CEC Continuing Education Center

DesignNews

Raspberry Pi Pico/Pico2 Development Using Visual Studio Code

Day 2:

Day of the Snake

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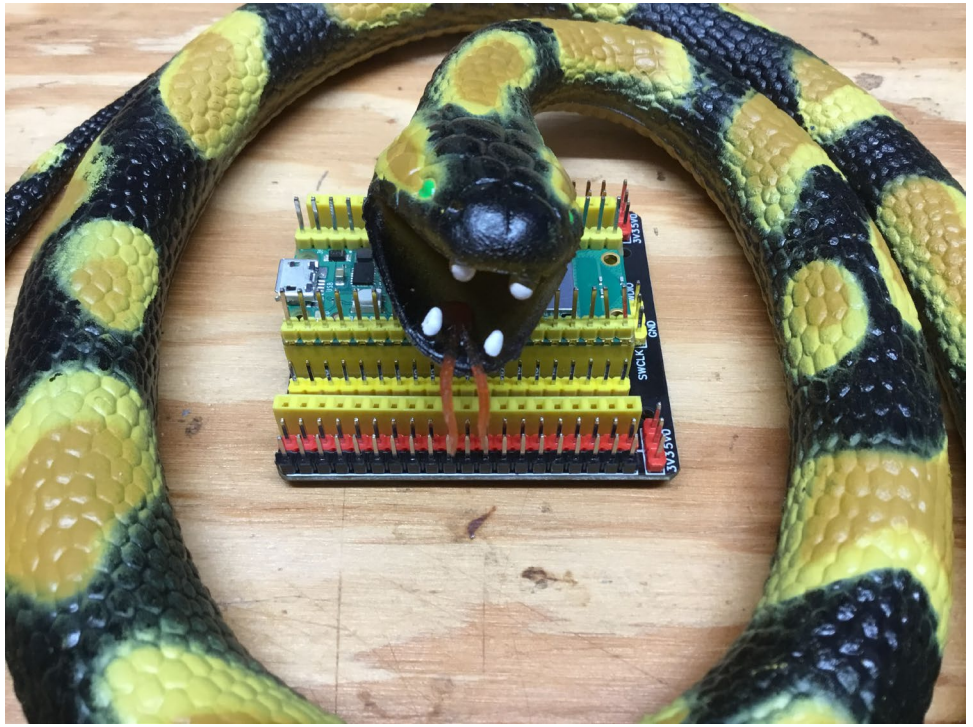
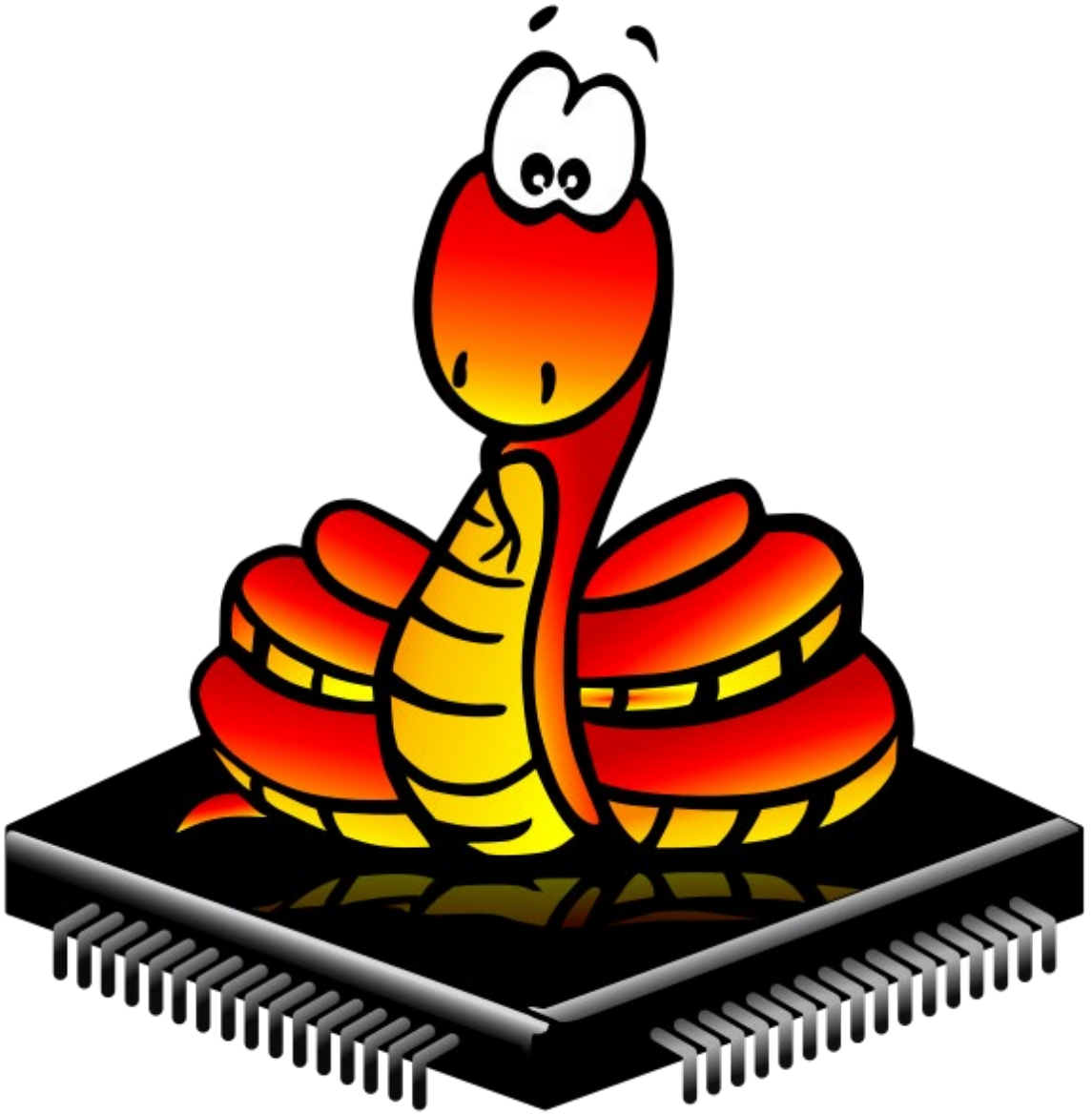


Fred Eady

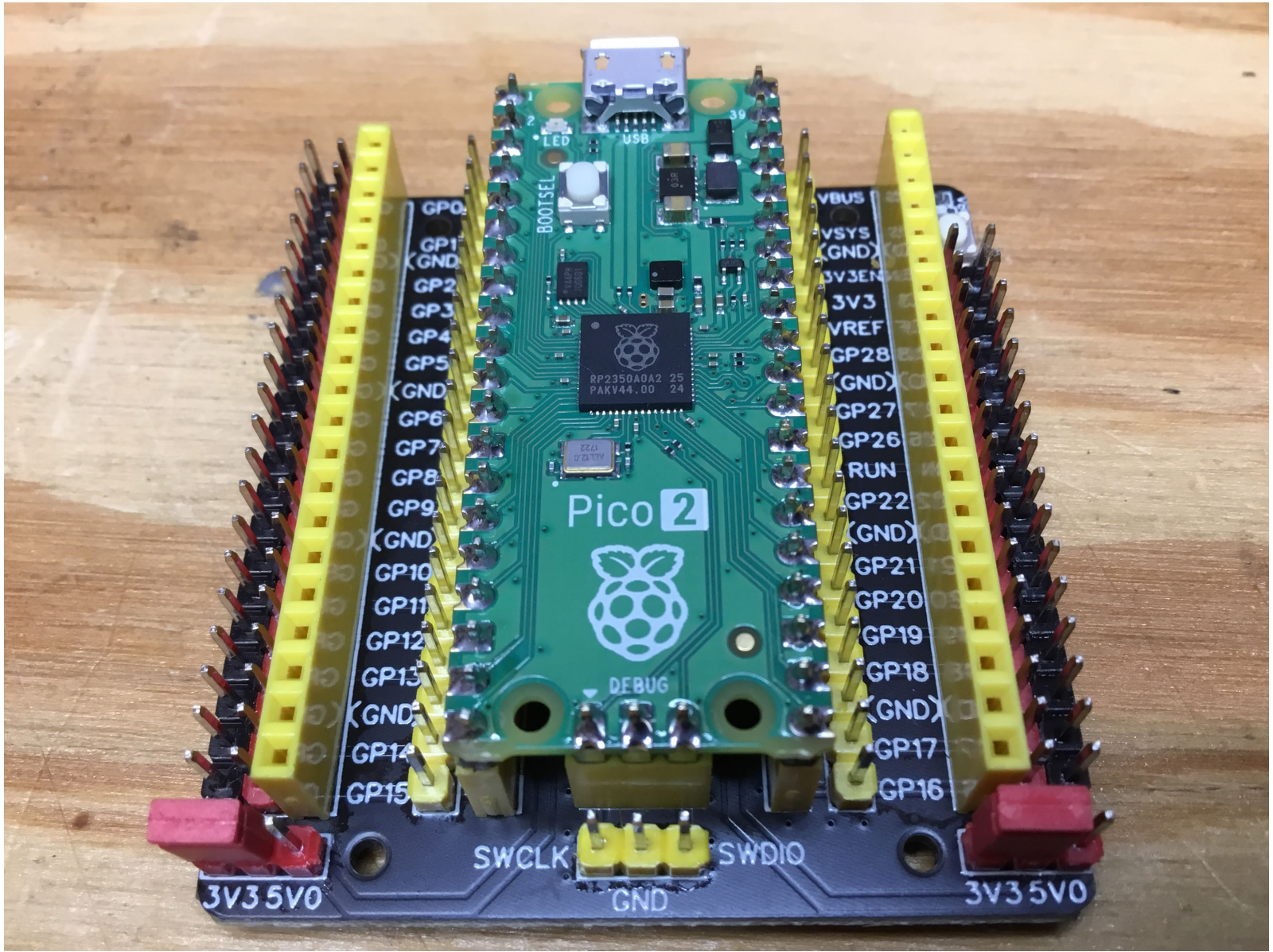
Visit ‘Lecturer Profile’ in your console for more details.

AGENDA

- Snake Handling 101
  - Catch the Snake
  - Feed the Snake
  - Charm the Snake



Catch the Snake



Train the Snake - Install MicroPython

MicroPython DOWNLOAD DOCS DISCORD DISCUSSIONS WIKI STORE

MicroPython downloads

MicroPython is developed using git for source code management, and the master repository can be found on GitHub at github.com/micropython/micropython.

The full source-code distribution of the latest version is available for download here:

- micropython-1.24.1.tar.xz (83MiB)

Daily snapshots of the GitHub repository (not including submodules) are available from this server:

- micropython-master.zip
- pyboard-master.zip

Firmware for various microcontroller ports and boards are built automatically on a daily basis and can be found below.

Filter by:
Port: cc3200, esp32, esp8266, mimxrt, nrf, renesas-ra, rp2, samd, stm32
Feature: Audio Codec, BLE, Battery Charging, CAN, Camera, DAC, Display, Dual-core, Environment Sensor, Ethernet, External Flash, External RAM, Feather, IMU, JST-PH, JST-SH, LoRa, Microphone, PoE, RGB LED, SDCard, Secure Element, USB, USB-C, WiFi, microSD, mikroBUS
Vendor: Actinius, Adafruit, Arduino, BBC, Espressif, Espruino, Fez, George Robotics, HydraBus, I-SYST, LEGO, LILYGO, Laird Connectivity, LimiFrog, M5 Stack, M5Stack, Makerdiary, McHobby, Microchip, MikroElektronika, MiniFig Boards, NXP, Netduino, Nordic Semiconductor, OLIMEX, PJRC, Particle, Pimoroni, Pololu, Pycom, Raspberry Pi, Renesas Electronics, ST Microelectronics, Seeed Studio, Silicognition, Silicognition LLC, Sparkfun, Unexpected Maker, VCC-GND Studio, Vekatech, WeAct, WeAct Studio, Wemos, Wireless-Tag, Wiznet, nullbits, u-blox
MCU: RA6M5, cc3200, esp32, esp32c3, esp32c6, esp32s2, esp32s3, esp8266, mimxrt, nrf51, nrf52, nrf91, ra4m1, ra4w1, ra6m1, ra6m2, ra6m3, rp2040, rp2350, samd21, samd51, stm32f0, stm32f4, stm32f411, stm32f7, stm32g0, stm32g4, stm32h5, stm32h7, stm32l0, stm32l1, stm32l4, stm32wb, stm32wl

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MCU: rp2350 [x]

Click to Download MicroPython

Pico 2
Raspberry Pi

Pico 2 W
Raspberry Pi

Pro Micro RP2350
Sparkfun

Train the Snake - Install MicroPython

Vendor: Raspberry Pi
Features: Dual-core, External Flash, USB
Source on GitHub: rp2/RPI_PICO2
More info: Website

Installation instructions

Flashing via UF2 bootloader

To get the board in bootloader mode ready for the firmware update, execute `machine.bootloader()` at the MicroPython REPL. Alternatively, hold down the BOOTSEL button while plugging the board into USB. The uf2 file below should then be copied to the USB mass storage device that appears. Once programming of the new firmware is complete the device will automatically reset and be ready for use.

Firmware

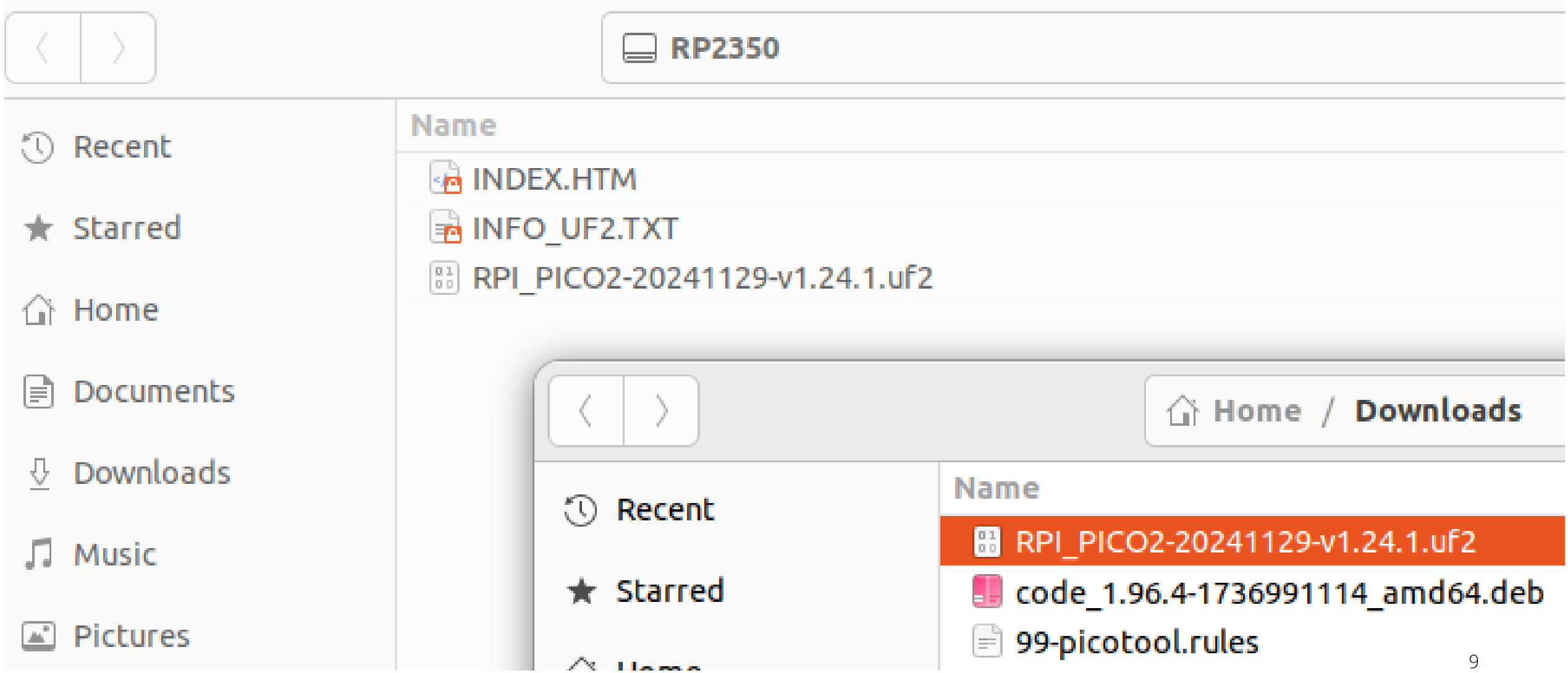
Releases

v1.24.1 (2024-11-29) .uf2 / [Release notes] (latest)
v1.24.0 (2024-10-25) .uf2 / [Release notes]

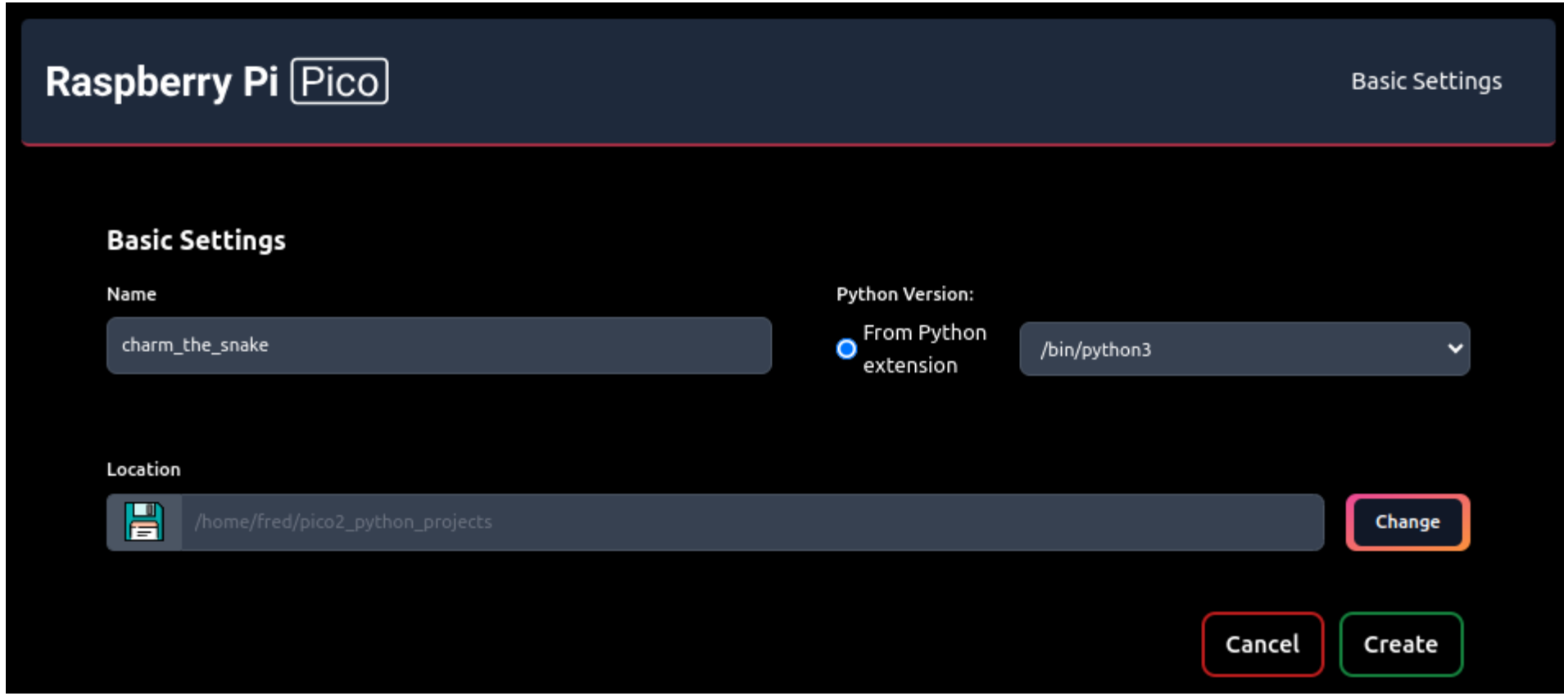
Preview builds

v1.25.0-preview.270.gd76733d05 (2025-02-07) .uf2
v1.25.0-preview.267.ge44a2c692 (2025-02-07) .uf2
v1.25.0-preview.253.g71e8b27b2 (2025-02-07) .uf2
v1.25.0-preview.248.g81ab49a60 (2025-02-07) .uf2
(These are automatic builds of the development branch for the next release)

Train the Snake - Install MicroPython



Feed the Snake – Create a MicroPython Project



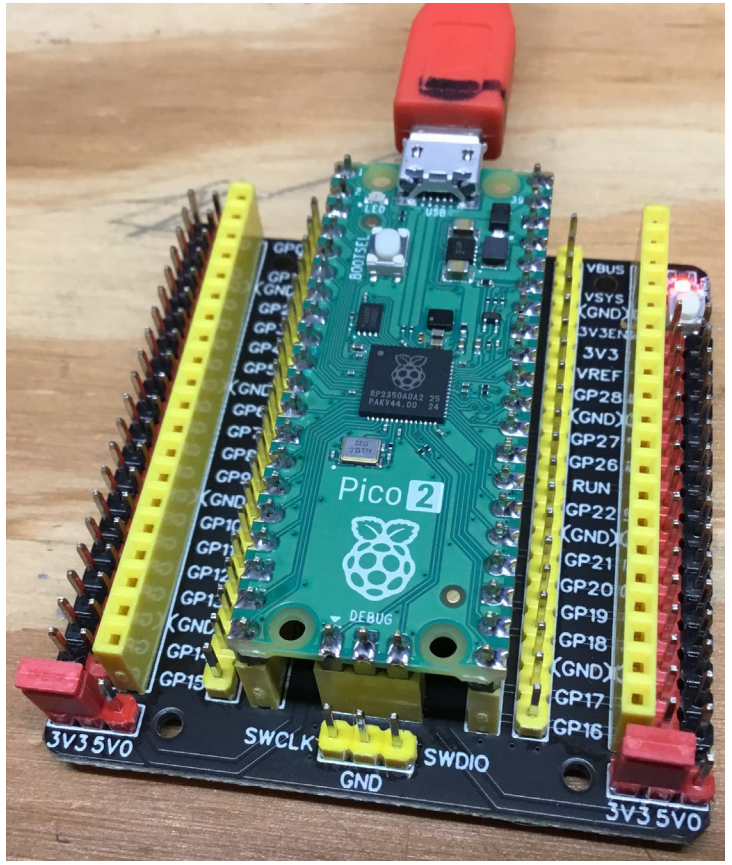
Feed the Snake – Create a MicroPython Project

RASPBERRY PI PICO PROJECT: QUICK ACCESS

- General
  - New C/C++ Project
  - New MicroPython Project
  - Import Project
  - New Project From Example
- Project
  - Debug Project
  - Compile Project
  - Run Project (USB)
  - Flash Project (SWD)
  - Configure CMake
  - Clean CMake
  - Switch SDK Current: N/A
  - Switch Board
  - Debug Layout
- Documentation
  - Hardware APIs
  - High Level APIs
  - Networking Libraries
  - Runtime Infrastructure

blink.py

```
1  from machine import Pin
2  from utime import sleep
3
4  pin = Pin("LED", Pin.OUT)
5
6  print("LED starts flashing...")
7  while True:
8      try:
9          pin.toggle()
10         sleep(1) # sleep 1sec
11     except KeyboardInterrupt:
12         break
13 pin.off()
14 print("Finished.")
15
```



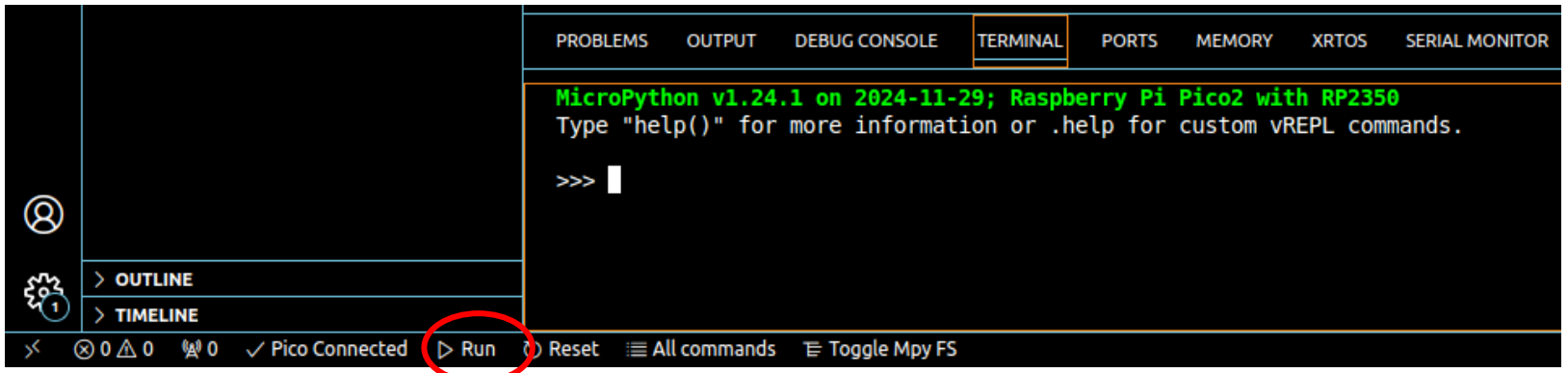
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS MEMORY XRTOS SERIAL MONITOR

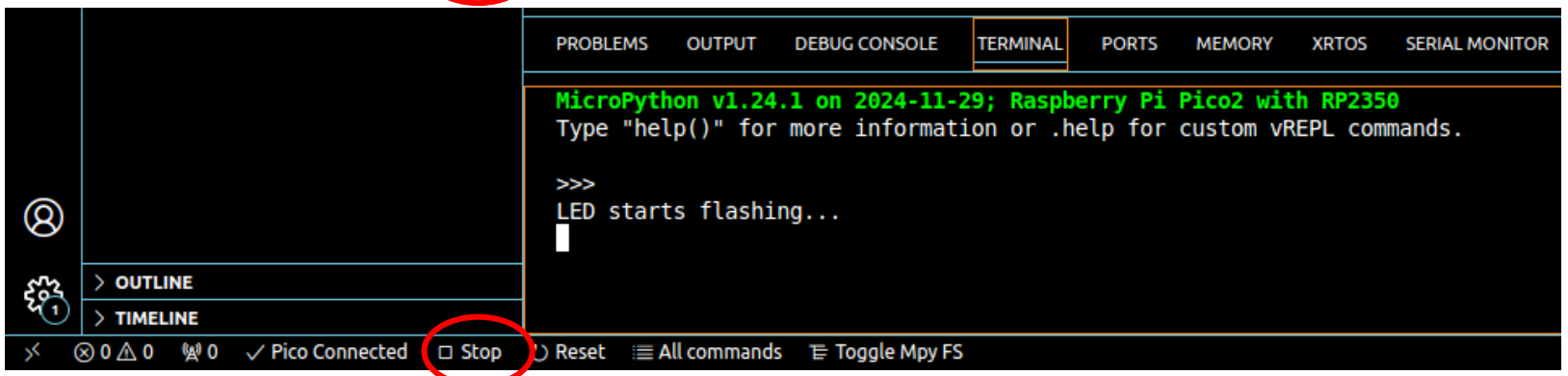
```
MicroPython v1.24.1 on 2024-11-29; Raspberry Pi Pico2 with RP2350
Type "help()" for more information or .help for custom vREPL commands.

>>>
```

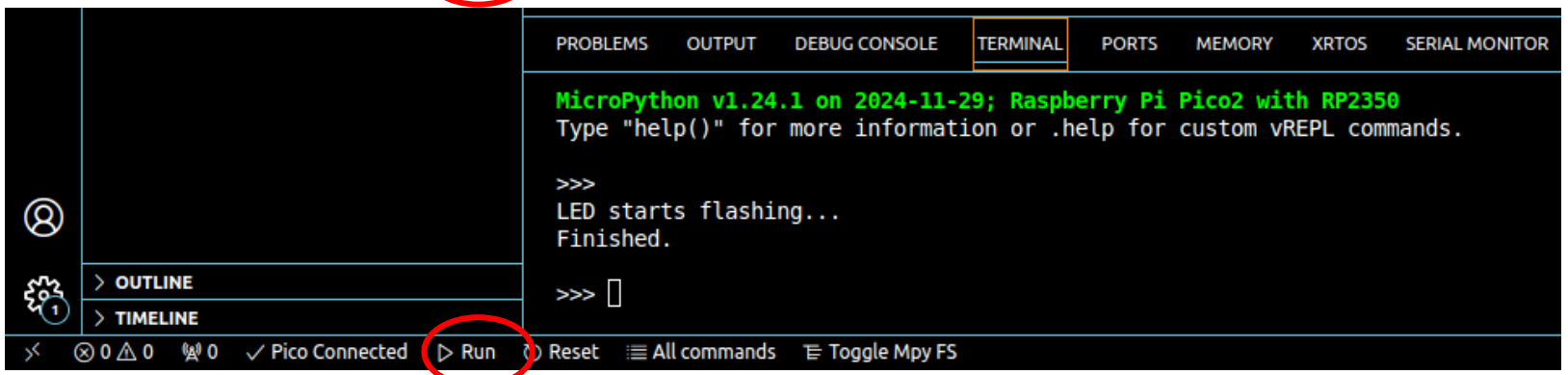
OUTLINE
TIMELINE

0 0 0 Pico Connected Run Reset All commands Toggle Mpy FS

Charm the Snake – Run the MicroPython Project







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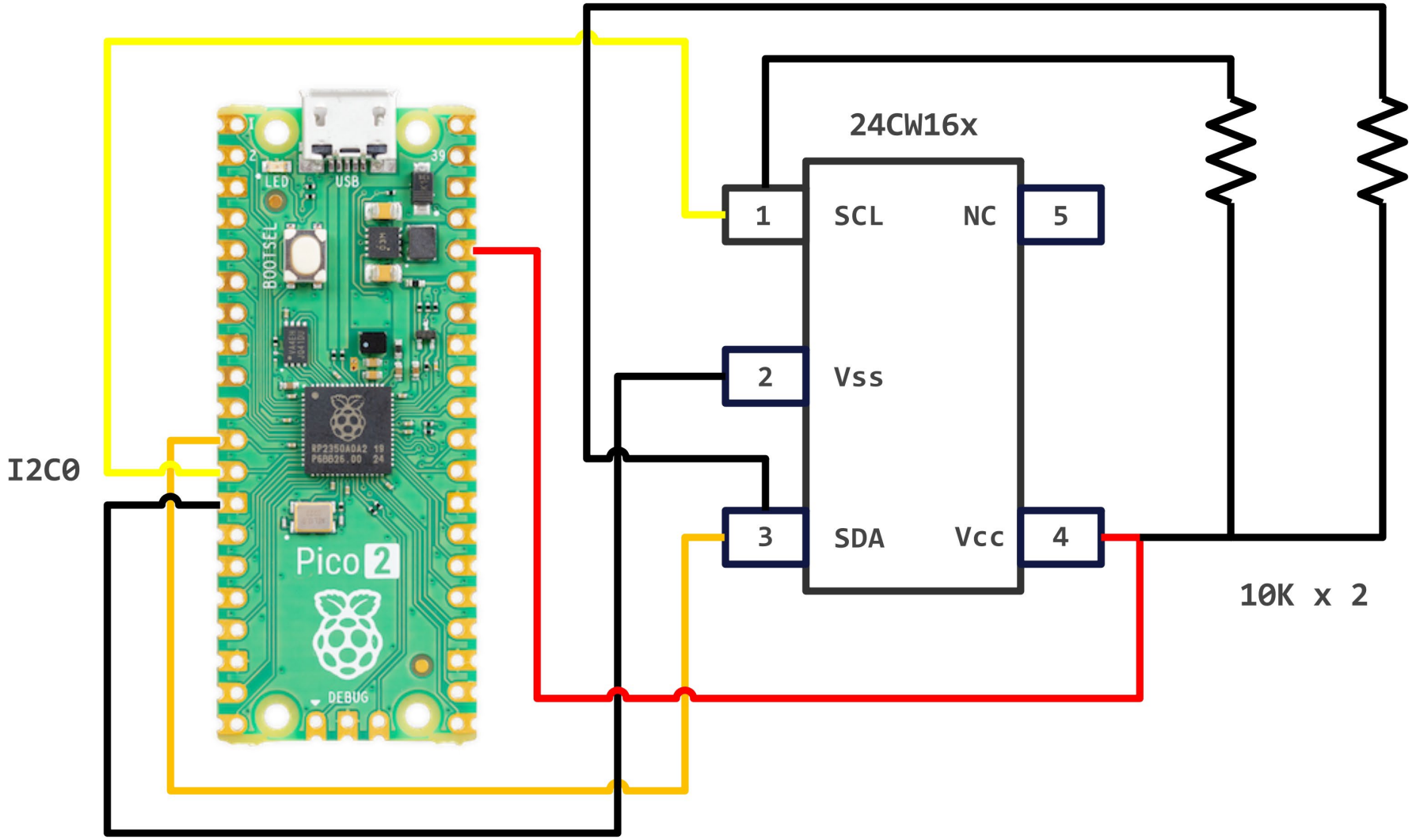
Charm the Snake – 24CW16x EEPROM Driver



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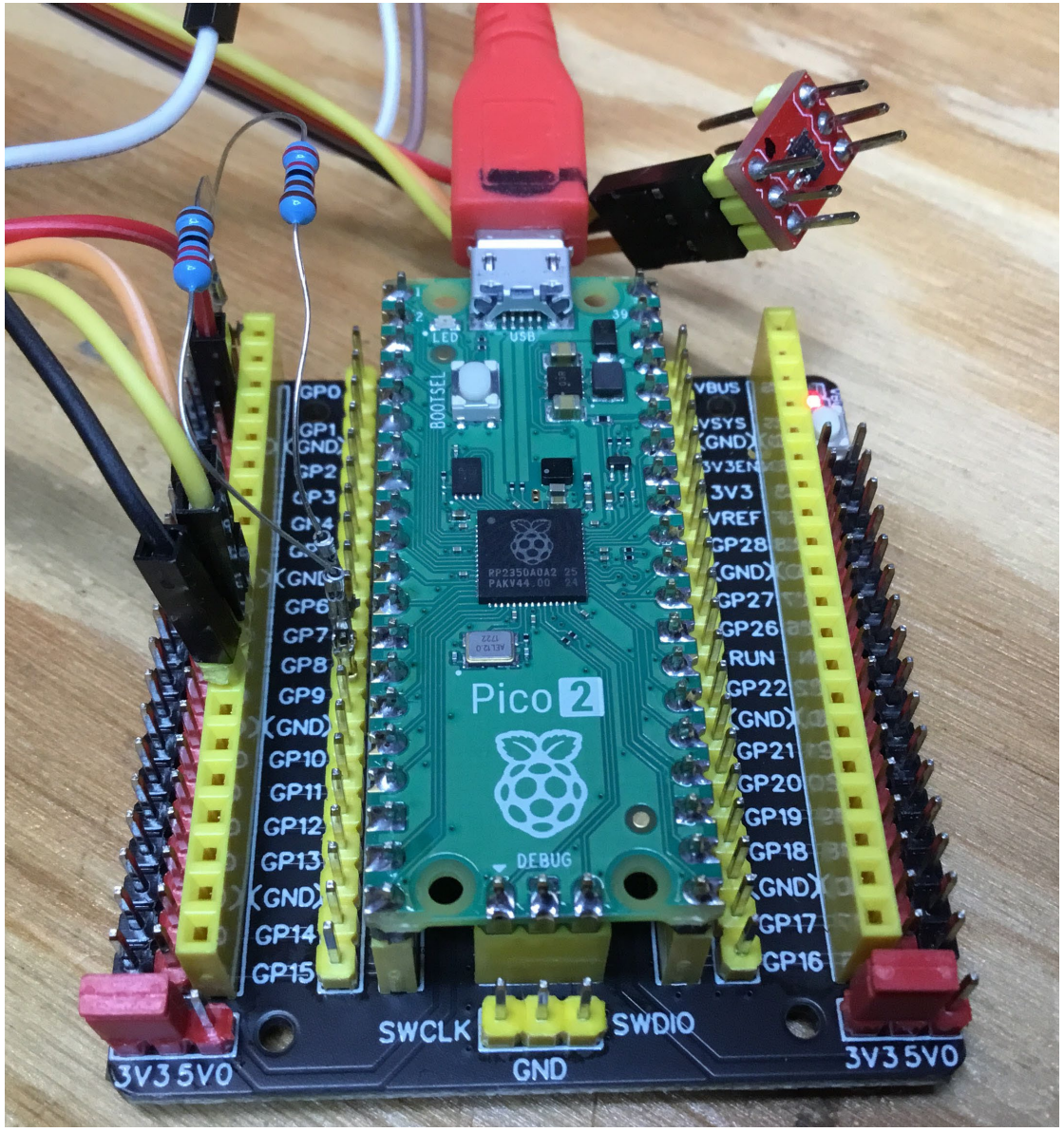

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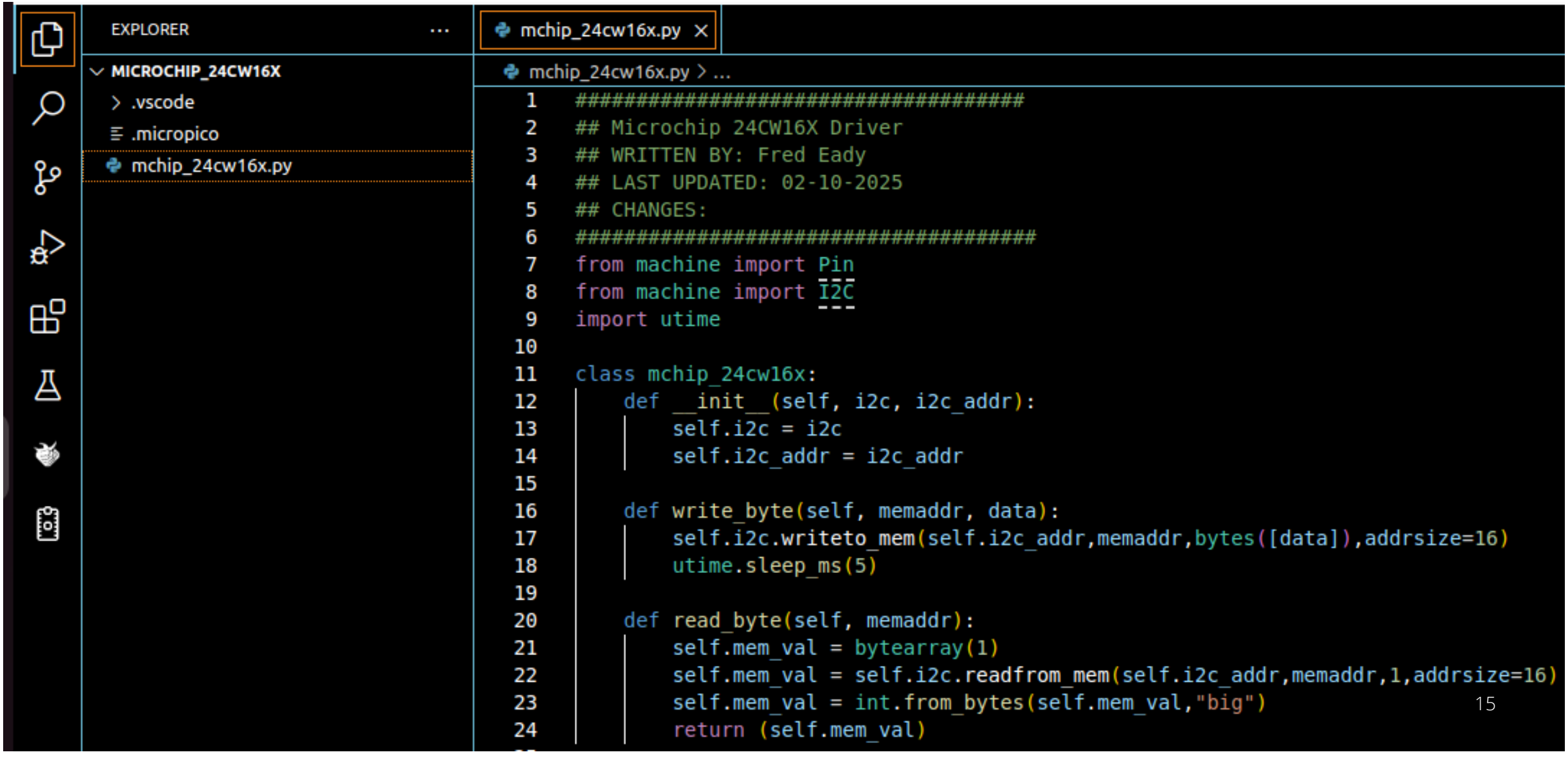

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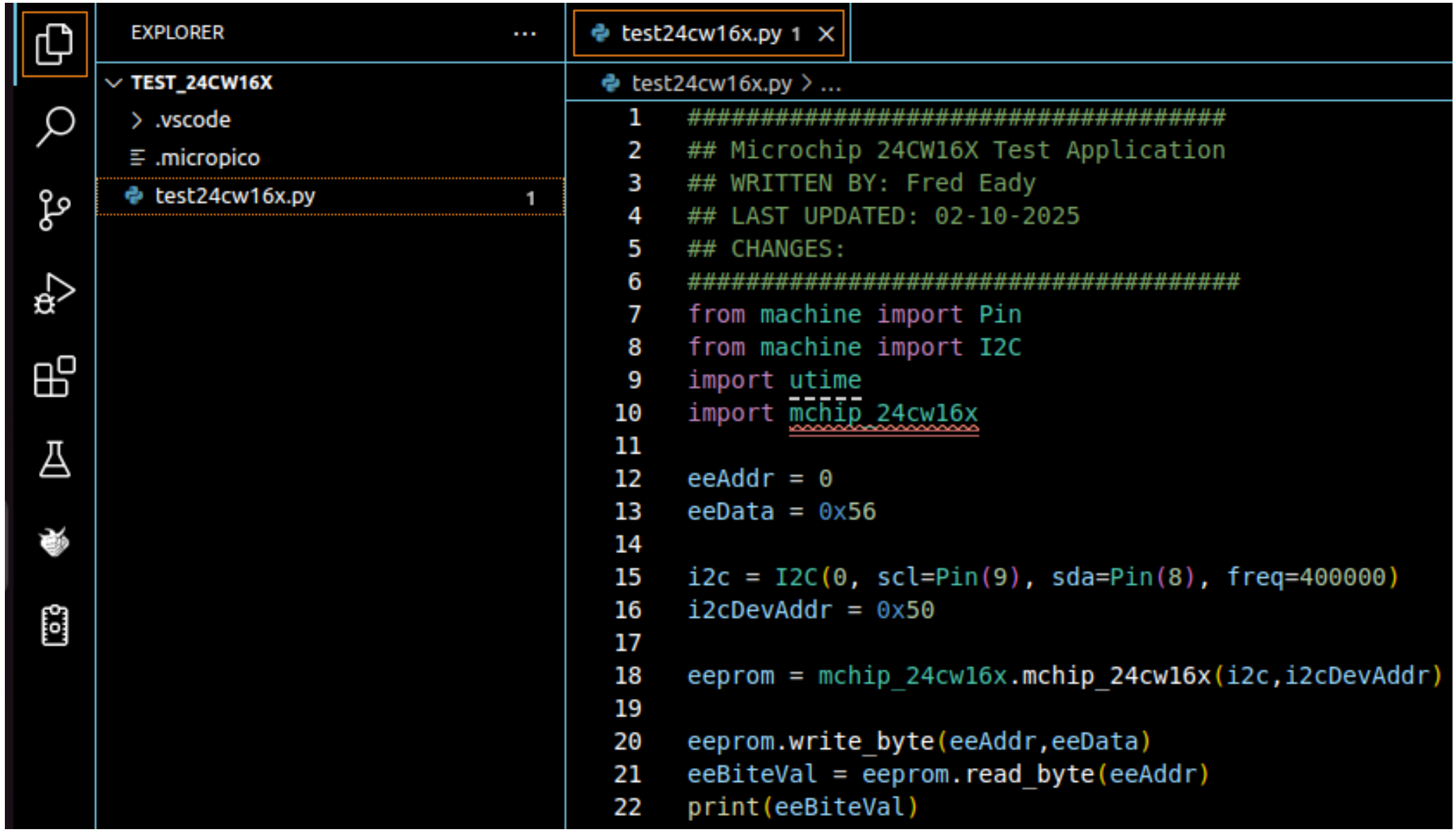

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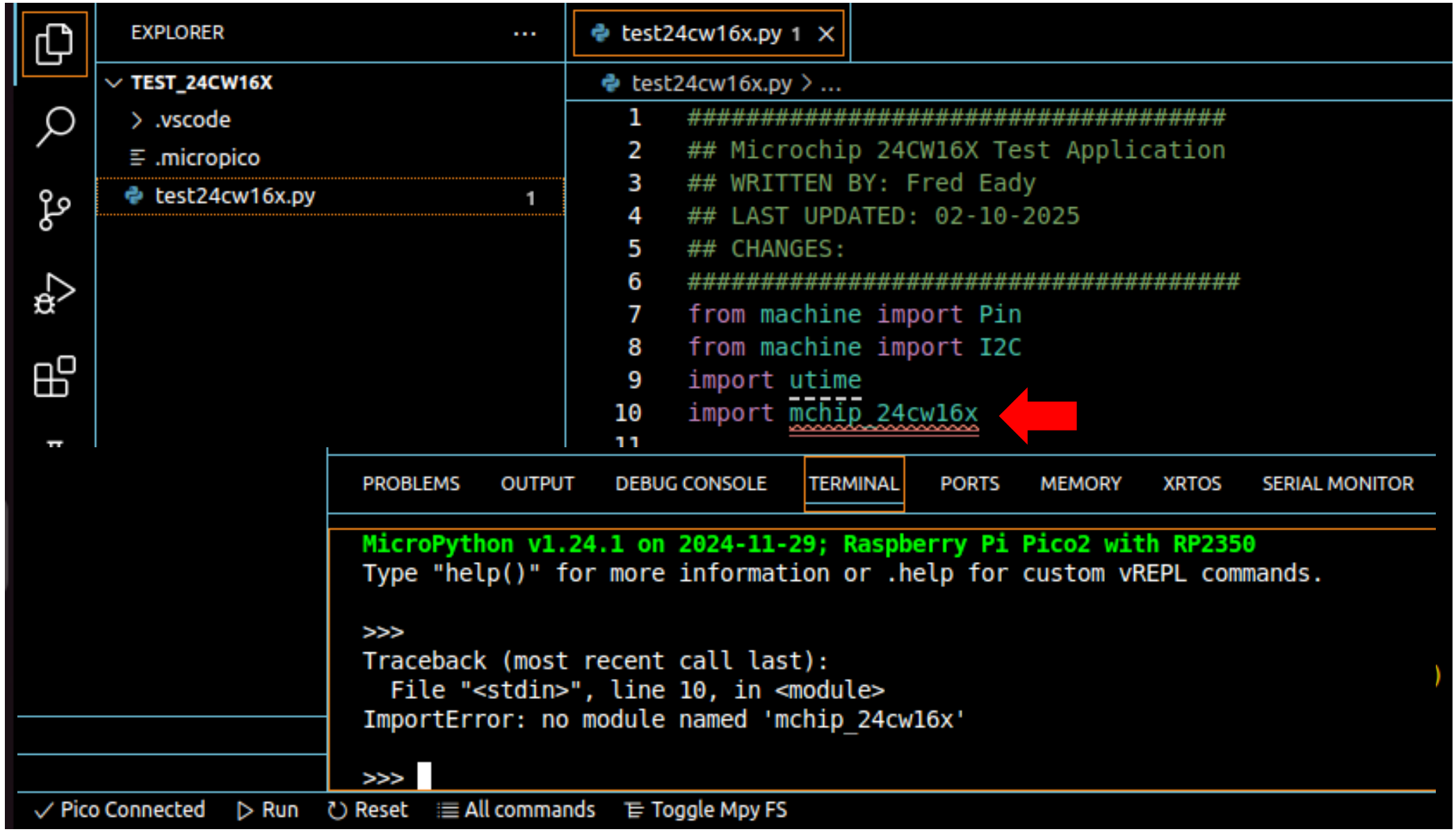

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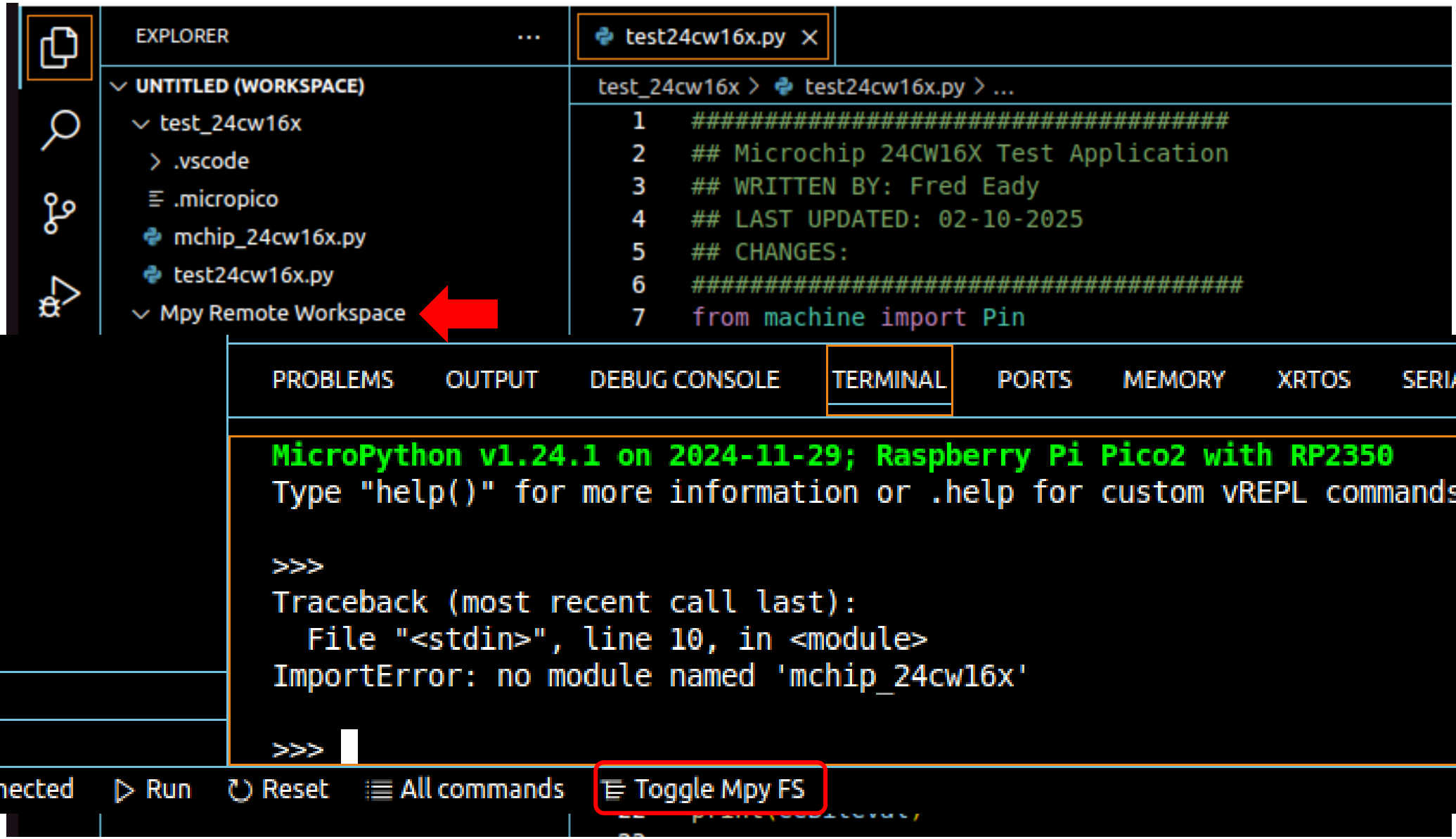

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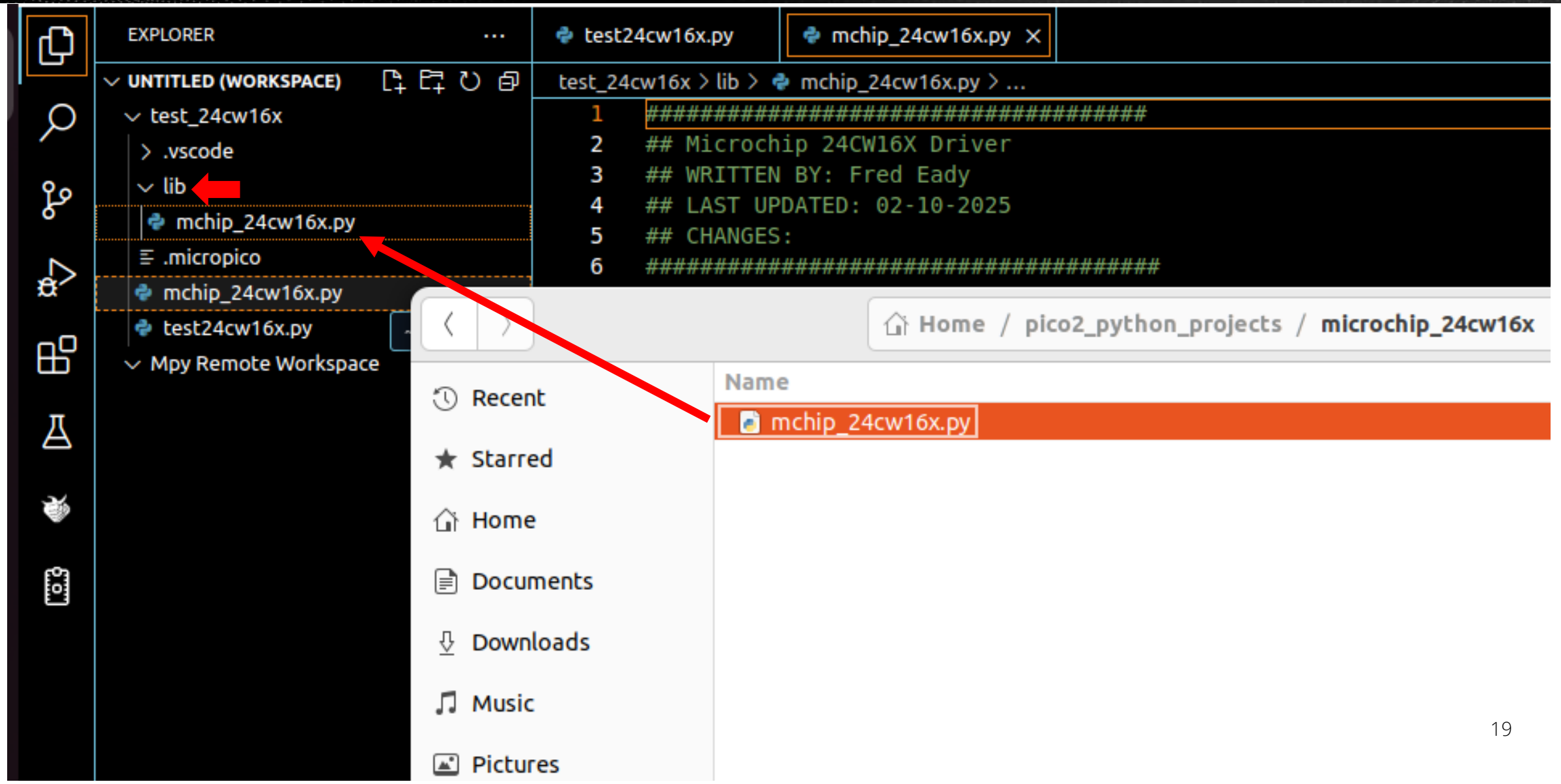

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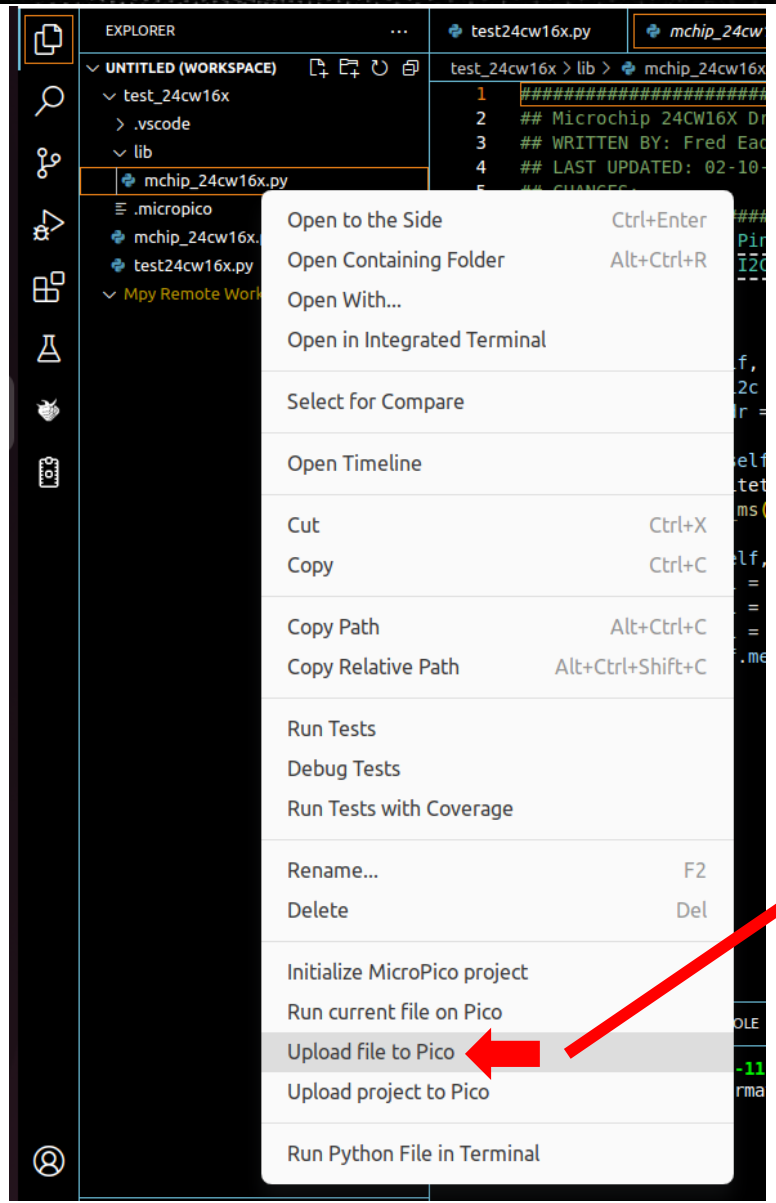

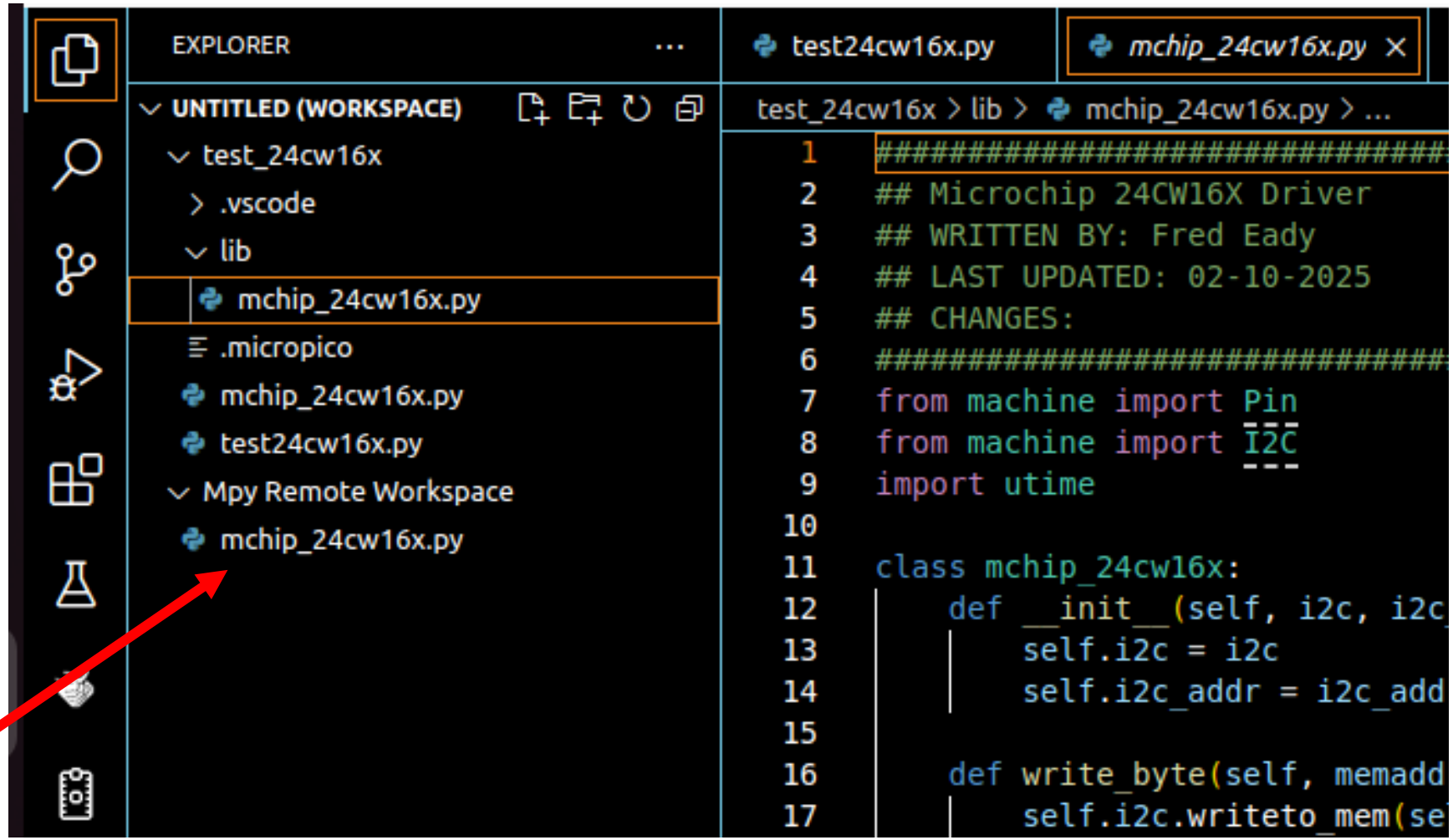

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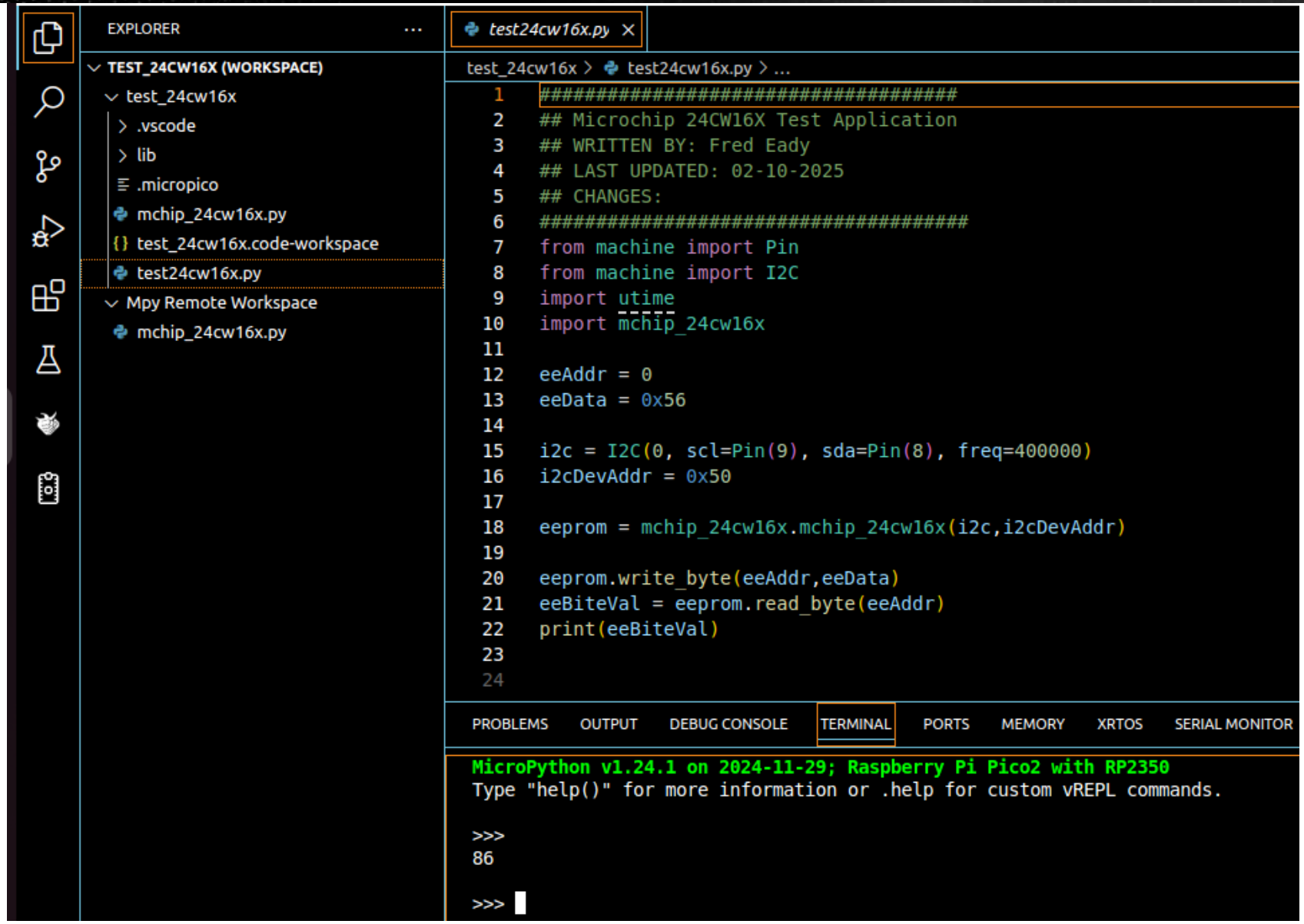

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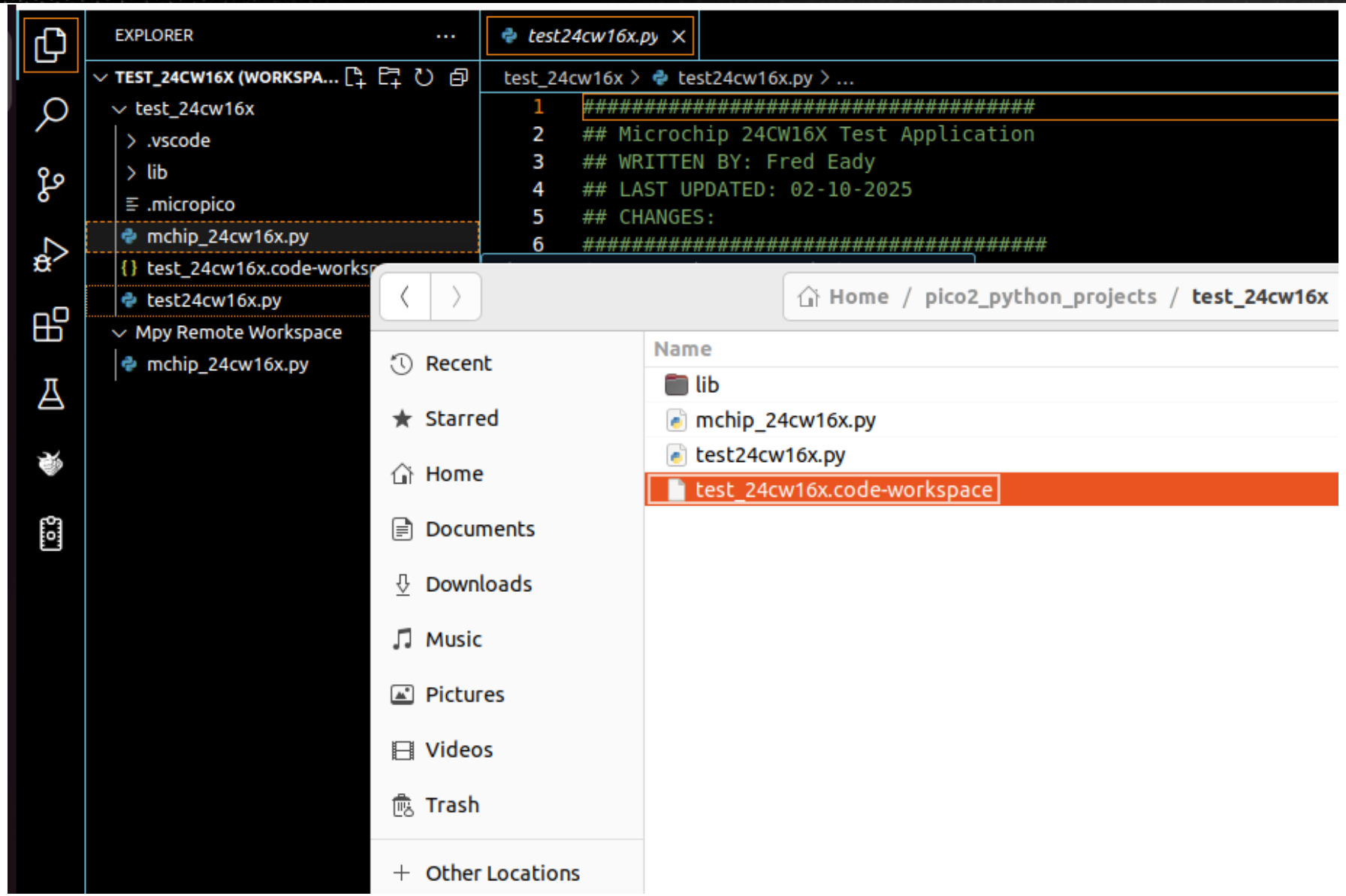


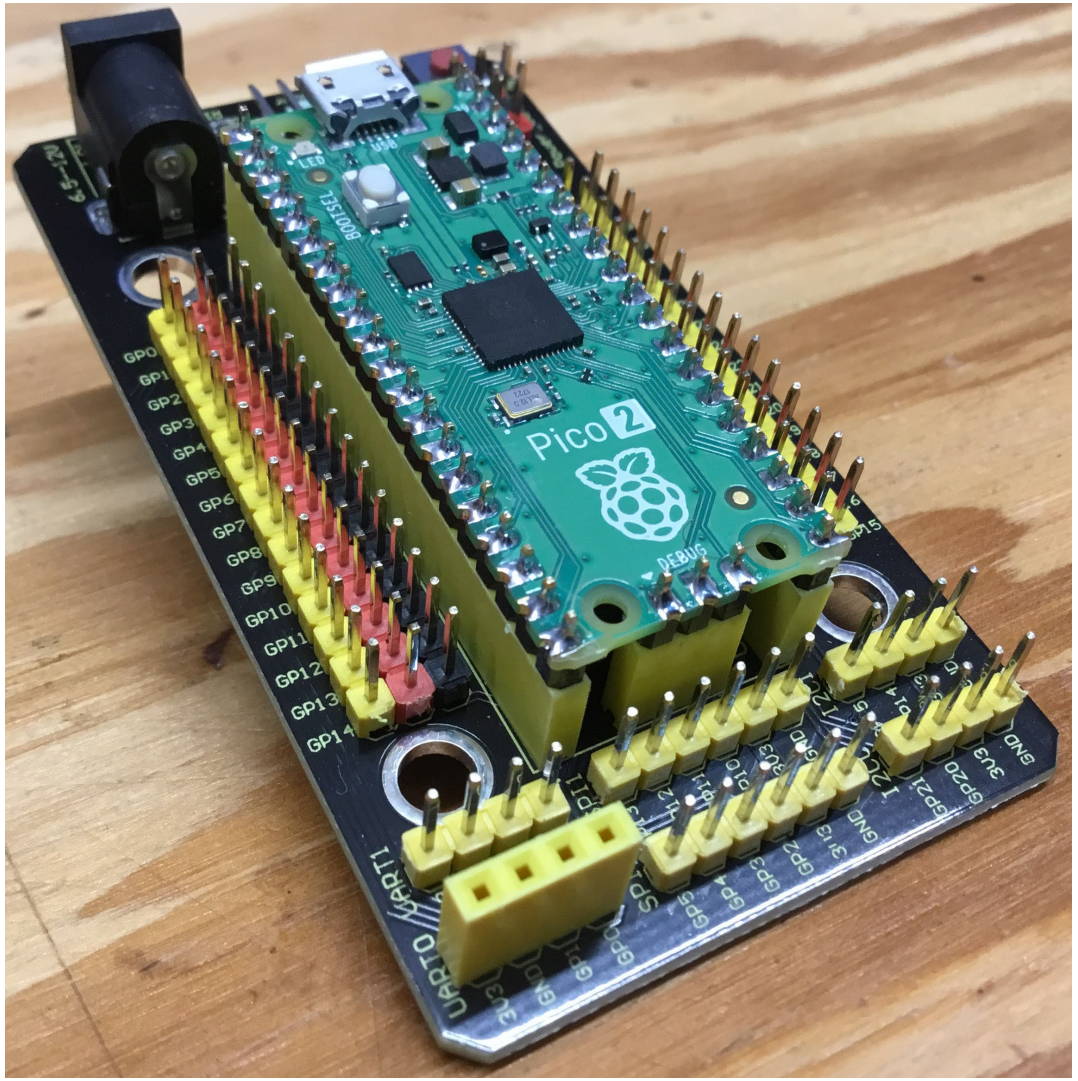
Next Time…

Thank you for attending!!!

Please consider the resources below:

- Today's Download Package
- Microchip 24CW16x Data Sheet
- micropython.org

MORE TO COME..



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