**Virtual Initio Programming: Programs in Files**



**AIM:** After completing this worksheet you should be able to write a Python program using IDLE’s program editor and execute it in IDLE.

**You Need:** To complete this worksheet you need to have a virtual Initio Simulator (see WS1).

**If the simulator isn’t already running:**

Start it (see WS1) and select the Initio robot and default\_world.xml. Now open a new IDLE window.

You can control your virtual Initio by writing commands at the Python command line. However, for longer programs, or programs you wish to run several times this can become tedious. To get around this you can write a Python program in a file.

We are going to consider the following Python program

import simclient.simrobot as initio

initio.init()

initio.forward(10)

initio.setServo(0, -45)

initio.stop()

To write this program we are going to use the editor that comes with IDLE.

Select **File > New File** in IDLE.

Type the program above into this file (make sure you spell everything correctly).

You can save the file using the **File** menu. We suggest you create a folder for your Python programs.

You can execute your program by selecting **Run > Run Module**



Try this now. What happens?



If you are lucky this will have run smoothly.

**IMPORTANT:** if you get an error at this point that says

ModuleNotFoundError: No module named 'simclient.simrobot'

Then you need to add the simulator to the python path called by the file.  **O**pen the file setup\_programming.py using the File menu (you will find setup\_programming.py in the pirover\_simulator folder). Once this file is open select **Run Module** from the **Run** menu.

This will print out the path to the pirover\_simulator.

At the top of your file you now need to add the lines

import sys

sys.path.append(*path\_to\_simulator*)

Where you replace *path\_to\_simulator* with the path that was printed when you ran setup\_programming.py

If the file doesn’t run smoothly (and you don’t have a path problem as described in the box above), you should have received an error message and will need to check your program for spelling errors.

**Exercise:** Modify your program so that it pans the ultrasonic sensor to 45 degrees first, and then moves it back to 0 after the Pi2Go has stopped.

**Remember:** When you have finished working with your robot type:

**initio.cleanup()**

When you want to exit the simulator, select the simulator window and type Q.



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