**Initio Programming: WS15 Sample Answers and Trouble Shooting**

**Note:** As recommended in the worksheet, it is a good idea to do these exercises with the initio simulator rather than with the robot itself. Students may need some guidance on how to modify the imports at the start of files as they transfer programs between the two platforms.

In fact, as a general note, as the programs being developed get more complex, as they will shortly, it will be good practice to encourage people to work with the simulation first and only then try to run things on the actual robot.

**WS15**

**Question 1:** On what line has the error occurred? 12

**Question 2:** What does the error message say is missing from forward() ?

*1 required positional argument: ‘speed’*

**Corrected Program:**

initio.init()

direction = input(["Which way would you like the robot to move? (F, B, L, R)"])

while(direction != "S"):

if (direction == "F"):

initio.forward(10)

elif (direction == "B"):

initio.reverse(10)

elif (direction == "L"):

initio.spinLeft(10)

elif (direction == "R"):

initio.spinRight(10)

direction = input(["Which way would you like the robot to move next? (F, B, L, R, S)"])

initio.stop()

**Question 3:** Click on **Go**. What happens?

*The program executes as normal to the end – prompting for user input as it goes.*

**Question 4:** How many times do you have to click **Over**?

*This should be 27 but may vary depending on how accurately they input responses when prompted.*

**Question 5:** Run the program again and click **Over** a couple of times and then click **Go.** What happens?

*Once* ***Go*** *is clicked the program executes to the end as normal.*

**Question 6:** Now run the program and click **Go.** Enter R when prompted by the program. What happens?

*The program starts executing, prompts for input and then stops.*

**Potential Issue:** Sometimes, particularly if code has been cut and paste from a worksheet IDLE doesn’t display the lines of code exactly as they appear to the debugger so the program won’t stop at the breakpoints as expected – or may even not stop at any breakpoint. If this happens it is best to exit the file and then reopen.

**Question 7:** What line have you stopped at?

*This will be line 15 if they cut-and-pasted from the worksheet – otherwise it will depend a bit upon their line space.*

**Question 8:** What is the value of direction?

R

**Ex15**

**Exercise 1:** The two errors are failing to case average to a string and calculating the average using multiplication rather than division.

**Exercise 2:** The exercise loops infinitely because total\_distance never increases. total\_distance should be calculated during the loop using the ulta-sonic sensor (like in Exercise 1).



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