

# Introduction to Thonny

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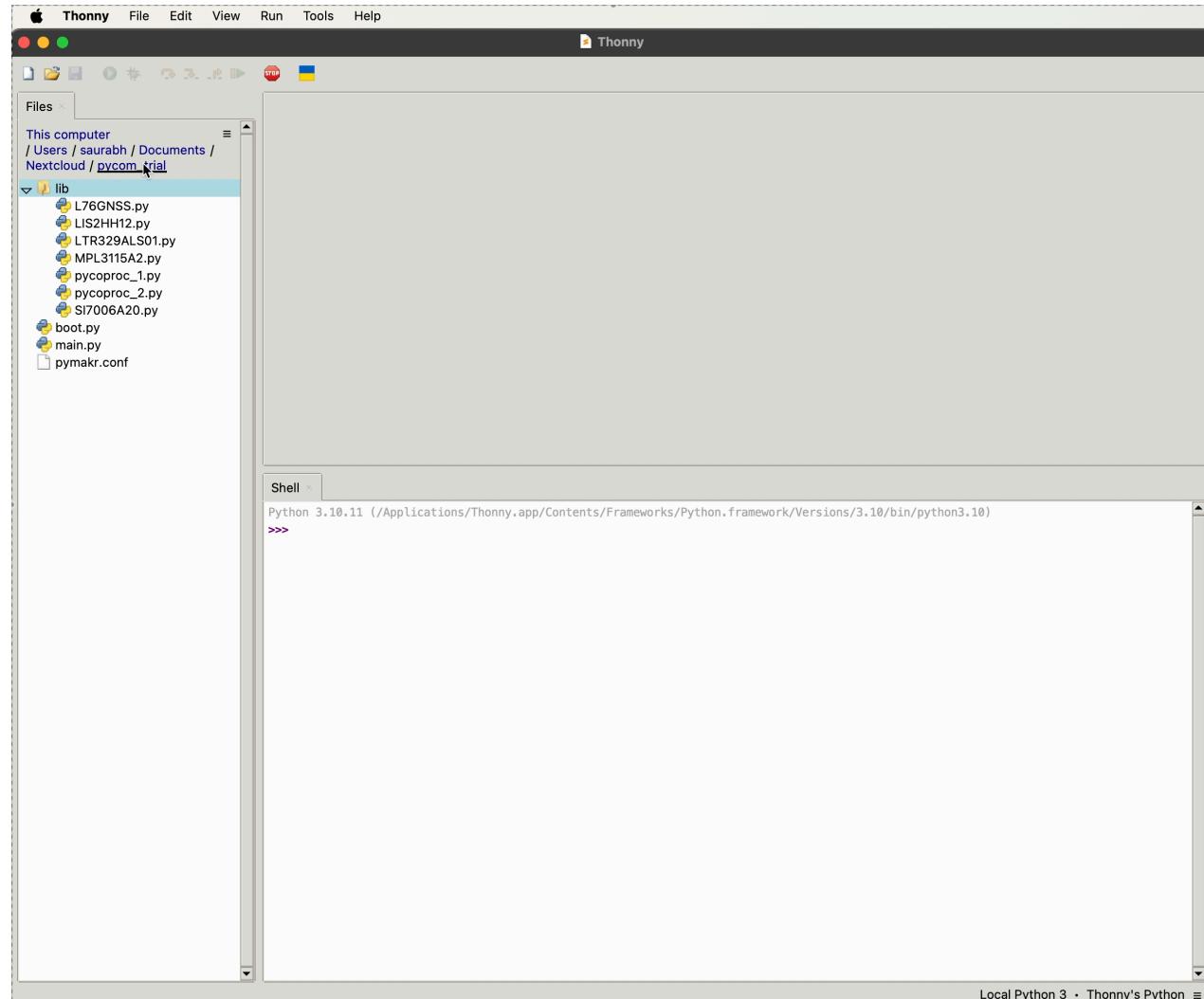
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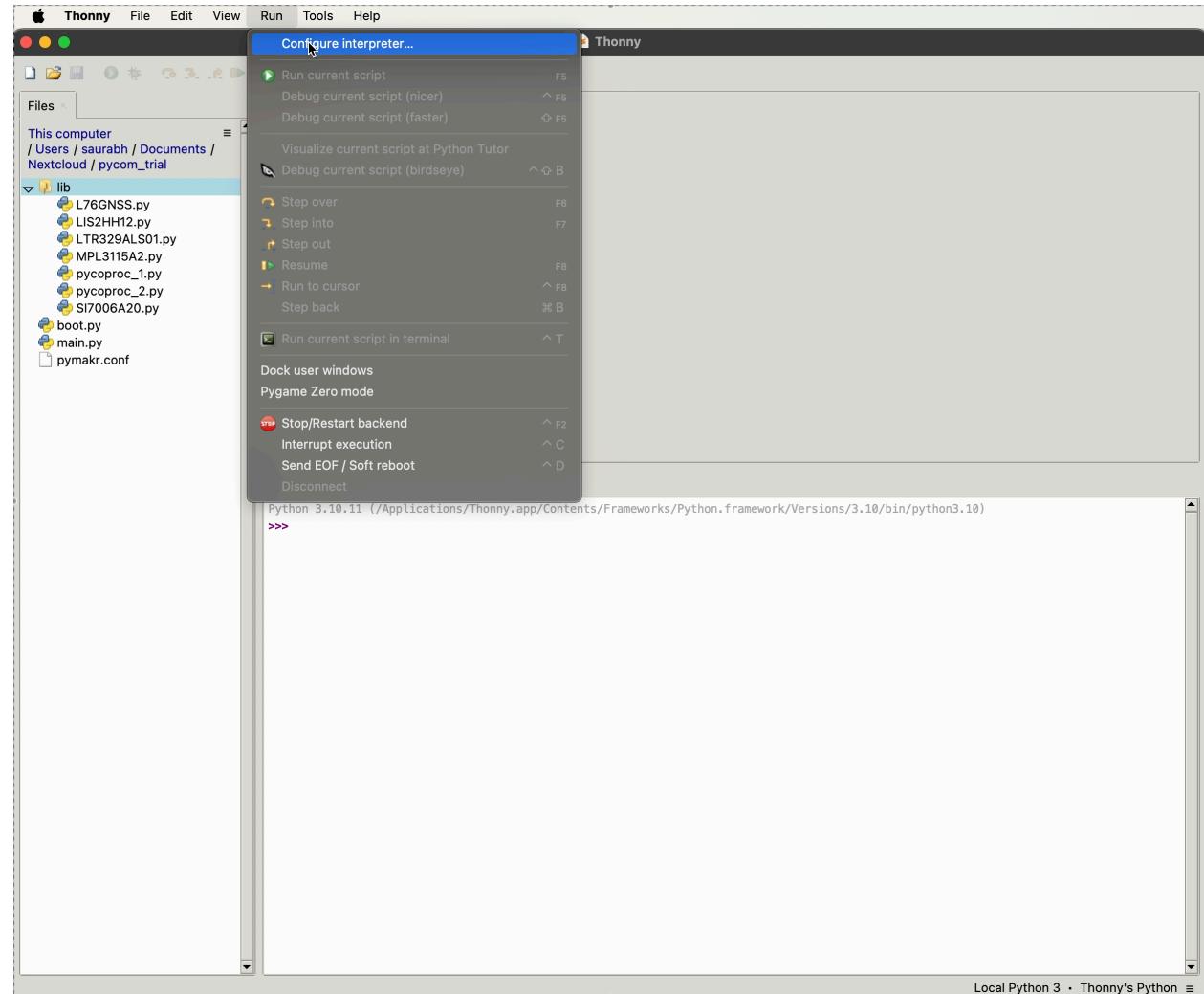
## Open Folder

- Place the provided template files in any folder
- Open this folder in Thonny Workspace
- You can navigate the path by clicking on the directories as shown in the image
- The folder tree should look as shown in the image (i.e. the supporting files should be in 'lib' folder)



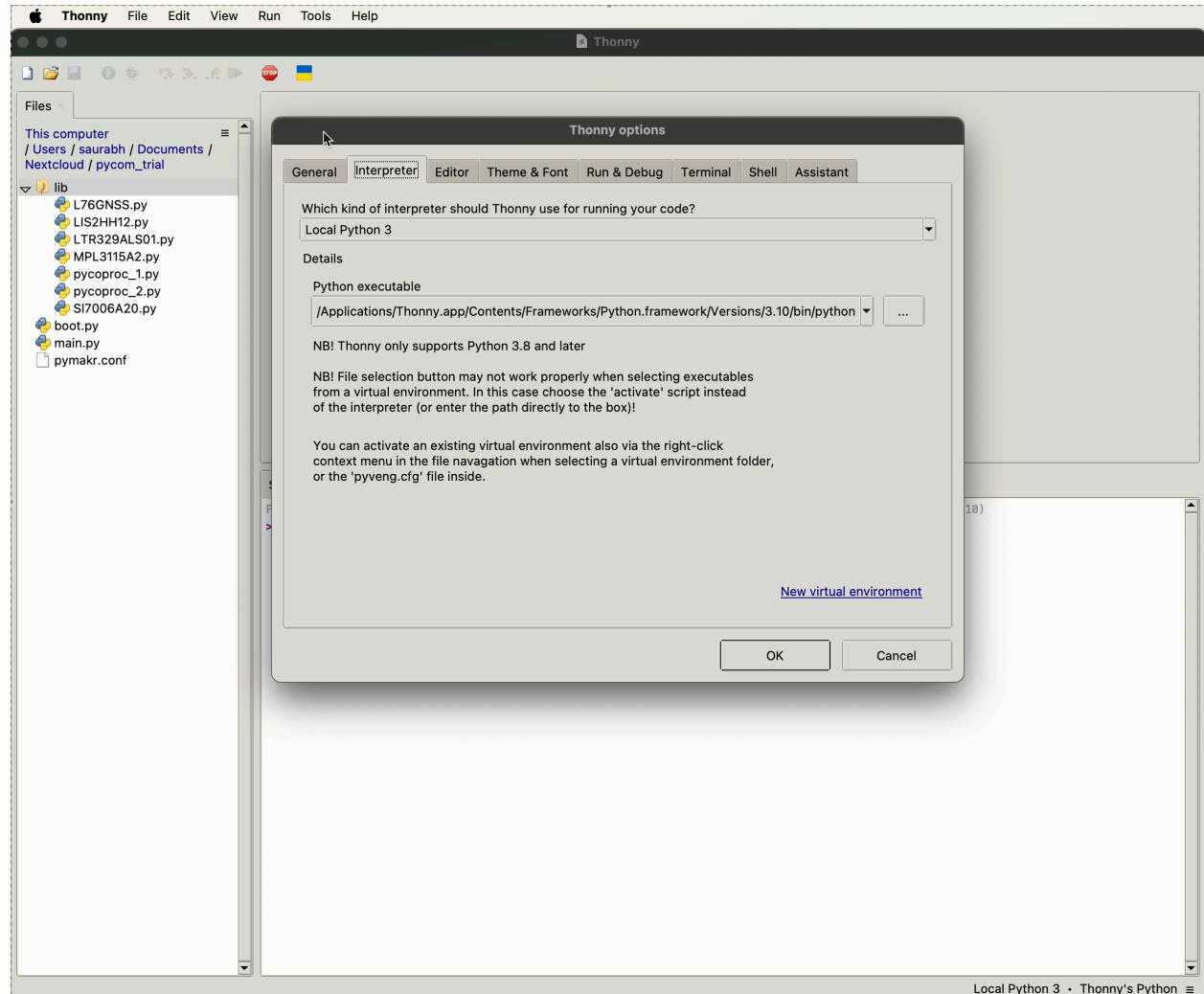
## Connect Board

- Click on **Run → Configure Interpreter**



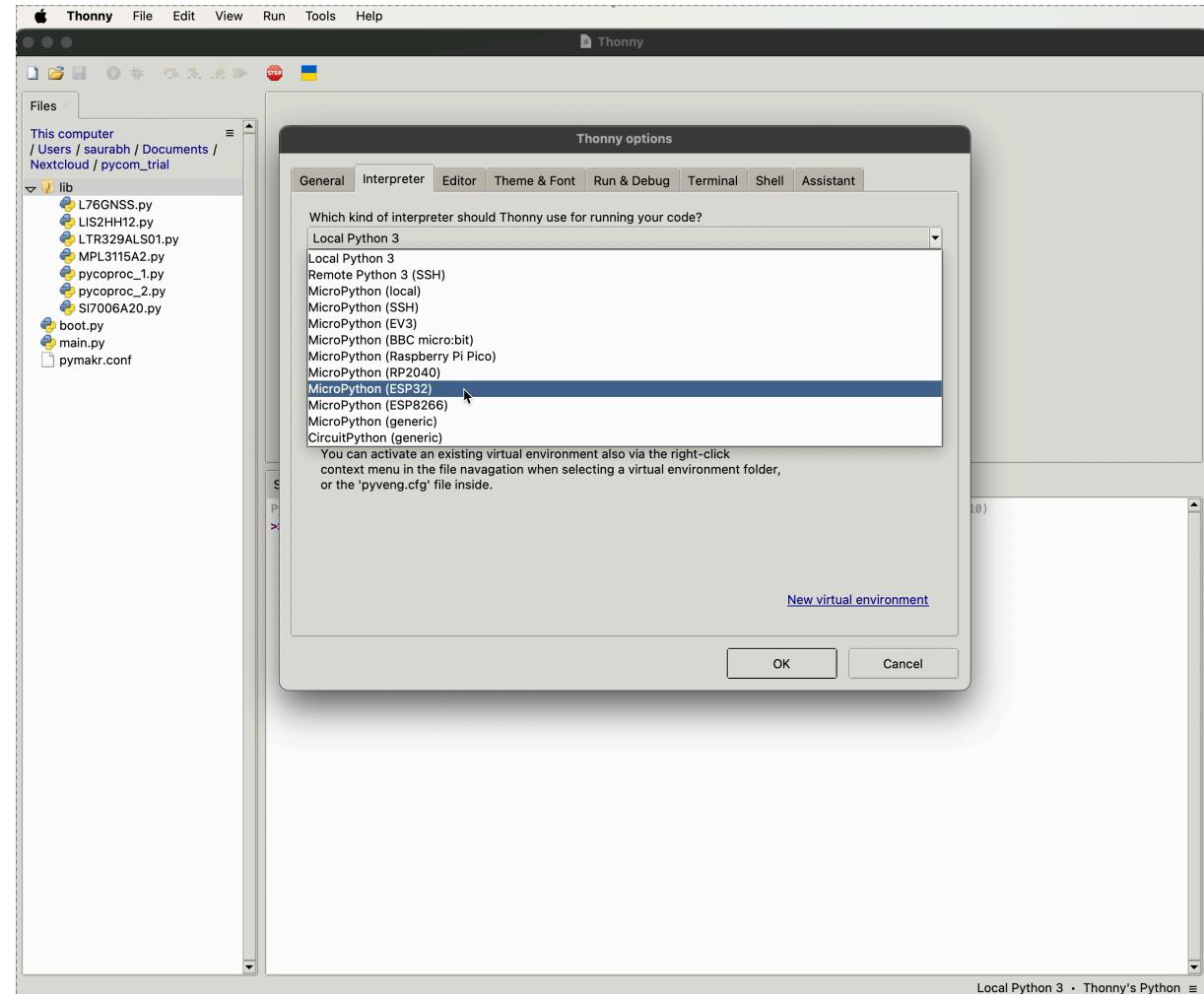
## Connect Board

- The dialog box should appear as shown in the image



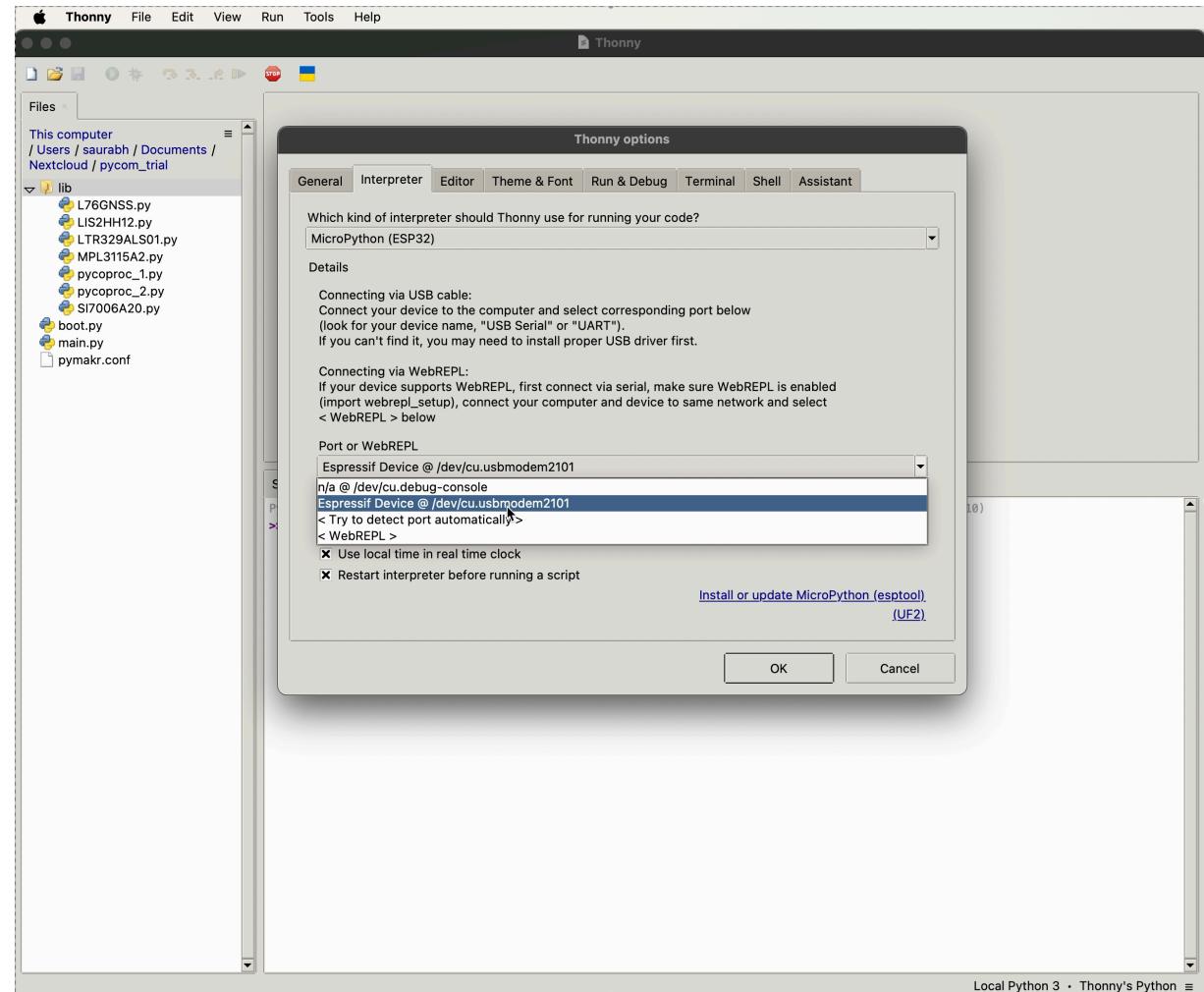
## Connect Board

- In the first drop-box, select **MicroPython (ESP32)**



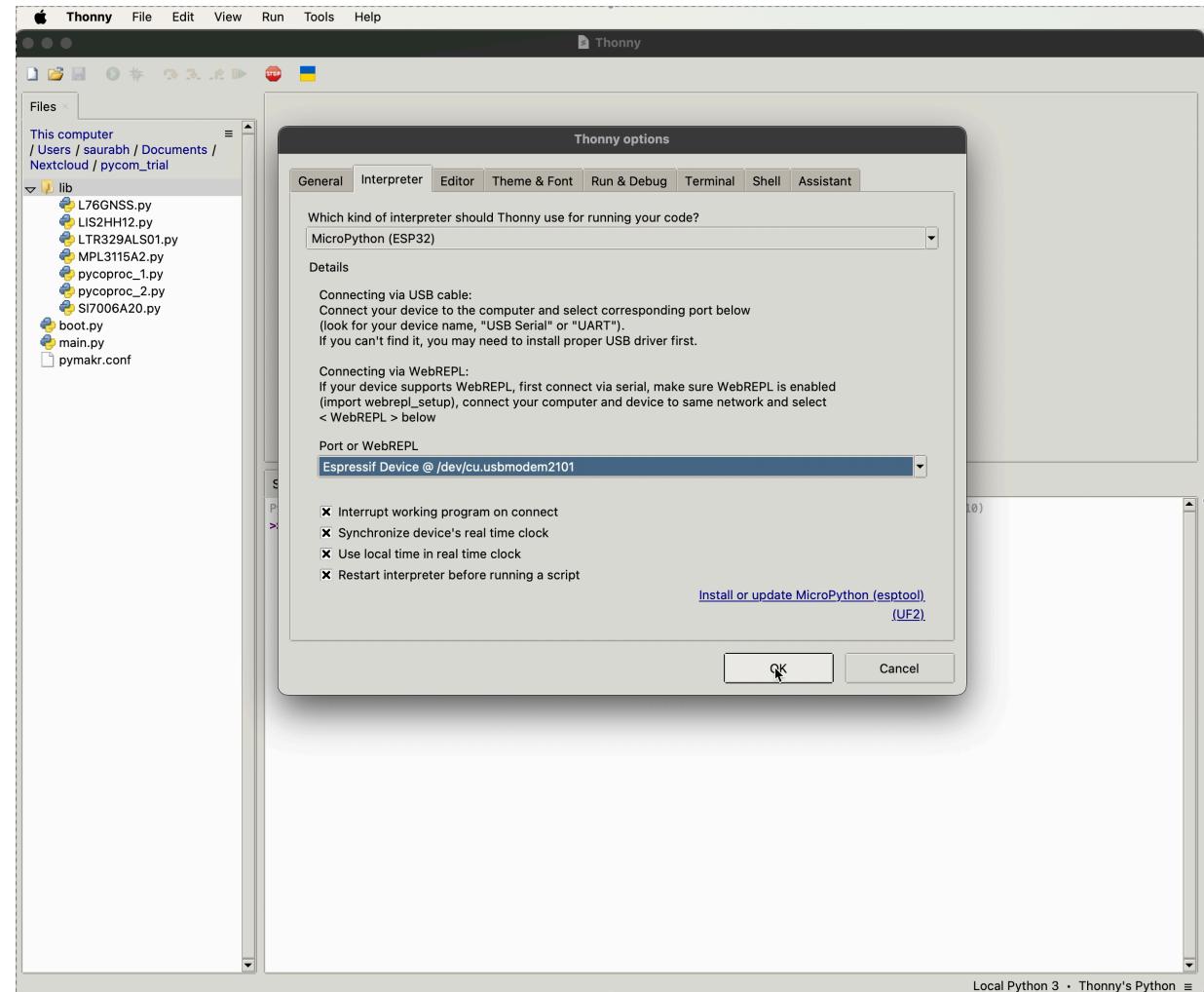
## Connect Board

- In the second drop-box, select appropriate port for the board on your device (eg. **Espressif Device @ xxxx**) as shown in the image



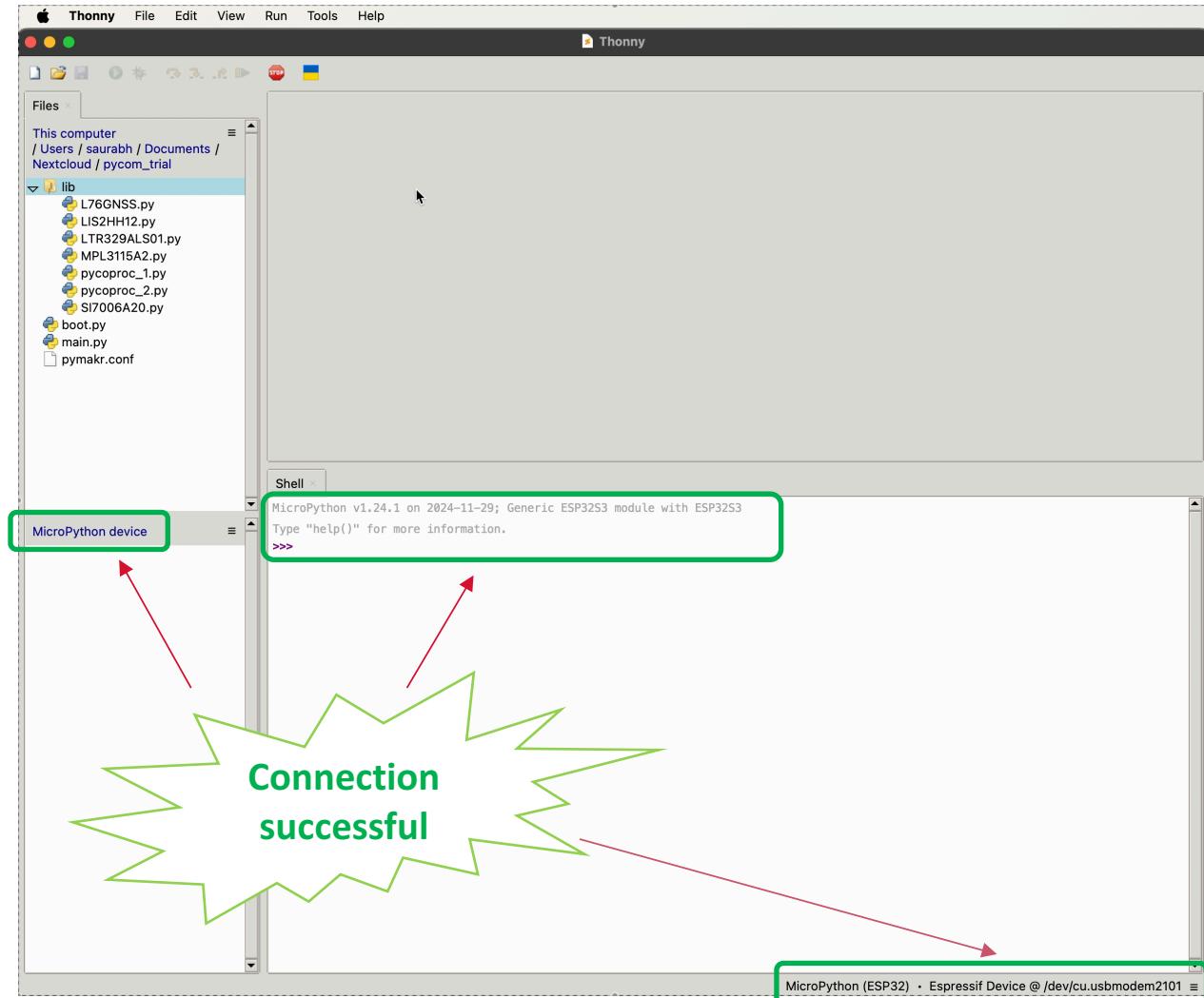
## Connect Board

- Verify if correct options are selected in both drop-boxes and press **OK**



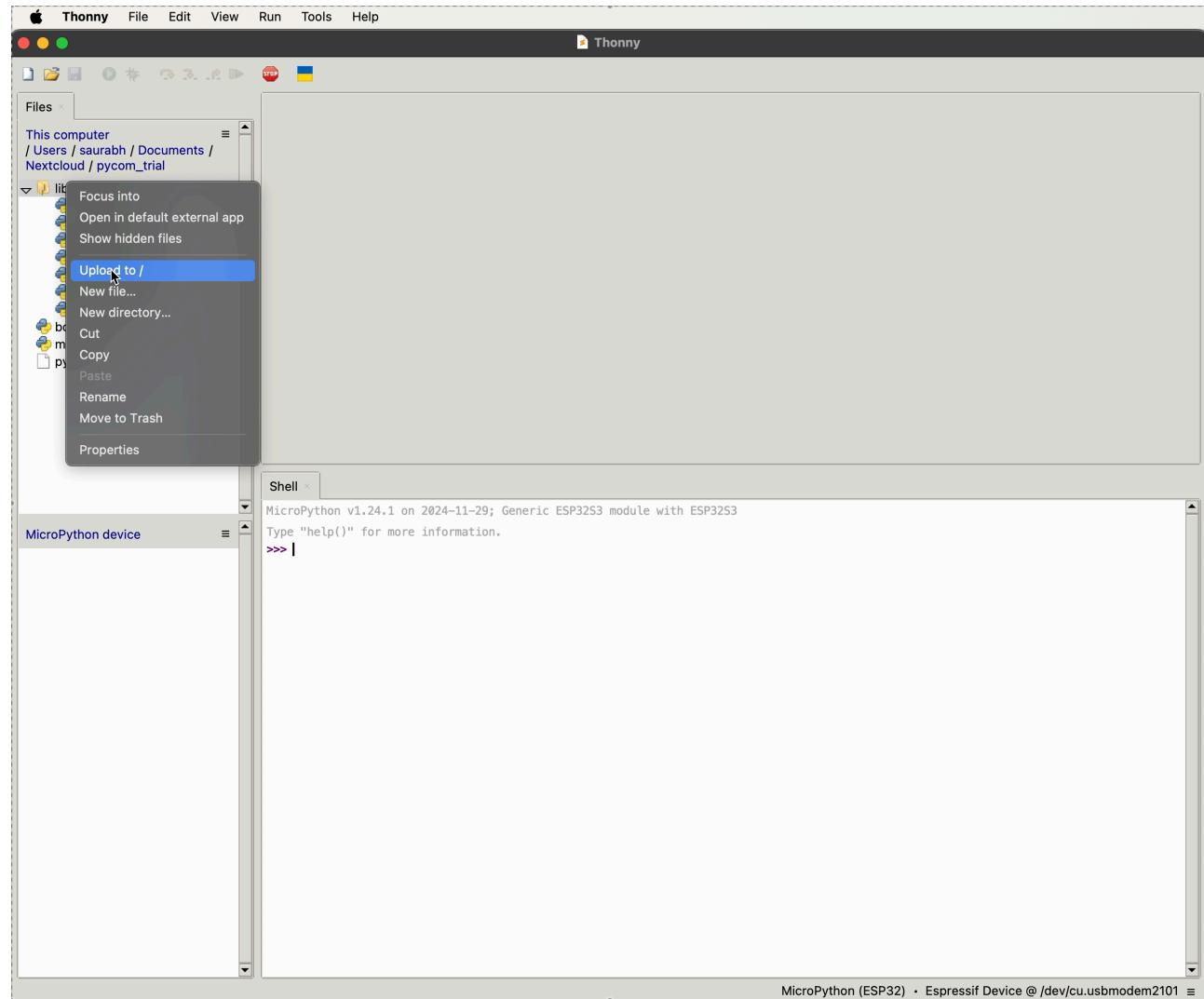
## Verify Connection

- Check for the following changes on your IDE as shown in the image. This indicates that connection is established successfully
- In case of errors, reach out to the Tutor



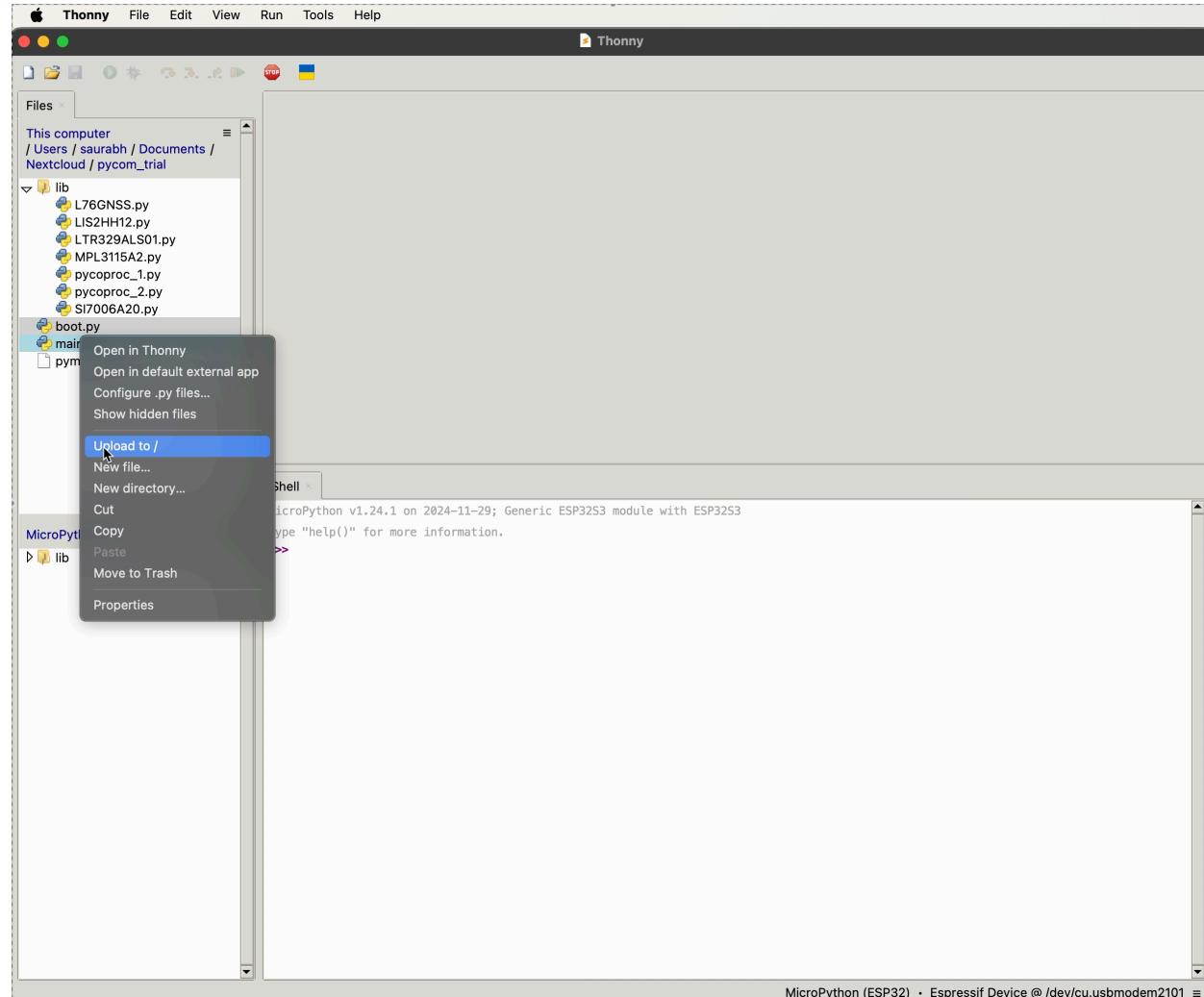
## Upload files and folder

- One thing to note while uploading the files is that the file tree structure should be maintained on the microcontroller as well
- In order to do that we upload the folder first and then the remaining files
- To upload the all the files in the 'lib' folder, **right click on the 'lib'** → **click on 'Upload to/' option**



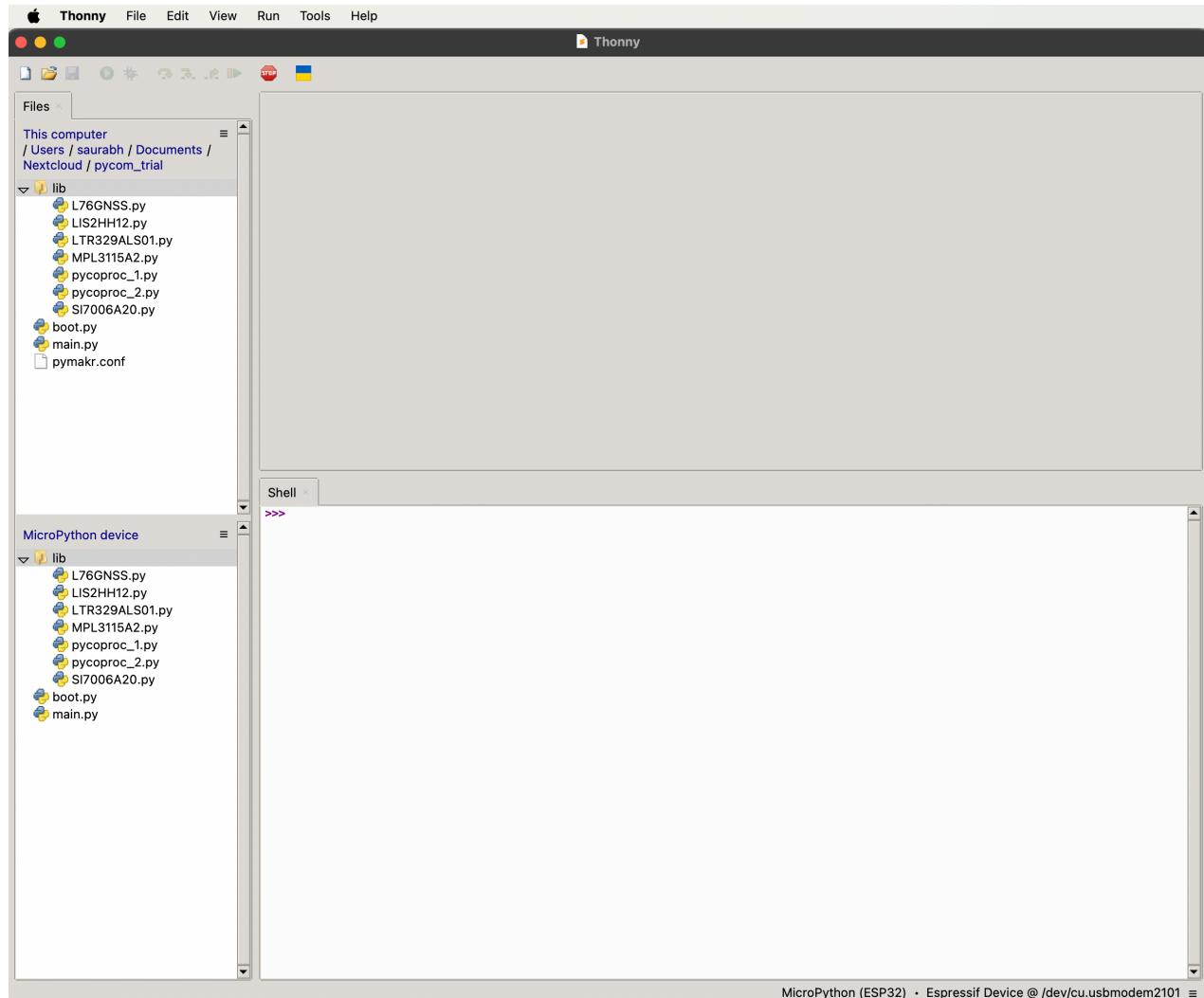
## Upload files and folder

- Then upload the files present outside the 'lib' folder
- To upload the all the files select multiple files by **pressing shift** and clicking on individual files
- Then **right click on the selected files → click on 'Upload to/' option**



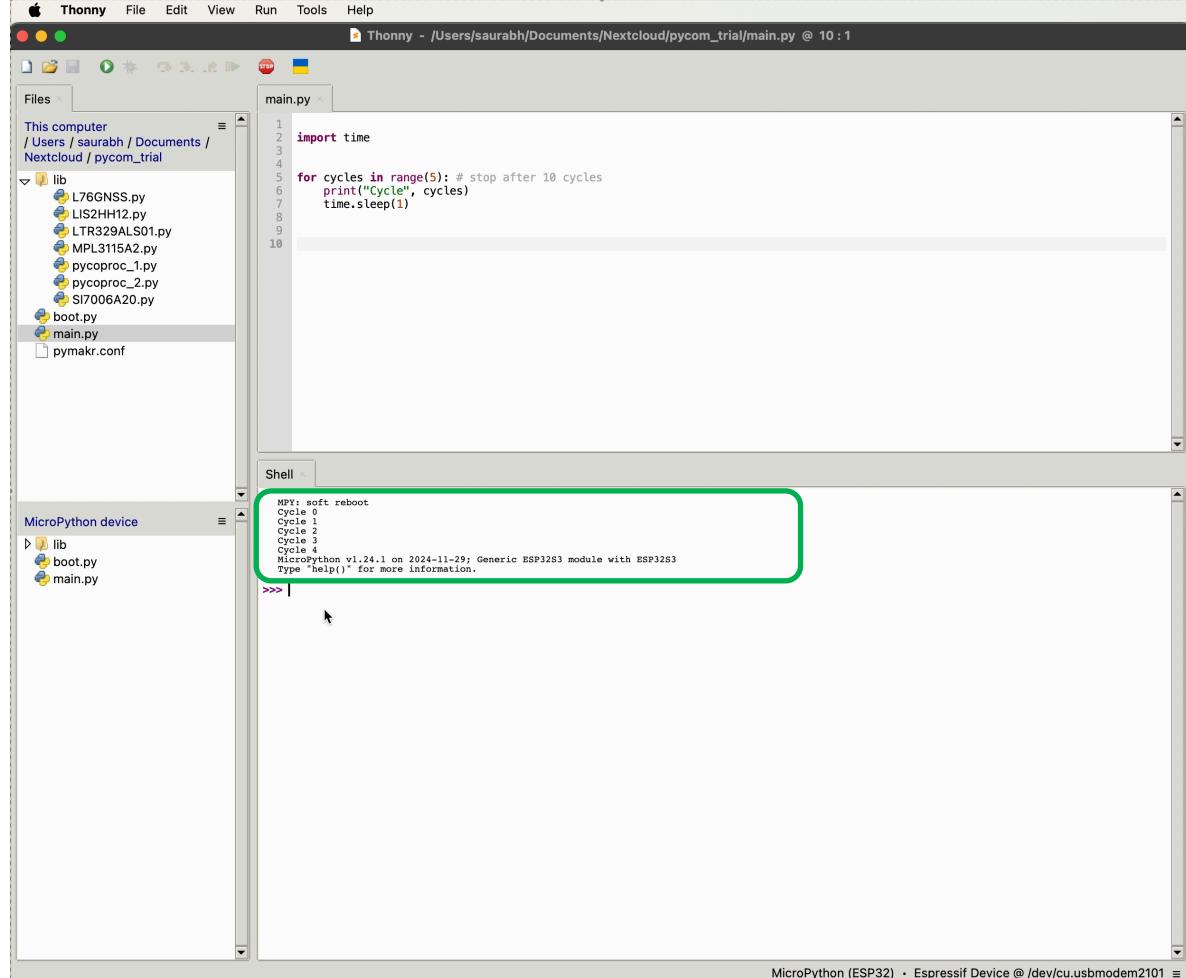
## Verify Uploads

- Once the files are uploaded, verify if the file structure on the microcontroller (lower window), matches with the one on your device (upper window)
- In case, it does not match i.e. all the files are in the lib or if multiple files are present inside and outside folder, then delete all the files on microcontroller and upload files again
- To **delete files** from microcontroller, **right click on the file and select delete**



## Verify Uploads

- Reset the board to run the ‘main.py’
- Press **ctrl+D**, to soft-reset the board
- This should run the main.py present on microcontroller, and display the output in Shell as shown in the image.
- It will also toggle the LED (D6) on the board



The screenshot shows the Thonny IDE interface. The top menu bar includes File, Edit, View, Run, Tools, and Help. The title bar indicates "Thonny - /Users/saurabh/Documents/Nextcloud/pycom\_trial/main.py @ 10 : 1". The left sidebar shows a file tree with "This computer" pointing to "/Users /saurabh /Documents /Nextcloud/pycom\_trial", which contains a "lib" folder with several Python files like L76GNSS.py, LIS2HH12.py, etc., and a "main.py" file. Below the file tree is a "MicroPython device" section with a "lib" folder containing "boot.py" and "main.py". The main workspace has two tabs: "main.py" and "Shell". The "main.py" tab displays the following code:

```
1 import time
2
3
4 for cycles in range(5): # stop after 10 cycles
5     print("Cycle", cycles)
6     time.sleep(1)
```

The "Shell" tab shows the output of the script execution:

```
MPY: soft reboot
Cycle 0
Cycle 1
Cycle 2
Cycle 3
Cycle 4
MicroPython v1.24.1 on 2024-11-29; Generic ESP32S3 module with ESP32S3
Type "help()" for more information.
```

A green rectangular box highlights the output text in the Shell tab.

## Summary

- In this setup tutorial, you have learned:
  - To setup IDE
  - Establish connection with the development board
  - Upload the code to the board

**Note:**

- During the experiment, you need to **save** and **upload** the code to the board every time you make any changes.
- After uploading the code, don't forget to restart in order to run the new code on the board

- Only if you have completed this setup successfully, you move on to the actual experiment. Replace the files in your workplace on your local machine with the **Template files** for the experiment.