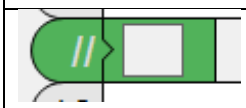
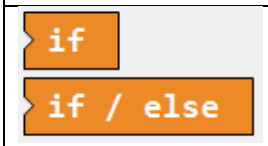
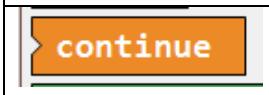
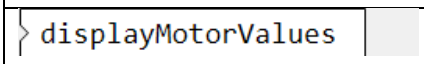
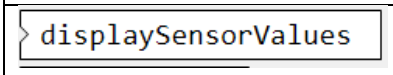
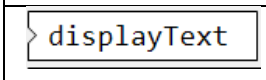
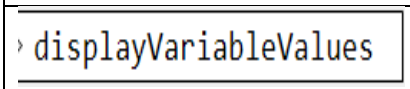
Q.1---- Fill in the blank below:

Diagram – Logic	What does it mean?
	
	
	
	
	
	
	
	
	
	

Q.2)---- Will the following code segment allow your whole robot to turn 90 degrees. Why?

```
while ( nMotorEncoder[motorA] < 90 ) {
  setMultipleMotors ( 50 , leftmotor , rightmotor , noMotor );
}
```

Q.3)---- a) What does the following code segment do?

```
displaySensorValues ( line2 , S3 );
```

b) Do you know what it is trying to display?

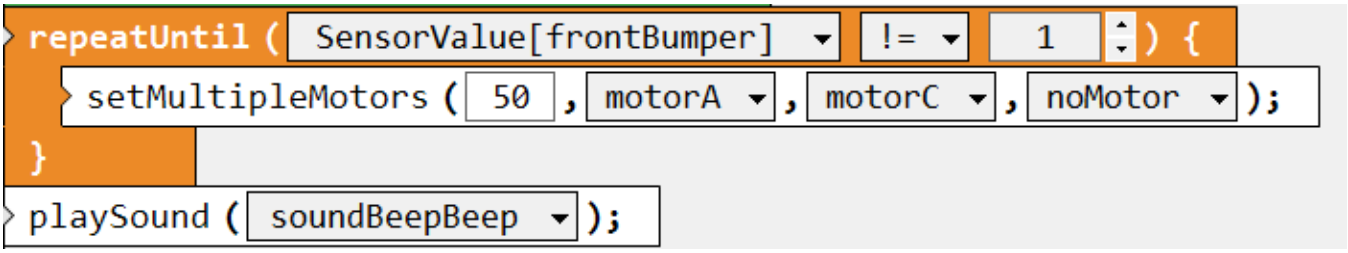
c) What can be done in order to help you identify what sensor it may be?

Q.4)---- Assuming there is a wall about 10 cm in front of the robot. What do you expect to happen?

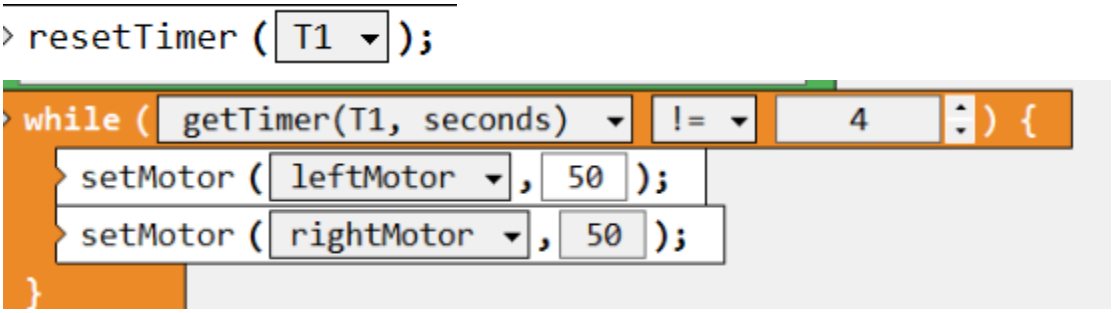
```
while ( SensorValue[frontBumper] != 1 ) {
  setMultipleMotors ( 50 , motorA , motorC , noMotor );
}
playSound ( soundBeepBeep );
```

Q5)--- Refer to the problem segment above. Bot should stop after it hits the wall. Does it? If not, Why?

Q.6)---- Assuming there is a wall about 10 cm in front of the robot. What do you expect to happen?



Q.7---- Based on the code segment below, will your robot move forward and stops after 4 seconds expire.



If yes, which statement(s) allow the program to repeat?

If not, explain.

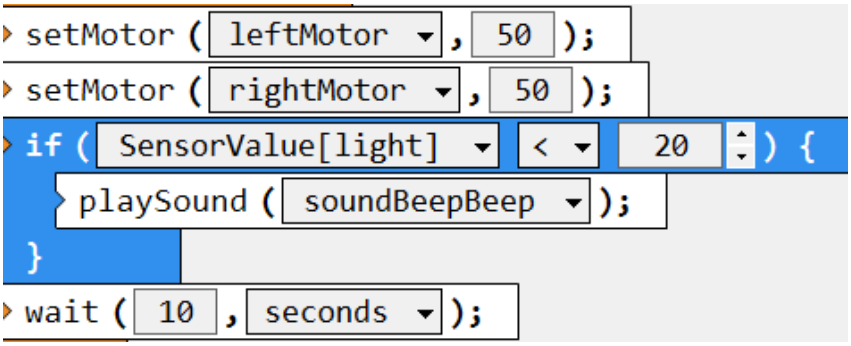
MORE CHALLENGING PROBLEMS:

Q8.--- The following 4 questions will base on a specific robot configuration, and field setup:

Assume the robot is set up as following::

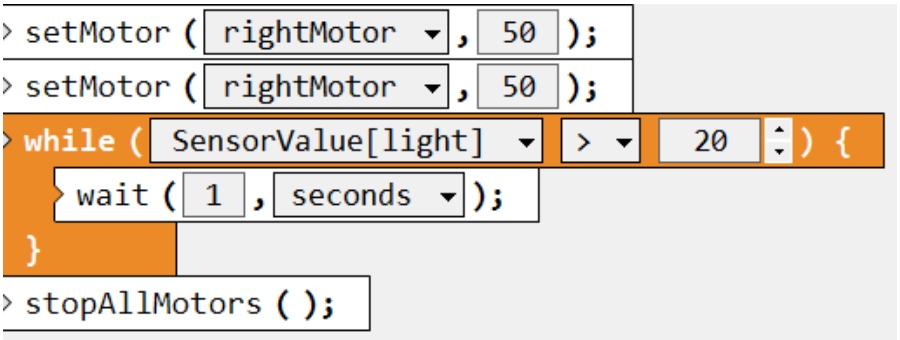
1) Your robot starts on a "white" area. It can run at a speed of 5 cm per second.
2) Your robot is built with a 2-wheel drive system with 2 motors driving the two front wheels.
3) There are 3 black lines measured 10cm, 20cm, 30cm right in front of the robot.
4) Robot's has a light sensor mounted facing down to the ground.
5) Its light sensor gives a value of 15 when it detects black.

Q8.a)--- See the code below. Will the robot beep?

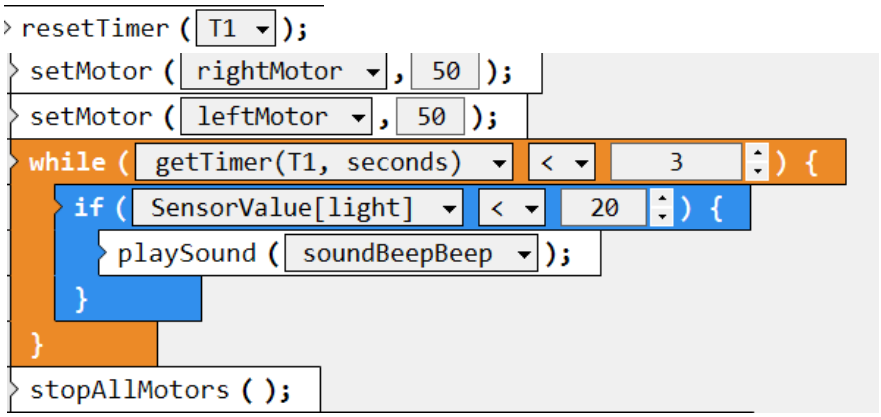


- If it does, why?
- If it does not, why?

Q8.b)--- Describe what this program segment does? How many dark lines can it detect?



Q8.c)--- Describe what this program segment does. How many times it beeps? Why?



Q.9)--- Describe what the following program segment does. How many dark lines can it detect?