Lesson 2 Worksheet

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Resources;

Finch Class Methods
Lesson 2 - Exploring Sensors

DISCUSSION QUESTIONS

1. What is a variable

   A variable is the name and type of a value. It lets a specific value from a certain line of code, such as distance or light sensor value, be stored in a different name, which can be called back when used in a movement or a certain line. Distance can be used as a variable, which makes it easier rather than using bird.getDistance() when doing multiplication.

2. What is the difference between = and == operators

   The difference between = and == is that = is used for a variable. The operator shows that a name is now associated with a certain value from which the finch has provided. But, a == operator is seen in many if or while statements. The operator means that a variable is equal to a number of lines of code. It could be bird.getDistance() == 3 in an if statement, used to show that if that method is 3, then something could happen.

3. Is there a difference between a Method and a Function

A function is something that can't be interpreted or abstract in the code of Python. The coder has the ability to not immediately run the code using a function, but wait when they decide they are ready to have their finch act out the movements. A method is what is contained in the functions. Methods such as bird.getDistance or bird.setBeak or methods for which the finch acts out. Without a function, the robot would immediately start doing what it is told.

4. What are the four common data types in Python

The four common data types in Python are str (which signifies values of methods that are strings), bool (which shows values of methods that are boolean), int (which shows what values of integers/whole numbers), and float (which signifies values that have

numbers with decimals).

Exercise Responses

Exercises 1

- What is the smallest distance you can measure?

- What is the largest?

Exercise 2

- How can you change the values of the following sensors;
    - Light
    - Button
    - Orientation
    - Encoder

- getLight('R') – returns the value of the right light sensor
- getLight('L') – returns the value of the left light sensor
- getButton('A') – returns the value of button A on the micro:bit
- getOrientation() – returns the orientation of the Finch
- getEncoder('R') – returns the number of rotations that the right wheel has turned

Exercise 3

- Find the data types returned by all the methods in Exercise 2
    - getLight('R')
    - getButton('A')
    - getOrientation()
    - getEncoder('R')

Exercise 4

- Write your prediction for Exercise 4, then code the exercise to test it
    - Current Distance = 20
    - 2 x Current Distance = ??
    - 4 x Current Distance = ??

Complete the coding for Exercise 5 thru 6