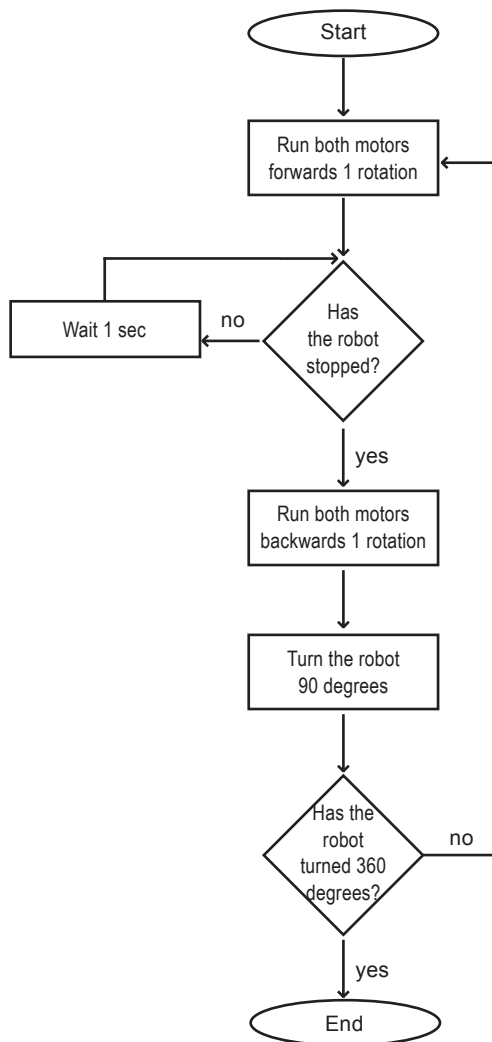


## Turning your flowchart into pseudocode

Pseudocode is a structured outline of a program, and is written in plain language. It is written before the actual code and helps to formulate thoughts in an organized and structured manner. Engineers often create pseudocode before they begin coding because it helps to avoid mistakes and confusion later on in the process.

### (Pseudocode created from the flowchart)



1. Start

2. Run both motors for 1 rotation

3. Has the robot stopped?

- If bumper value is 0 (no), wait 1 sec  
Then proceed back to step 3
- If bumper value is 1 (yes), proceed

4. Run both motors for 1 rotation

5. Turn the robot 90 degrees.

6. Check if robot has turned 360 degrees

- If it has not, proceed back to step 2
- If it has,  
End

## Flowchart Best Practices

- Try to use indentation and spacing to indicate loops and to help improve readability.
- Do not use language-specific commands in your pseudocode. It is meant to be universally written so that it can be translated into any programming language.
- Try to write out everything that you would need to understand what code will need to be written.

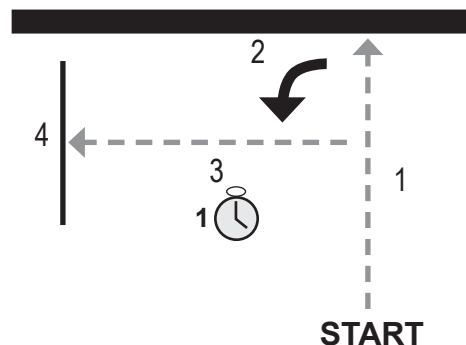
## Pseudocode Examples

### Example 1: *Find line and turn*

In Example 1, we would like to program a robot to move forward until it detects a black line, turn left 90 degrees, and move forward for one second. Below is the pseudocode to accomplish that task. Note that this pseudocode describes a complex behavior that is made up of four simple behaviors.

#### *Pseudocode*

1. Move forward until the Light Sensor detects black.
2. Turn left.
3. Move forward for one second.
4. Stop.

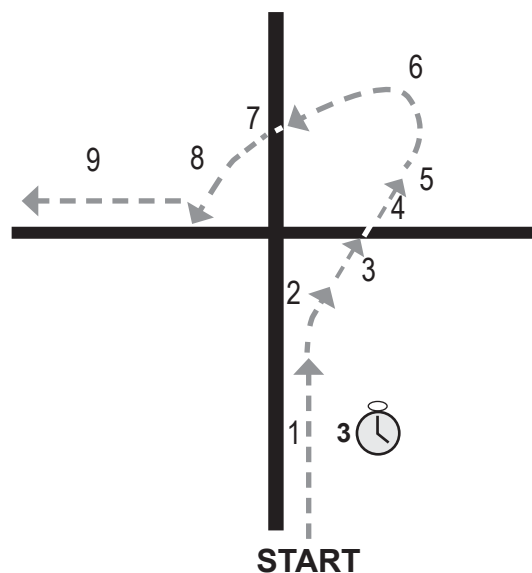


### Example 2: *Turn across lines*

In Example 2, the task is more difficult. The robot behavior to be programmed has the robot track the right side of the vertical line upward, make a broad left turn, and then track the right side of the horizontal line toward the left. The pseudocode divides the task into nine simple behaviors.

#### *Pseudocode*

1. Line track the right side of the line for 3 seconds.
  - a. If less than 3 seconds have passed, track the right side of a line.
  - b. If more than 3 seconds have passed, move on to the next step.
2. Turn right until the Light Sensor sees light.
3. Move forward until the Light Sensor sees dark.
4. Move forward until the Light Sensor sees light.
5. Move forward a short distance.
6. Turn left until the Light Sensor sees dark.
7. Turn left until the Light Sensor sees light.
8. Turn left until the Light Sensor sees dark.
9. Line track the right side of the line.



**Pseudocode Exercise**

Write pseudocode that divides reading a flowchart into steps. You likely already created a flowchart for reading a flowchart. Here, you can write pseudocode to accompany it.

**1.****2.****3.****4.****5.****6.****7.****8.****9.****10.****11.****12.****13.****14.****15.****16.****17.****18.****19.****20.**