One-Dimensional Ant World

/**
* Models ants living in a 1-dimensional world.<br>
* A queen ant can make a bunch of ants and spread them around in a
* 1-dimensional world. An ant from a particular colony can always calculate
* its distance from its queen. An ant can also move its queen to a different
* location. Wherever the queen moves to, her ants always know the
* correct relative distance from her.<br>
* The above is modeled by a Queen class with an abstract Ant inner class.
* The Ant inner objects has direct access to the location of its outer object,
* which is a Queen object.
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*/

public class Queen {

    private int origin;  // what does it mean for origin to be static?

    /**
     * As part of a Queen instance, just like the origin field and the makeAnt()
     * method are parts of a Queen instance.
     */
    public abstract class Ant {
        public abstract int calcDist();

        public void moveQueen(int origin) {
            Queen.this.origin = origin;
        }
    }

    public Queen(int origin) {
        this.origin = origin;
    }

    /**
     * Factory method: relegate the task of manufacturing concrete Ant objects
     * to the Queen object because the Queen object intrinsically "knows" how
     * to make its inner objects.
     * @param loc location of the Ant.
     */
    public Ant makeAnt(final int loc) {
        return new Ant() {
            public int calcDist() {  // Anonymously created Ant object
                return loc - origin;  // overriding calcDist. As long as this
                // object is alive, the value of loc
                // stays with it and does not change.
                
            }
        };
    }
}