FrogHopSim class that will utilize the Frog, Marsh and Location classes. The class should prompt the user to enter the number of hops to do in the simulation.
2. Create a Basic Java Application named FrogHopSim.
3. Add the Frog, Marsh, and Location classes to your project.
4. Add the following import as we will be using the JOptionPane to input and output data:

import javax.swing.\*;

1. Add the following variables that are global to the class:

private static Frog kermit;

private static Marsh swamp;

1. Add the following to the main method

Location pos = new Location(15, 15);

kermit = new Frog("Kermit", pos);

swamp = new Marsh(kermit);

String temp = JOptionPane.showInputDialog("How many hops?")

numHops = Integer.parseInt(temp);

1. Add the following code to the main method to run and display a real-time result of your simulation:

for (int count = 1; count <= numHops; count++)

{

swamp.updateFrog(kermit, "X");

kermit.hop(swamp);

swamp.updateFrog(kermit, "F");

}

When you have your project working, add the following two features to the project:

* 1. Add a feature that prohibits the frog from leaving the marsh.
  2. Add a feature that reports how far the frog is away from its origin at the end of the simulation.