VS Code Debugger: launch.json settings

1.0 The issue

VS Code's debugger in default mode regards the root workspace (e.g., `SI506/`) as the current working directory.

In default mode the debugger recognizes paths relative to the workspace root directory like this:

```
filepath = './lectures/lecture_14/english_regions.txt'
```

The debugger in default mode does not recognize:

```
filepath = 'english_regions.txt'
or
filepath = './english_regions.txt'
```

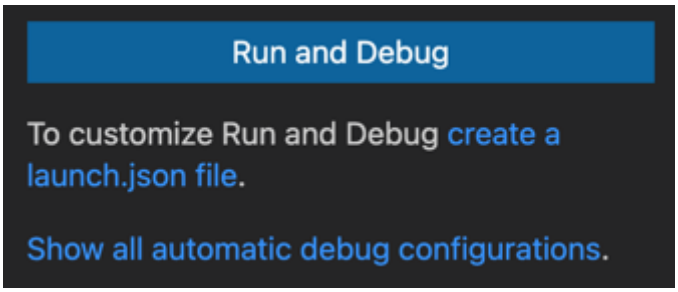
Luckily, we can configure VS Code's debugger to recognize filepaths *relative* to the location of the Python file we wish to debug (e.g., `./lecture_14.py`) by

creating a custom `launch.json` file and adding a `cwd` (current working directory) setting that overrides the default debugger behavior.

! Before embarking on creating a `launch.json` file you *must* first enable VS Code's "Execute in File Dir" terminal setting in order to avoid triggering runtime `FileNotFoundError` exceptions when attempting to run a Python script or program that reads from or writes to `*.txt`, `*.csv` and/or `*.json` files or imports a custom module. See the VS Code install guide for instructions on how to enable the setting.

2.0 The fix

1. Click on the Python file `*.py` that you want to debug. It will open in the editor pane.
2. On the left-hand vertical activity bar click the icon that features a triangular run button and bug.
3. The debugger pane will open. Under the blue "Run and Debug" button click the link "create a launch.json file".

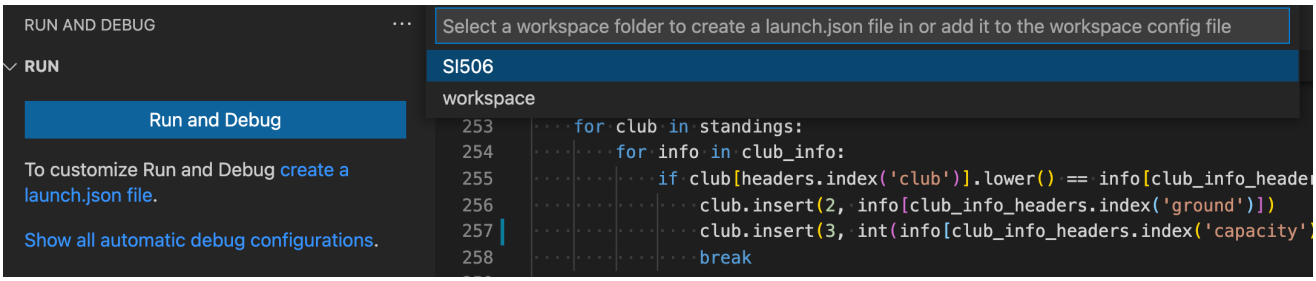


4. A command palette-like dropdown will appear over the editor pane prompting you to select a location for the `launch.json` file:

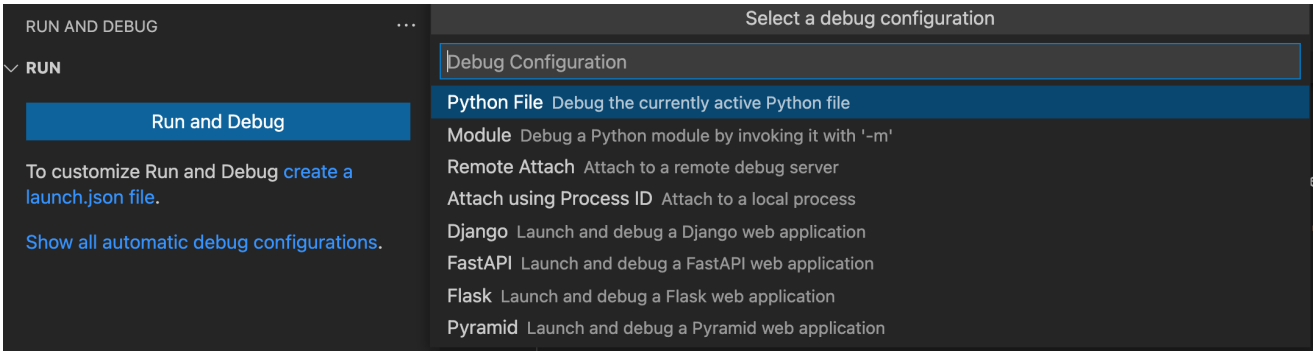
> Select a workspace folder to create a launch.json file in or add it to the workspace config file.

The image below provides two options: the `SI506/` directory or the workspace config file. Either location works for me. That said, I chose the

`SI506/` directory option which results in the creation of a `SI506/.vscode` directory to house the file.



5. Next, you will be prompted to select a debug configuration. Choose "Python File".



6. The `launch.json` file will open in the editor pane after you choose "Python File" as the

```
{
    // Use IntelliSense to learn about possible attributes.
    // Hover to view descriptions of existing attributes.
    // For more information, visit: https://go.microsoft.com/fwlink/?linki
    "version": "0.2.0",
    "configurations": [
        {
            "name": "Python: Current File",
            "type": "python",
            "request": "launch",
            "program": "${file}",
            "console": "integratedTerminal"
```

```
        }
    ]
}
```

7. Add the following key-value pair to the file *between* the "request" and "program" settings. Make sure that you add a trailing comma (,) after you insert the setting key-value pair. Then save the modified `launch.json` file.

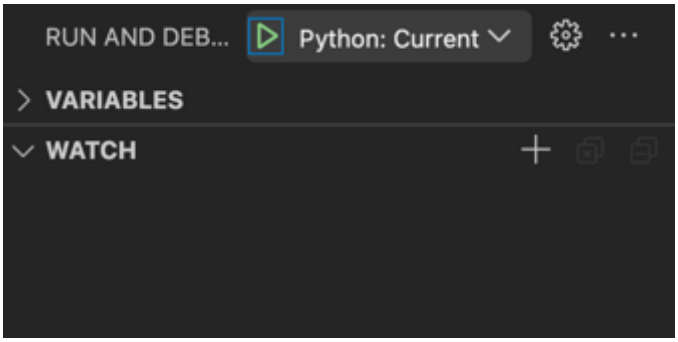
```
"cwd": "${fileDirname}",
```

8. The edited `launch.json` file should look like this:

```
{
    // Use IntelliSense to learn about possible attributes.
    // Hover to view descriptions of existing attributes.
    // For more information, visit: https://go.microsoft.com/fwlink/?linki
    "version": "0.2.0",
    "configurations": [
        {
            "name": "Python: Current File",
            "type": "python",
            "request": "launch",
            "cwd": "${fileDirname}",
            "program": "${file}",
            "console": "integratedTerminal"
        }
    ]
}
```

9. Click "x" on the `launch.json` file tab to close the editor tab.

10. Click the activity bar's debugger icon again to open the debugger pane. You should now see a green triangular run icon at the top of the debugger pane.



11. Click the activity bar's debugger icon again to close the pane.

12. Declare victory. You should be ready to participate in the upcoming debugger demo.

💡 For more information regarding VS Codes's debugger see VS Code's "Debugging" page.