EdPy worksheets

Student worksheets and activity sheets

Name_____

Lesson 3: Worksheet 3.1 – Turn right

In this activity, you need to write a program that will make your Edison robot turn right.

Look at the following program:

```
1
2  #-------------Setup----------------
3
4  import Ed
5
6  Ed.EdisonVersion = Ed.V2
7
8  Ed.DistanceUnits = Ed.CM
9  Ed.Tempo = Ed.TEMPO_MEDIUM
10
11 #--------Your code below-----------
12 degreesToTurn = 90
13 Ed.Drive(Ed.SPIN_RIGHT,Ed.SPEED_6,degreesToTurn)
14
```

Look at line 13 of the program. Remember that the Ed.Drive function has three input parameters: direction, speed, and distance. In this program, the distance parameter is not a number but is 'degreesToTurn'.

This is a variable.

In Python, variables are reserved memory locations to store values. This means that when you create a variable, you reserve some space in the program's memory.

A variable represents a value that is set somewhere in your program.

Look at line 12 of the program. This is where the value of 'degreesToTurn' is being set. This is called assigning a value to a variable. In Python, the equal sign (=) is used to assign values to variables.

You can use variables to store values that are used in several places throughout a program. This can be very helpful, especially if the value of a variable changes. By using variables, you only need to make the change in one line of the code to adjust the value everywhere that variable is being used in your program.

Your turn:

1. Describe what the robot does and why it does this when you run the program.

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Add a new line to the end of your program (after line 13) and add the following code to your program:

```
Ed.Drive(Ed.SPIN_LEFT,Ed.SPEED_6,degreesToTurn)
```

Download and run the program with your Edison in your test area.

2. Describe what the robot does and why it does this when you run the updated program.

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Now edit your program so that your Edison will first turn 180 degrees to the right, then 180 degrees to the left.

Hint: Remember you can change the value of the degreesToTurn variable.

Download and run your updated program with your Edison in your test area to see if your change was successful.

3. What line or lines in your program did you change? Write down the updated line or lines.

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Variable names must follow certain rules in Python. For example, no special characters like # or $ are allowed. Try changing the name of the variable 'degreesToTurn'. Experiment with different possible names and use the 'Check Code' button to find which names are allowed and which are not.

4. Give two examples of illegal variable names you discovered.

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Lesson 3: Worksheet 3.2 – Turn left 180°

In this activity, you need to write two different programs to turn your Edison robot left exactly 180°.

Your turn:

Task 1: Turn left exactly 180°

Write a program that makes your Edison robot turn left exactly 180°.

Hint: Try using the program you used in worksheet 3.1 as a starting point.

1. What are the input parameters you used to make the robot turn exactly 180°? If you used a variable, include what value you assigned to that variable.

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Task 2: Turn exactly 180° using the Ed.DriveRightMotor() command

EdPy has a command called 'Ed.DriveRightMotor()' which makes only Edison's right motor move. If only the right motor moves, which way will Edison turn? Hold Edison in your hands and imitate what will happen if only the right motor moves.

Search for the Ed.DriveRightMotor() command in the Documentation window of the EdPy app to see how this function works.

Then write a program that makes your robot to turn left 180° using the Ed.DriveRightMotor() function.

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Lesson 3: Worksheet 3.3 – Right turn, then left turn

In this activity, you need to write a program so that your Edison robot will turn when the triangle button is pressed.

Write the following program:

```
#------------Setup---------------

import Ed

Ed.EdisonVersion = Ed.V2

Ed.DistanceUnits = Ed.CM
Ed.Tempo = Ed.TEMPO_MEDIUM

#--------Your code below----------
degreesToTurn = 90
Ed.ReadKeypad()
while Ed.ReadKeypad() != Ed.KEYPAD_TRIANGLE:
    pass
Ed.Drive(Ed.SPIN_RIGHT,Ed.SPEED_6,degreesToTurn)
```

Your turn:

Write a program to make the robot turn right exactly 90° when the triangle button is pressed once, then turn left exactly 270° when the triangle button is pressed a second time.

Remember to put Ed.ReadKeyPad() into the line above each 'while' loop to clear any previous key presses before the loop.

1. What does your program look like? Write your code down below.

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