

# FIRIA LABS



## CodeSpace Debugger Explained



The screenshot displays the CodeSpace IDE interface. On the left, a code editor window titled 'Heart1' contains the following Python code:

```
1 from codex import *
2
3 display.show(pics.HEART)
```

A red arrow points to the 'Run' button (a play icon) in the top right corner of the code editor. On the right side of the IDE, a 'Mission 1: Welcome' dialog box is open, featuring the FIRIA LABS logo and the following text:

**Welcome to the CodeSpace Development Environment!**

*A virtual world for exploring robotics with code.*

**We're glad you're here!**

You are about to experience a powerful learning and coding environment:

- Learn to code in **Python** by completing challenging **Missions**.
- Test your real-world programs in *simulation* or on a *physical* device.

**Ready to begin your first Mission?**

- Click the **NEXT** button...

A 'NEXT' button is located at the bottom right of the dialog box. The IDE's status bar at the bottom shows 'Simulated CodeBot Connected', 'Ln 1, Col 1', and control buttons for 'RESET', 'Void Matrix', and 'Rotate'.

## Debugging:

Debugging is fixing your code.

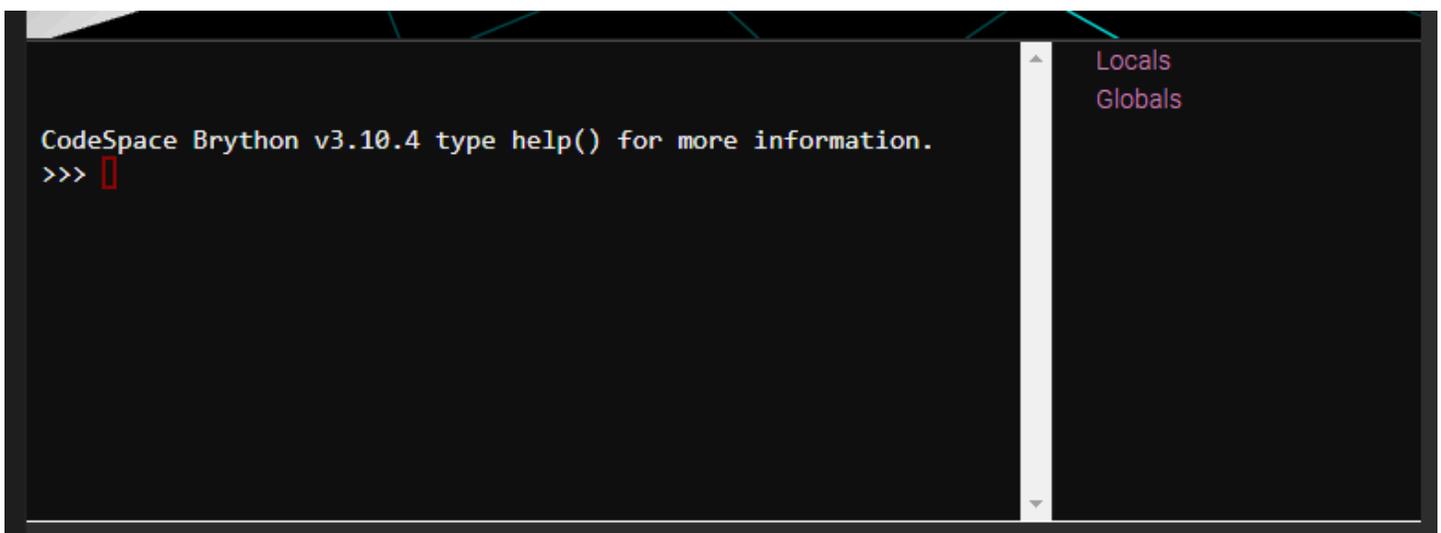
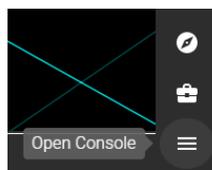
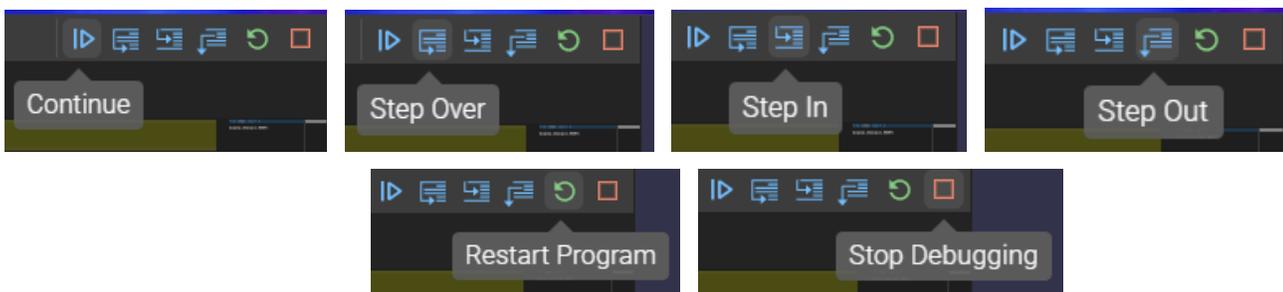
What is a “bug”

When your program doesn't do what you intended, it's called a bug.

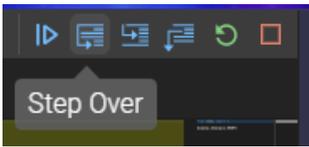
Actually, most of the time the computer is doing exactly what you told it to do! But as a program gets bigger and more complex, it gets harder for us humans to understand. Debugging is the process of understanding what the computer is actually doing, so you can change the code to do what you want it to do.

Debuggers allow stepping through a program and viewing its progress, variables, etc., one line at a time.

## Tools of the Debugger:

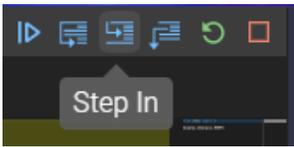


## Step Over Function:



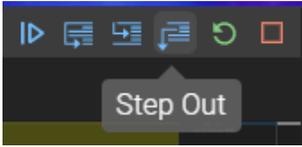
Step over is used to execute all lines of code that are not nested. This would execute each line and functions but not step into debugging each line of a function. It executes the previous line highlighted.

## Step In Function:



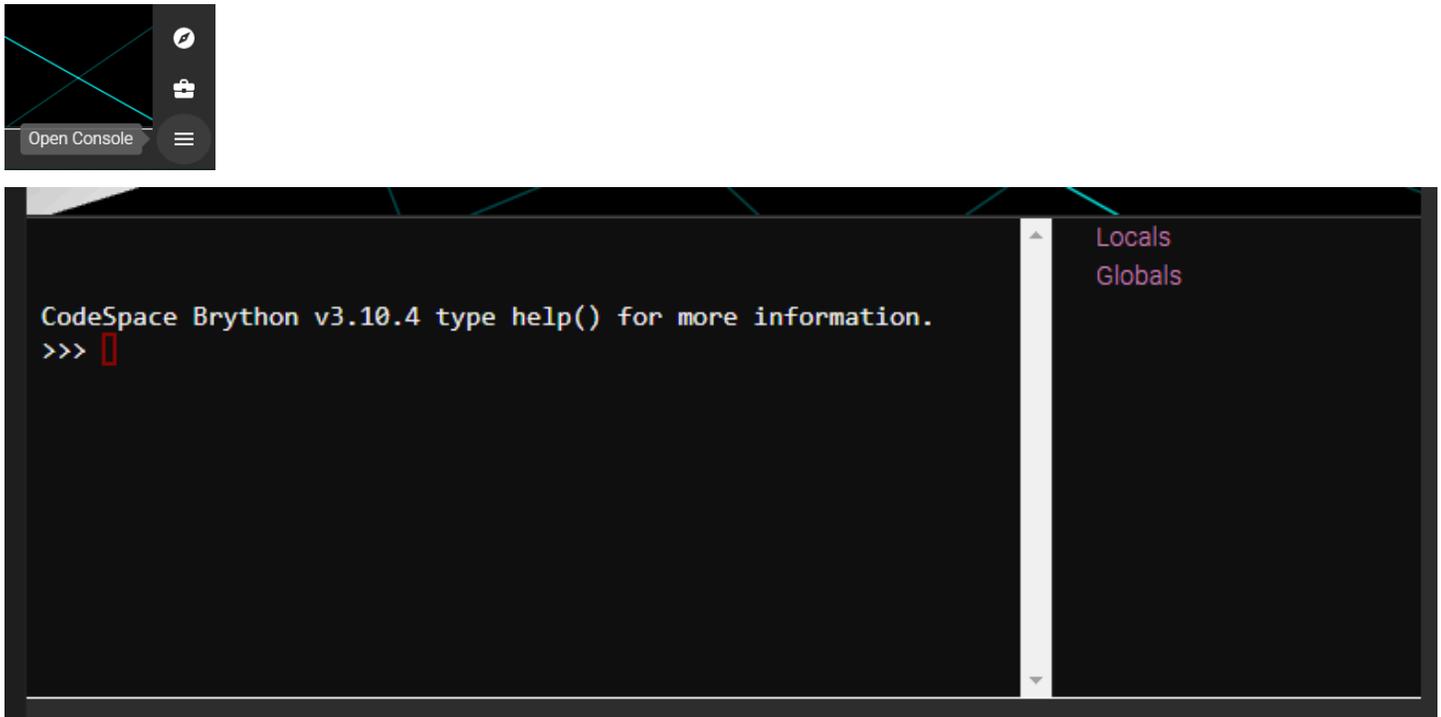
Step in function is used to continue debugging inside of functions. The next line of code is the first line in a function.

## Step Out Function:



Step out function is used when you are ready to leave the debugging of a function and return to the main code. If one function calls another function, step out will return you to the parent function.

## Local and Globals in Terminal:



**In order to see your Locals and Globals, click on the console and they will be on the right side.**

Locals are variables that are created and used only within functions and when the function is stepped out, you no longer see these. This part of the terminal will show you the value of local variables as you step through each function.

Globals are variables that are created in the main code and this part of the terminal will show you the value of the global variables as you step throughout the entire code.