

## CSE 142 Section Handout #8 Solutions

1. The program ReferenceMystery1 produces the following output:

```
3 [2, 3, 7]
1 [2, 3, 7]
17 7
```

2. The program ReferenceMystery2 produces the following output:

```
4 [10, 20, 3]
2 [10, 20, 3]
7 5
```

3. One possible solution appears below.

```
import java.awt.*;

public class Cat extends Critter {
    private int count;

    public Action getMove(CritterInfo info) {
        count++;
        if (info.getFront() == Neighbor.OTHER) {
            return Action.INFECT;
        } else if (info.getLeft() == Neighbor.OTHER ||
            info.getRight() == Neighbor.OTHER ||
            info.getBack() == Neighbor.OTHER) {
            return Action.HOP;
        } else {
            return Action.RIGHT;
        }
    }

    public Color getColor() {
        if (count % 2 == 0) {
            return Color.GREEN;
        } else {
            return Color.WHITE;
        }
    }

    public String toString() {
        return "C";
    }
}
```

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4. One possible solution appears below.

```
import java.awt.*;

public class Dog extends Critter {
    private int spin;

    public Action getMove(CritterInfo info) {
        if (info.getFront() == Neighbor.OTHER) {
            return Action.INFECT;
        } else if (spin < 5) {
            spin++;
            return Action.LEFT;
        } else {
            spin = 0;
            return Action.HOP;
        }
    }

    public Color getColor() {
        return Color.PINK;
    }

    public String toString() {
        return "" + spin;
    }
}
```

5. One possible solution appears below.

```
import java.util.*;

public class Pigeon extends Critter {
    private String display;
    private Random r;

    public Pigeon() {
        display = "*";
        r = new Random();
    }

    public Action getMove(CritterInfo info) {
        if (info.getFront() == Neighbor.EMPTY) {
            display = "H";
            return Action.HOP;
        } else {
            int flip = r.nextInt(2);
            if (flip == 0) {
                display = "L";
                return Action.LEFT;
            } else {
                display = "R";
                return Action.RIGHT;
            }
        }
    }

    public String toString() {
        return display;
    }
}
```