

# EVE

# tutorials

Introduction to  on EV3  
MicroPython

By Sanjay and Arvind Seshan



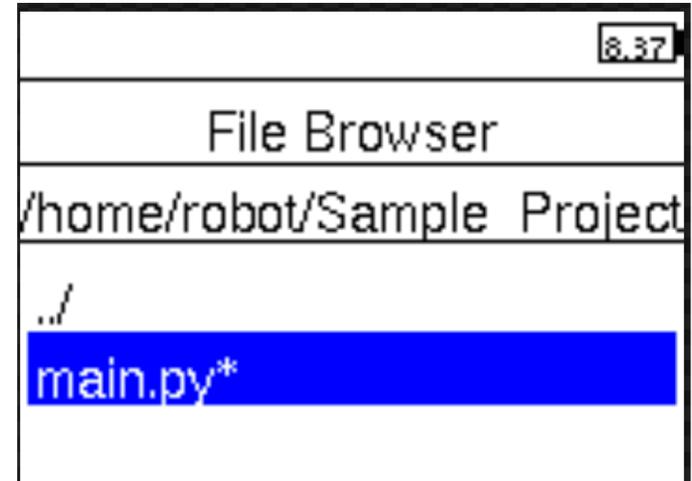
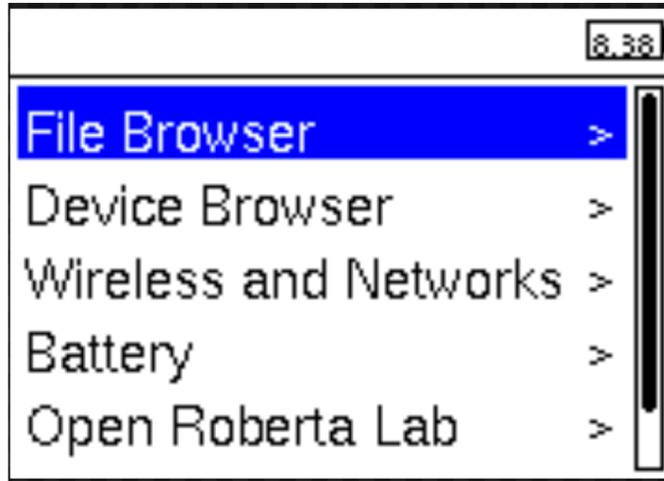
## BEGINNER PROGRAMMING LESSON

# LESSON OBJECTIVES

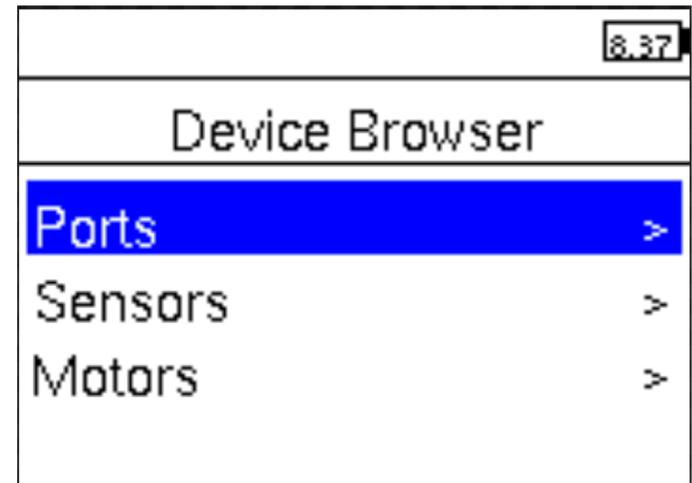
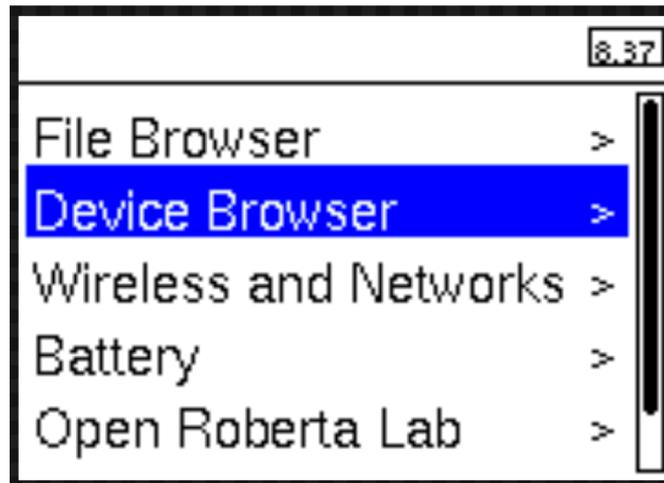
1. Learn about the menu on the screen
2. Learn how to create and download programs

# NAVIGATING THE BRICK MENU

## Finding Programs



## Information about sensors and motors



# NAVIGATING VISUAL STUDIO

Explorer →

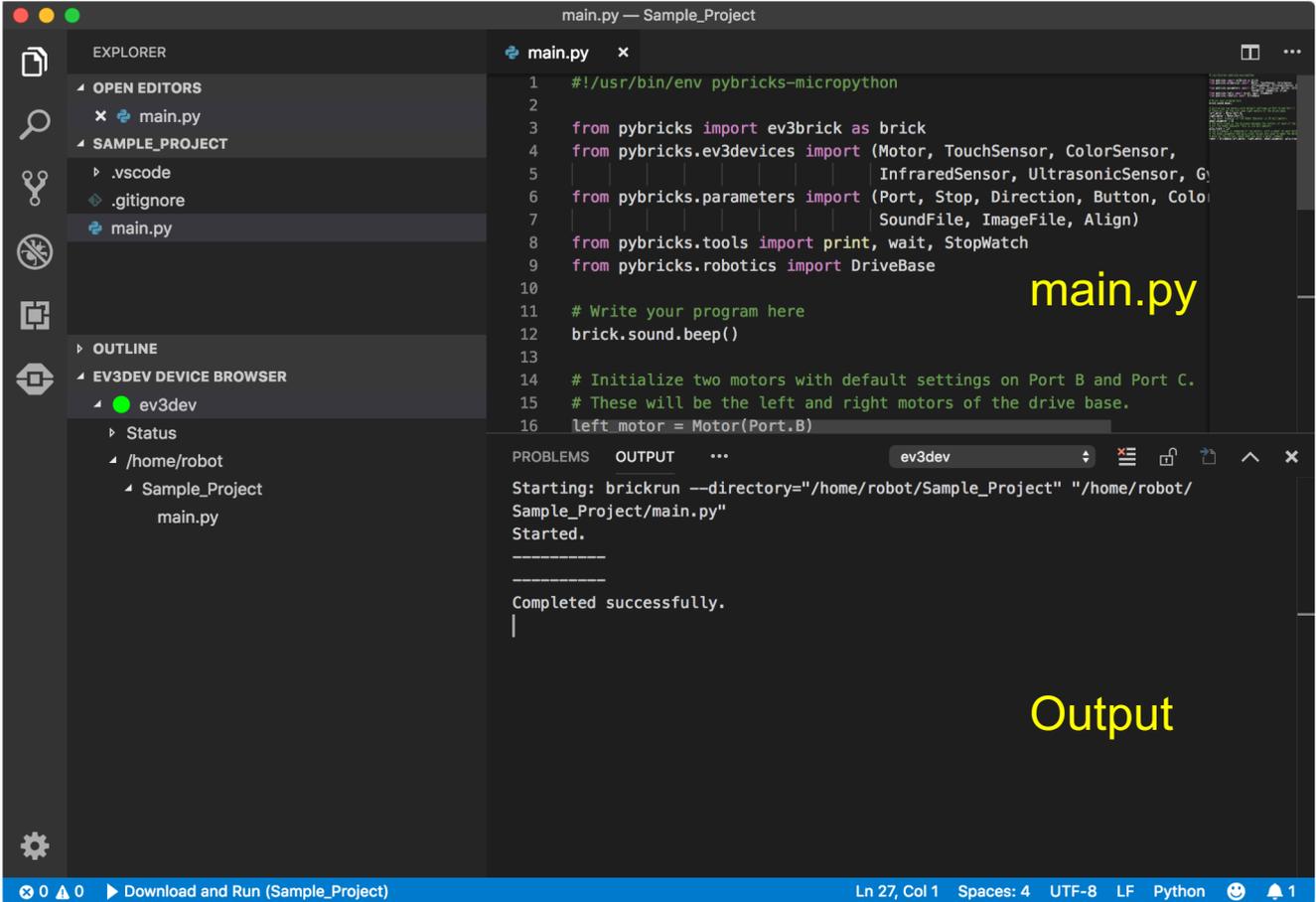
Search →

Source Control →

Debug →

Extensions →

EV3 MicroPython →



The screenshot displays the Visual Studio Code interface. On the left, the Explorer sidebar shows the project structure: OPEN EDITORS (main.py), SAMPLE\_PROJECT (.vscode, .gitignore, main.py), OUTLINE, and EV3DEV DEVICE BROWSER (ev3dev, Status, /home/robot, Sample\_Project, main.py). The main editor window shows the code for main.py, which imports pybricks modules and includes a comment: "# Write your program here". The output window at the bottom right shows the execution results: "Starting: brickrun --directory='/home/robot/Sample\_Project' '/home/robot/Sample\_Project/main.py' Started." followed by "Completed successfully.".

```
1  #!/usr/bin/env pybricks-micropython
2
3  from pybricks import ev3brick as brick
4  from pybricks.ev3devices import (Motor, TouchSensor, ColorSensor, G
5  from pybricks.parameters import (Port, Stop, Direction, Button, Colo
6  from pybricks.tools import print, wait, Stopwatch
7  from pybricks.robotics import DriveBase
8
9
10
11 # Write your program here
12 brick.sound.beep()
13
14 # Initialize two motors with default settings on Port B and Port C.
15 # These will be the left and right motors of the drive base.
16 left_motor = Motor(Port.B)
```

main.py

Output

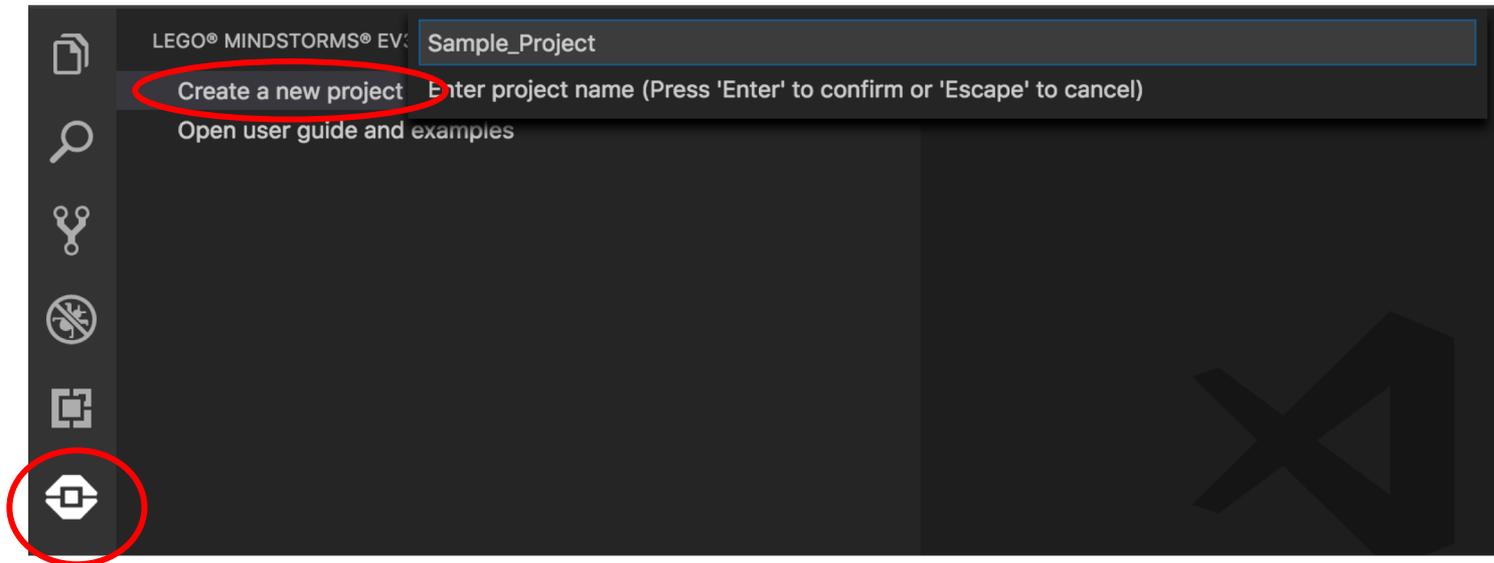
Starting: brickrun --directory="/home/robot/Sample\_Project" "/home/robot/Sample\_Project/main.py" Started.  
-----  
Completed successfully.

# CREATING A PROJECT

Click on the EV3 icon on the left bar

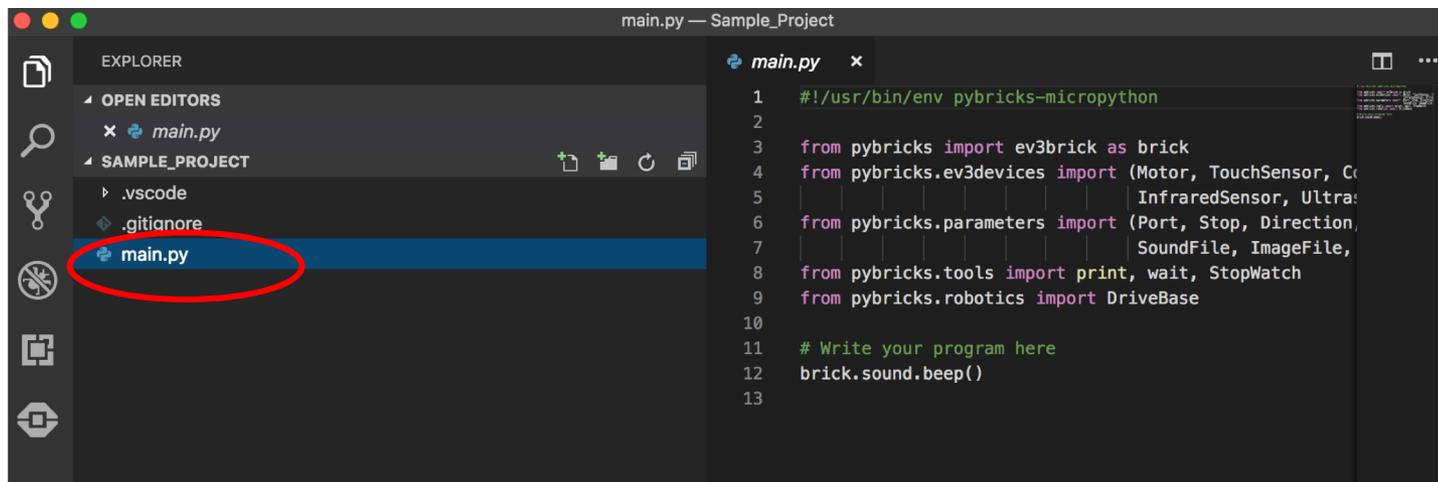
Click on “create a new project”

Enter a project name, choose a location for this project. Below, the name used is Sample\_Project



# START PROGRAMMING

Click on main.py to start programming

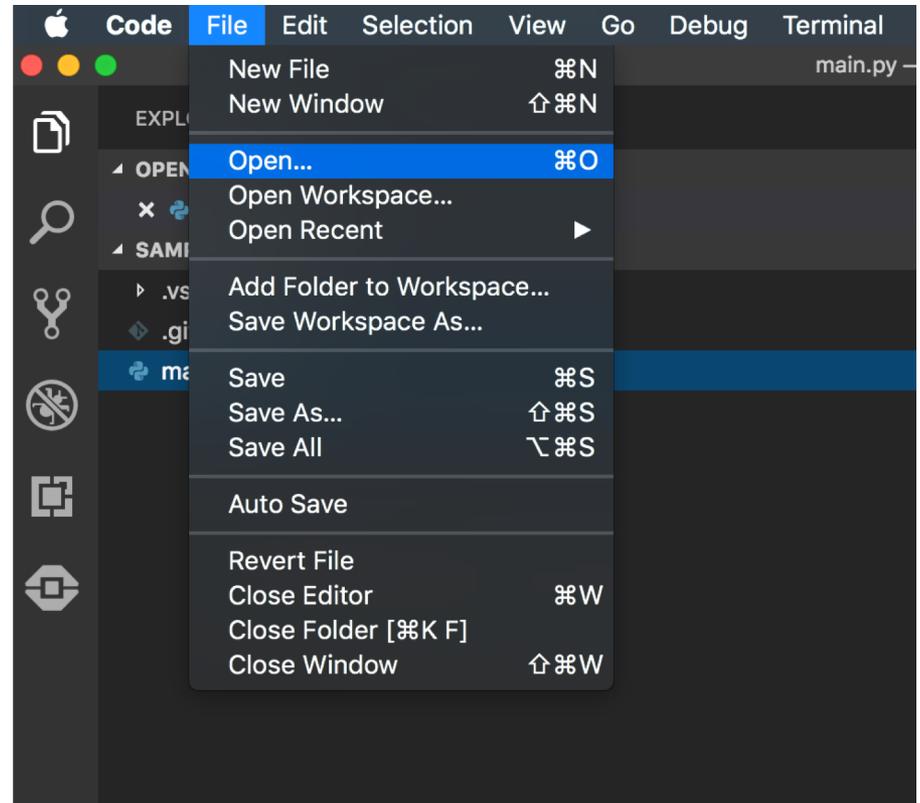


The screenshot shows the Visual Studio Code interface. On the left, the Explorer sidebar displays the project structure. Under the 'SAMPLE\_PROJECT' folder, the file 'main.py' is highlighted in blue and circled in red. The main editor window shows the code for 'main.py'.

```
1  #!/usr/bin/env pybricks-micropython
2
3  from pybricks import ev3brick as brick
4  from pybricks.ev3devices import (Motor, TouchSensor, Co
5  |                               |           InfraredSensor, Ultra
6  from pybricks.parameters import (Port, Stop, Direction,
7  |                               |           SoundFile, ImageFile,
8  from pybricks.tools import print, wait, Stopwatch
9  from pybricks.robotics import DriveBase
10
11 # Write your program here
12 brick.sound.beep()
13
```

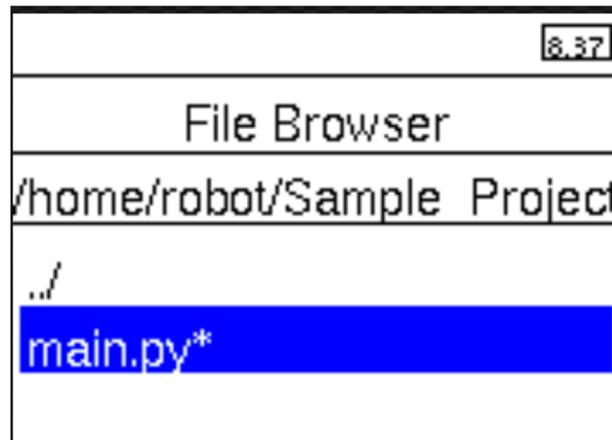
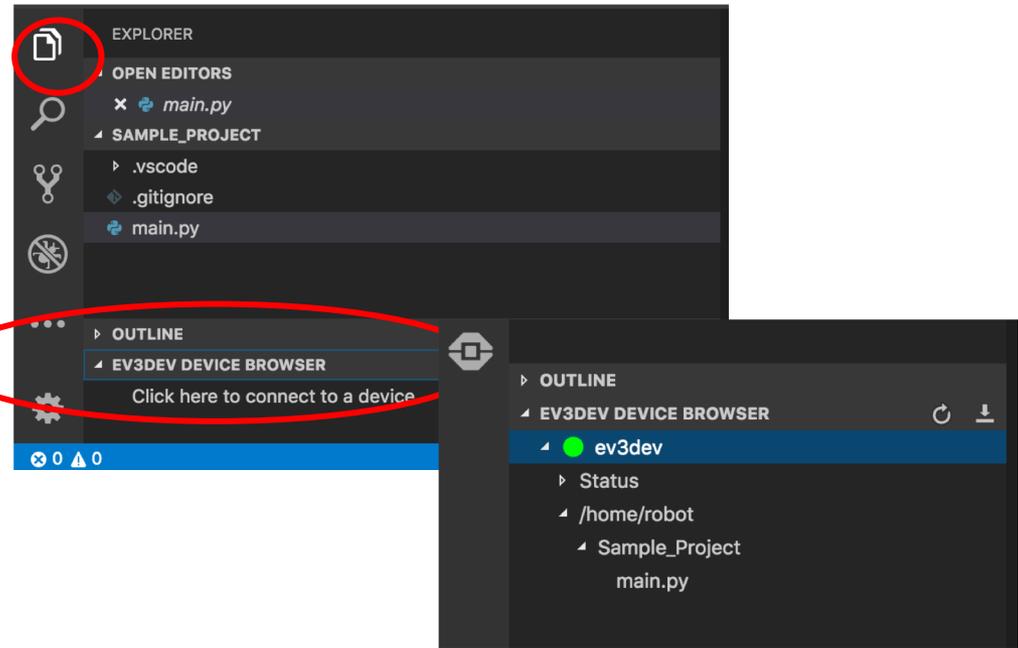
# OPENING A FILE

- To open a project you created previously, click **File** and click **Open Folder**,
- **Select your project folder**



# DOWNLOADING CODE TO EV3

1. To download code to to the EV3 brick, connect your EV3 to the computer with a mini-USB cable
2. Click on the Explorer/File icon on the left bar
3. Click on the EV3Dev Device browser, find your EV3, select the device and click to connect the device
4. To run the code on the brick, find the program using the file browser on the EV3 screen and press the center button on the EV3 to play the code

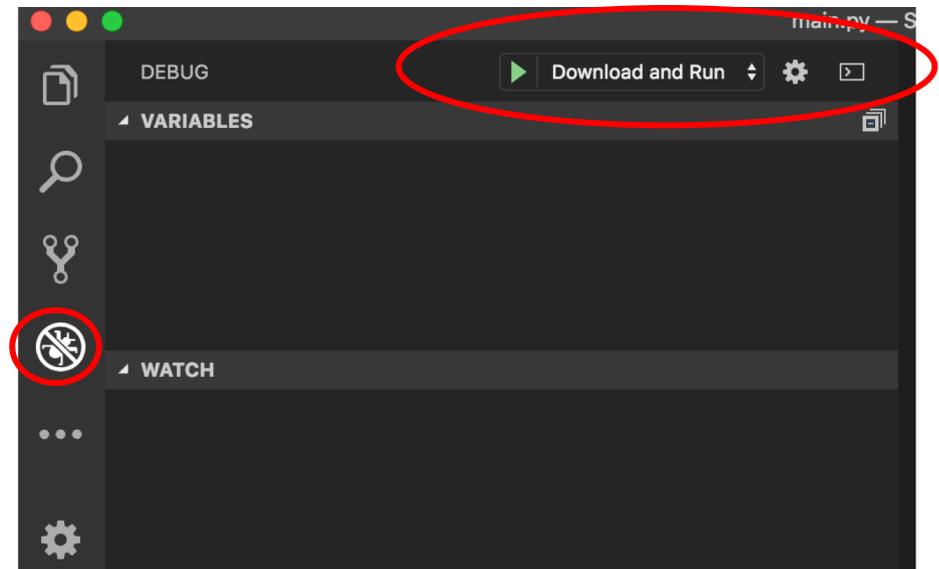
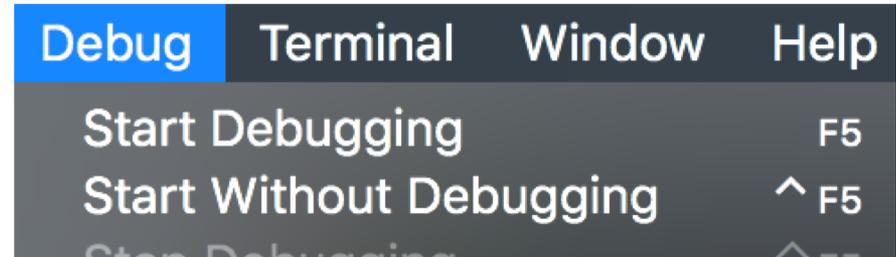


# DOWNLOADING AND RUNNING

To download and play from the computer, press F5

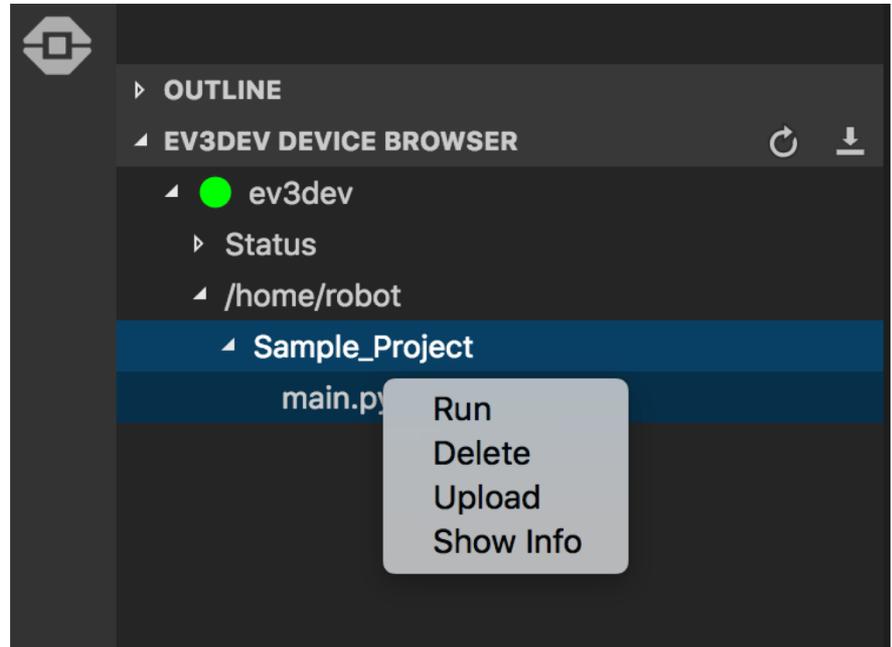
You can also go to the debug tab and press the green arrow next to “Download and Run”

To stop the program use the popup menu or hit the back button on the EV3 brick.



# MANAGING FILES

- The Device Browser area is very useful.
- Once you have downloaded code to your EV3 brick, you can use this menu to run, delete or even copy a file back to your computer!
- Right click on main.py to see the menu options



Note: In EV3-G, there is no way to recover a file that is on your brick but not on your computer. MicroPython lets to copy back code from the EV3 brick back to the computer.

# CREDITS

**Author: Sanjay and Arvind Seshan**

**More lessons are available at [www.ev3tutorials.com](http://www.ev3tutorials.com)**



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