

Lab 4 & 5
Line Follower Group Assignment

Goal: Program your robot so that it will follow a black line on a white surface. For now, it only needs to be able to go around a circular track in ONE direction.

Perform these steps on a lab computer (logged into Windows). Save the files on you T: drive, in a new directory in CSCI1111. Only one group member must create these files.

1. Create a file “LineFollower.java” with the following contents:

```
import edu.gwu.Jobot.agents.standalone.LejosAgent;
import lejos.nxt.*;

public class LineFollower extends LejosAgent
{
    public static void main(String[] args)
    {
        LineFollower Sue = new LineFollower();
        Sue.perform();
    }
    // Insert needed methods to move robot

    public void perform()
    {
        LightSensor light = new LightSensor(SensorPort.S2);
        int threshold = // Experiment to find a suitable value;

        while(true) {
            int lightRead = // Read the light sensor!

            if (lightRead < threshold) {
                // The light read in is below the threshold
                // (it's dark!) what should the robot do?
            } else {
                // What should the robot do now that the light
                // value returned indicates a lighter surface?
            }

            if (Button.ESCAPE.isPressed()) {
                System.exit(0);
            }
        }
    }
}
```

2. There is a lot missing from this code. Refer to your light sensing lab for how to read light values and the dancer lab for how to move the robot.

3. You will need to experiment to find the appropriate threshold value for your robot / sensor. This will let your robot distinguish between white and black surfaces. Remember you can print values to the lcd, like in the light sensor lab.
4. Your robot will sense light, then move: it can not (for now...) do both at the same time. This means that if you want to sense light more often, then you have to move for shorter distances.
5. Add a comment to your source with each team member present (first and last name) as well as the jobs they performed today.
6. At the end of lab submit your source file on blackboard. It is okay if it is incomplete.

To compile:

```
nxjc -cp C:\Jobot.jar LineFollower.java
```

To transfer:

```
nxj -cp .;C:\Jobot.jar LineFollower
```