

Lesson 4: Conditional Statements Programming Solutions

Exercise 1

When the program is started, play a buzz sound if the touch sensor is pressed, else play a descending sweep sound if the touch sensor is not pressed.

Exercise 1: Solution

If the touch sensor is not pressed, play sound #3 (desc. sweep).

Use a touch sensor fork

Don't forget the fork merge!

If the touch sensor is pressed, play sound #5 (buzz).

Exercise 2

If the light sensor is over a white piece of paper, turn on only motor A. If the light sensor is over a black piece of paper, turn on only motor C. Do this forever.

Exercise 2: Solution

The Jump/Land pair runs this program forever.

Use a light sensor fork.

Don't forget to turn off the other motor in each branch!

Exercise 3

Start by turning on motor A in the forward direction. If the rotational sensor has made 3 rotations, turn off motor A and exit the program. Otherwise, play a beep, wait for 1 second, and continue to check the rotational sensor.

Exercise 3: Solution

When using a rotational sensor fork, you must reset the sensor. ...and land here. If greater than 3, turn off the motor.

Turn on the motor 48 ticks = 3 rotations If less than 3, beep, wait 1 second, jump...

Exercise 4

If the light sensor is over the white paper, then if the touch sensor is pressed in, turn on motor A in the forward direction, otherwise, turn on motor A in the reverse direction. Else, if the light sensor is over the black paper, then if the touch sensor is pressed in, turn on motor C in the forward direction, otherwise, turn on motor C in the reverse direction. For all conditions, the motor should run for 4 seconds, then stop.

Exercise 4: Solution

This is an example of nested conditional statements. This stop sign stops all motors. It doesn't care which one is on.

Don't forget to specify different sensor ports. Merge the forks from the inside back out.

Lesson 4: Conditional Statements Troubleshooting Tips

Problem 4a

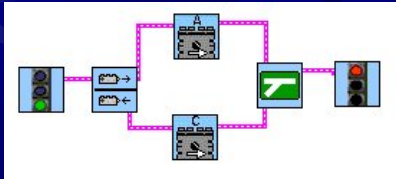
What's wrong with this program?

Solution 4a

Remember: All forks need a fork merge.

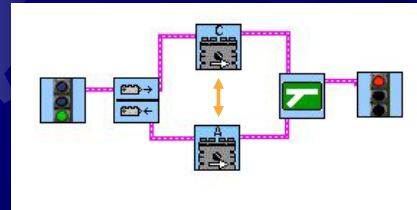
Problem 4b

This program is supposed to turn on motor A if the touch sensor is pressed, otherwise turn on motor C. What's wrong?



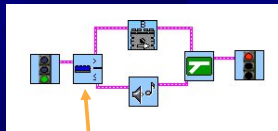
Solution 4b

The branches of the fork are mixed up. This is a common mistake.



Problem 4c

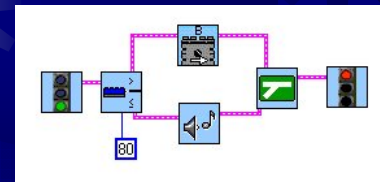
In this program, if the light sensor reads a value above 80, it should turn on motor B. Otherwise, it should beep. Why doesn't it work?



Hint: What is the default light level value?

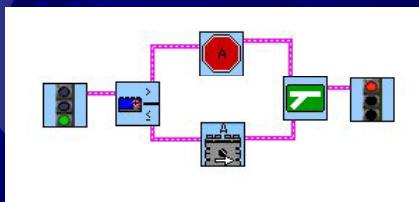
Solution 4c

The default light level value is 55. To specify a different value, you must use a numeric constant modifier.



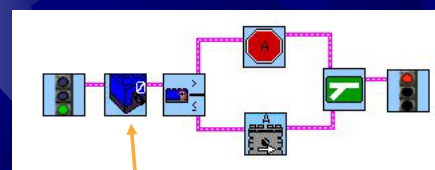
Problem 4d

What's missing from this program?



Solution 4d

Before every rotational sensor fork, you must reset the rotational sensor.



Rotational sensor reset