Software Engineering

Minority Game

User Documentation

Group 12

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Basic Explanation of Program

The Fishing Simulator is intended to be used as a complex, real life approximation of the the Minority Game problem. In this Fishing Simulator, a set of fishers attempt to maximize their catches by fishing in the least crowded locations available. Every fisher has their own strategies they use to predict the actions of other fishers in an attempt to always choose a free fishing location, or a less popular species of fish.

The user of this program can use it to see how the fishers update and adjust their strategies in competition with each other, and in the end which strategies are most effective. They can also set all relevant initial conditions to see how strategies and fishers fare in different situations, or with different levels of competition.
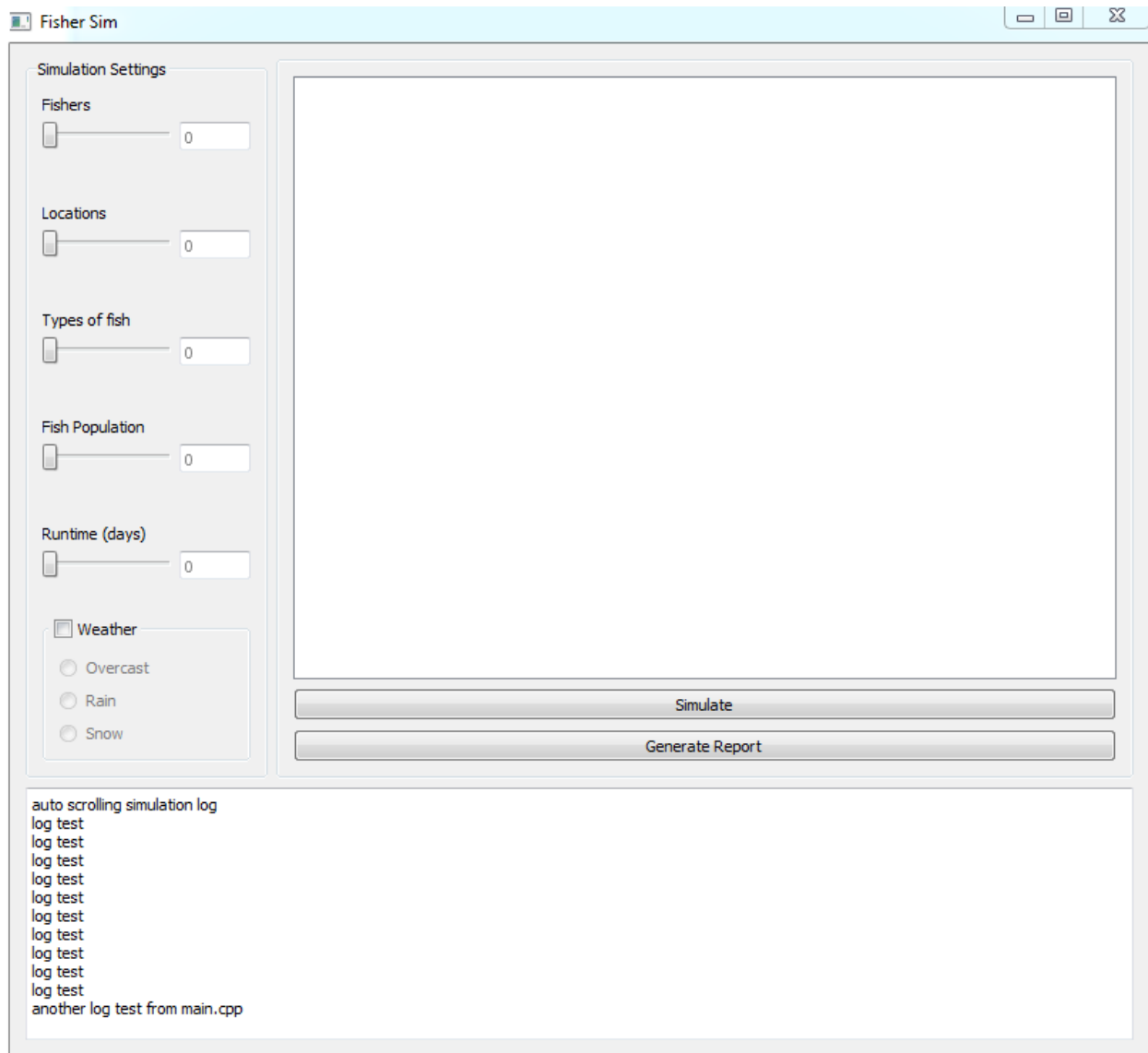
Using the Program

There are three basic steps to using the Fishing Simulator.

1. Choosing settings for the simulation
2. Running and observing the simulation
3. Reading the data produced by the completed simulation

The following pages will demonstrate, using screen shots of the program, how to complete all three of these steps and the options available at each stage.

Step 1: Choosing settings for the simulation

When the program is started, this main screen is what will be shown. All the settings are available on the left hand side of the program. The variables listed can be changed by using the sliders below them, and the current number will be shown right next to it in the white boxes. Weather can be turned on by checking the box next to it, and the type of weather can then be selected. On the bottom of the screen, the a text box will display information on the changes you make to the settings.

Example of choosing settings
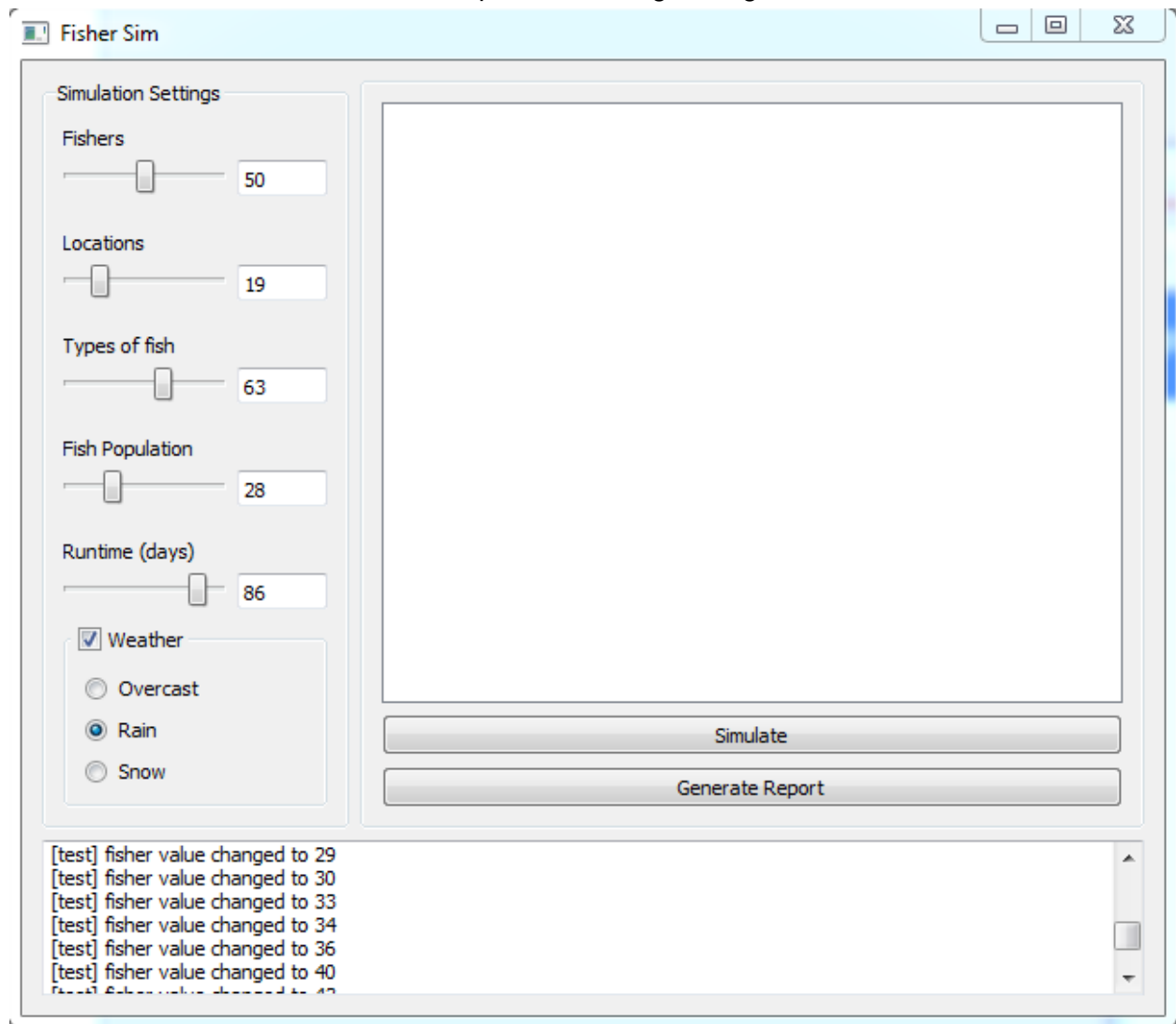
Setting explanations:

1. Fishers - This sets the number of fishers who are competing for fish during the simulation.
2. Locations - This sets the number of locations that fishers can go to for fishing.
3. Types of Fish - This sets the number of species of fish that fishers can try to fish for.
4. Fish Population - This sets how many fish are available to be caught.
5. Runtime - This sets how long the simulation will last. Each day a fisher will go to a single spot.
6. Weather - This turns on weather, which affects the viability of fishing.

Step 2: Running the simulation
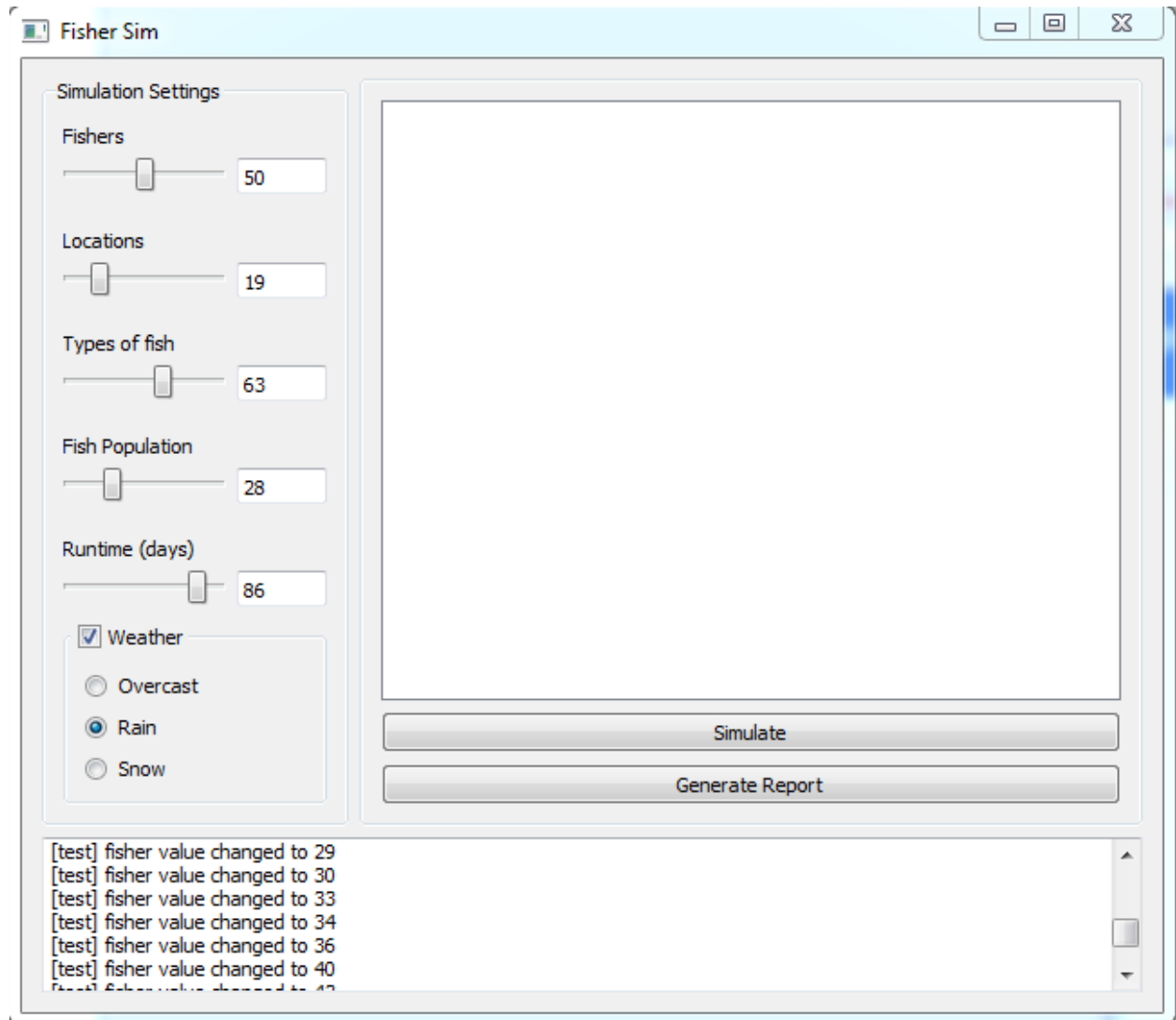
Once your settings are all chosen, simply press the "Simulate" button. The large box above "Simulate" will display information about the ongoing simulation once it has begun. There is no need for user input at this stage.

Once the simulation is complete, you can either simulate again, adjust the settings, or go to the third step by clicking on "Generate Report."

Step 3: Reading the Data
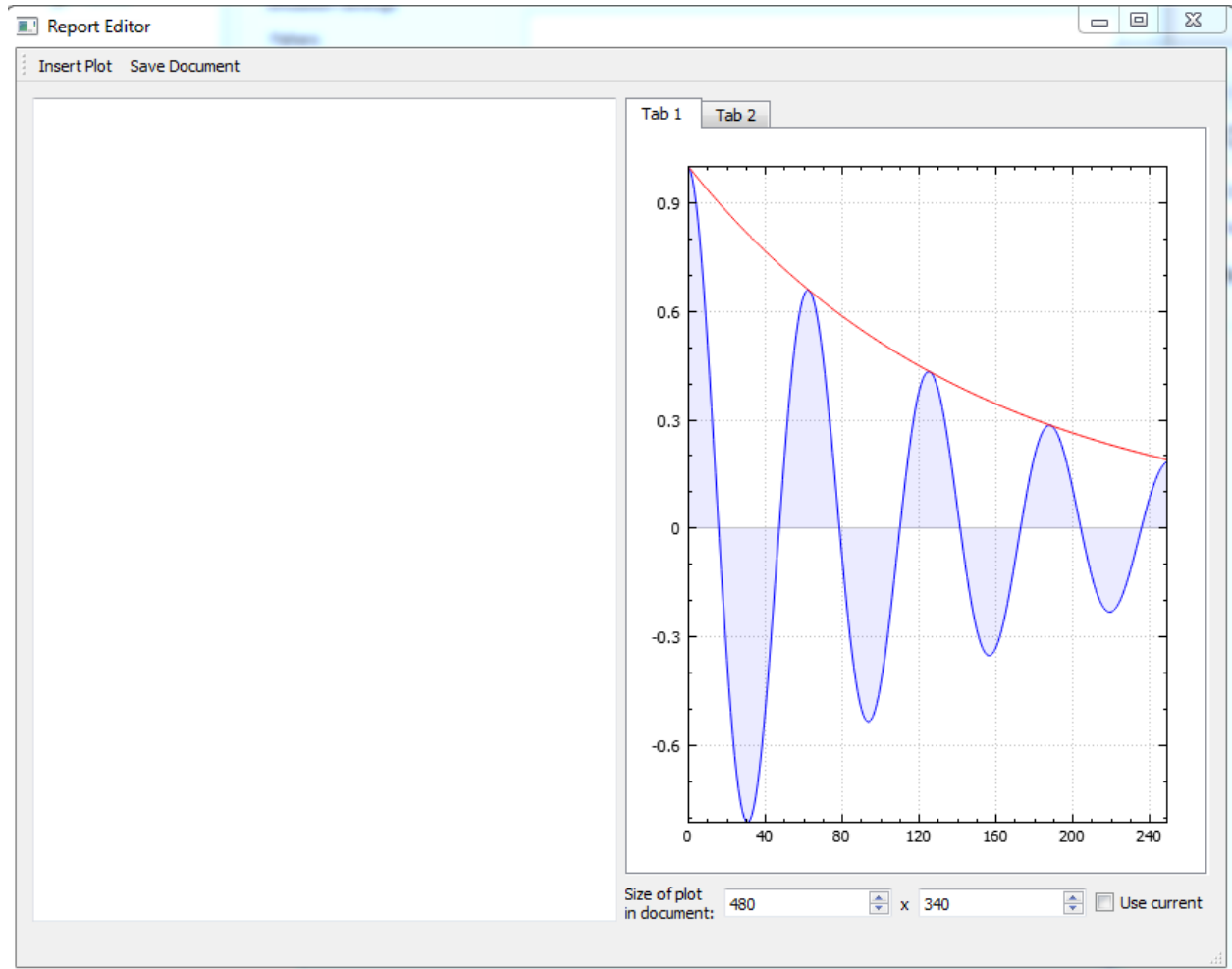
This is the basic screen the user will see after beginning step 3 by clicking on the "Generate Report" button. Here, the user can build a report on the simulation using data the program has collected.

On the right side of the screen, multiple graphs are available detailing information on the simulation. The graphs can be switched by clicking on different tabs on the top, and their size can be adjusted using the text boxes on the bottom.

On the left side of the screen, there is a text report section where results can be written up. The user can also take graphs from the right side and add them to the text section so that they can be included in the report.

Example of putting text and graphs into the report on the left.
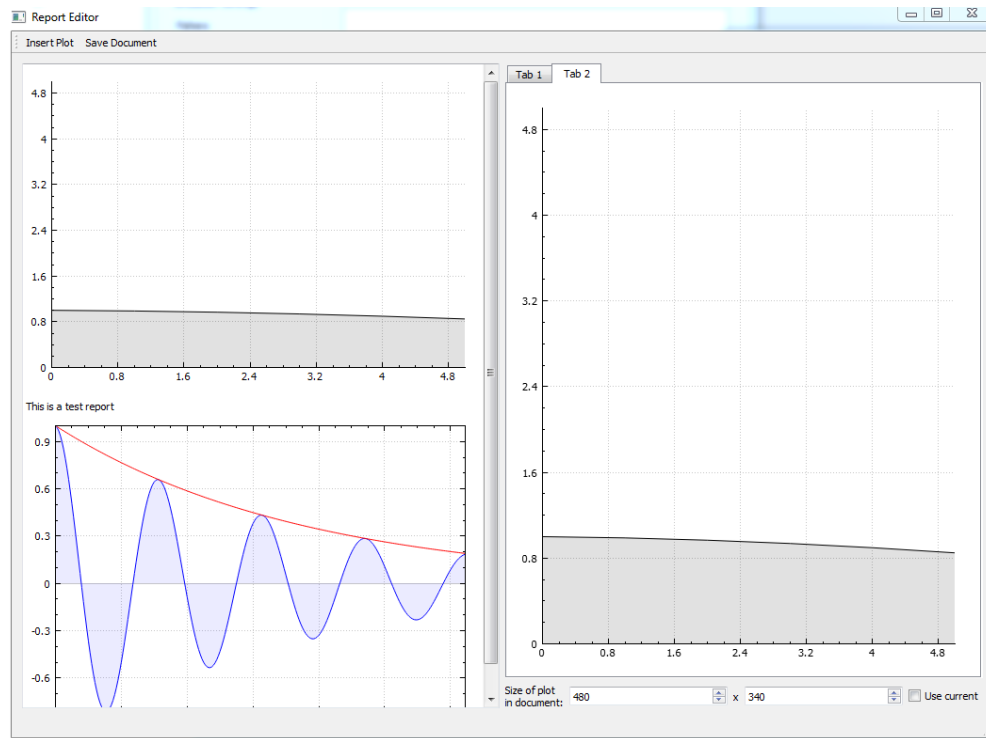
Once the report is complete, the user can save it using the "Save Document" button on the top left.