**Forest Database Application User Manual**

Birju Patel, Aatesh Arya

**Setup**

This application expects the database to be initialized with a list of valid states. Before running, please enter a list of states that forests can be located in and workers can be employed in.

Data may be inserted directly into the database via SQL insert statements. You may or may not specify the primary key of the forest or sensor manually. We use triggers to automatically generate a new primary key, regardless of what was passed in.

Our program uses the Java Scanner class to collect user input. The function .useDelimiter(System.lineSeparator()) may be incompatible with your version of Java. If you are having problems with IO, replace this line with .useDelimiter(“\n”).

**Functionality**

All tasks have been implemented according to the specifications, when implementing tasks 1, 3, 4, and 6, the following assumptions and modifications were made.

1, 6: When a forest is inserted into the database, the user is asked what state this forest is in. Initially, this forest is assumed to be entirely located in this state. Later, the user may update the portion of the forest covered by each state. When they do so, the total area of the forest is recalculated as the sum of all of their coverages in each state. The percentages of a forest that lies in each state is also recalculated.

3: When a new sensor is added, the user is asked for the date this sensor was installed, as well as the sensor’s initial temperature reading. This date is used as the time the sensor was last charged and last read, and is used to produce the sensor’s first report.

4: A worker may switch duties with another worker if all of the sensors that are swapped are located in forests which span the states that both workers are employed in. A worker with no duties may switch with a worker with duties. In this case, the sensors maintained by the worker with duties will turn to null.

**Versions**

We developed this on a machine running Java version 13.0.2, released 1/14/2021, and the Postgresql JDBC driver version 42.3.1. It was also developed using the Eclipse IDE.