

UNIDAD ACADÉMICA MULTIDISCIPLINARIA MANTE

PROGRAMACIÓN DE INTERFACES Y PUERTOS

Prácticas: parcial 3

Alumnos(as):

- Castillo Hernández Rebeca
- García Segura América Yanely
- Guillen Gallegos Ángel Isaac
- Navarro García Maribel

Maestro(a):

López Piña Daniel

Ciudad Mante, Tamaulipas

Mayo, 2025

PRÁCTICA 1

```
rebeca@IzumiHD: /mnt/c/Usr  X  +  v
This might take a while...
Create a default Unix user account: rebeca
New password:
Retype new password:
passwd: password updated successfully
To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

Welcome to Ubuntu 24.04.2 LTS (GNU/Linux 5.15.167.4-microsoft-standard-WSL2 x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:    https://landscape.canonical.com
 * Support:       https://ubuntu.com/pro

System information as of Thu May  8 08:17:35 CST 2025

System load:  0.18           Processes:            31
Usage of /:   0.1% of 1006.85GB Users logged in:        0
Memory usage: 10%           IPv4 address for eth0: 172.20.136.175
Swap usage:   0%

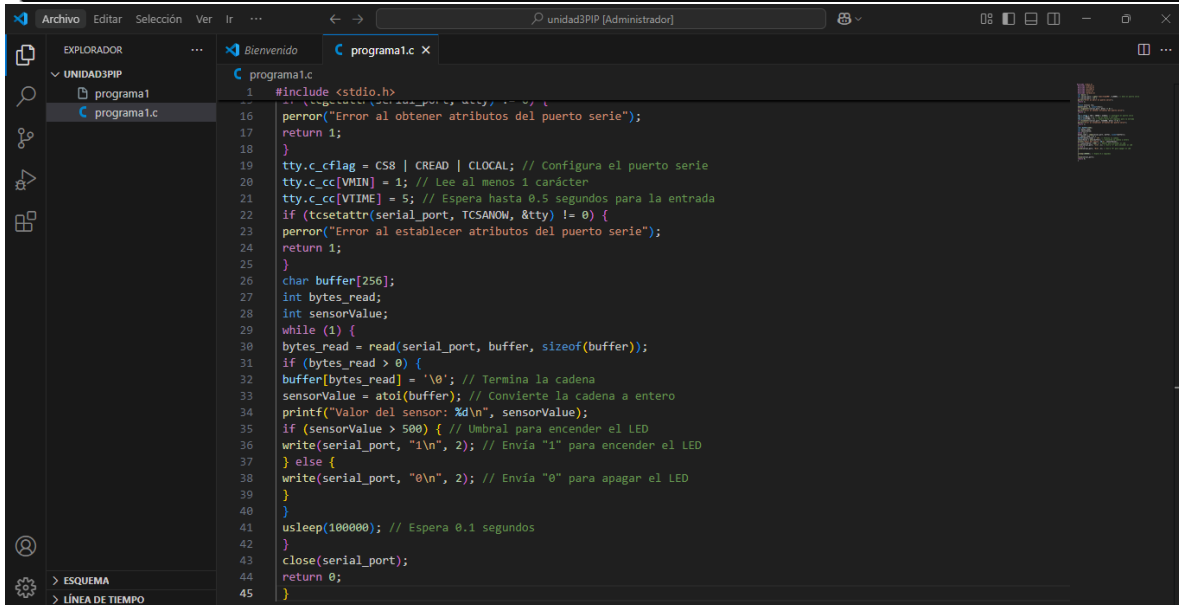
This message is shown once a day. To disable it please create the
/home/rebeca/.hushlogin file.
rebeca@IzumiHD: /mnt/c/Users/rebec$ mkdir unidad3PIP
rebeca@IzumiHD: /mnt/c/Users/rebec$ ls
unidad3PIP
```

```
rebeca@IzumiHD: /mnt/c/Usr  X  +  v
while (1) {
bytes_read = read(serial_port, buffer, sizeof(buffer));
^Curn 0;ial_port);Espera 0.1 segundos "0" para apagar el LEDED
rebeca@IzumiHD: /mnt/c/Users/rebec/unidad3PIP$ gcc program1.c -o program1
Command 'gcc' not found, but can be installed with:
sudo apt install gcc
rebeca@IzumiHD: /mnt/c/Users/rebec/unidad3PIP$ sudo apt update
Hit:1 http://archive.ubuntu.com/ubuntu noble InRelease
Get:2 http://security.ubuntu.com/ubuntu noble-security InRelease [126 kB]
Get:3 http://archive.ubuntu.com/ubuntu noble-updates InRelease [126 kB]
Get:4 http://security.ubuntu.com/ubuntu noble-security/main amd64 Packages [820 kB]
Get:5 http://archive.ubuntu.com/ubuntu noble-backports InRelease [126 kB]
Get:6 http://archive.ubuntu.com/ubuntu noble/universe amd64 Packages [15.0 MB]
Get:7 http://security.ubuntu.com/ubuntu noble-security/main Translation-en [152 kB]
Get:8 http://security.ubuntu.com/ubuntu noble-security/main amd64 Components [21.6 kB]
Get:9 http://security.ubuntu.com/ubuntu noble-security/main amd64 c-n-f Metadata [7068 B]
Get:10 http://security.ubuntu.com/ubuntu noble-security/universe amd64 Packages [836 kB]
Get:11 http://security.ubuntu.com/ubuntu noble-security/universe Translation-en [182 kB]
Get:12 http://security.ubuntu.com/ubuntu noble-security/universe amd64 Components [52.3 kB]
Get:13 http://security.ubuntu.com/ubuntu noble-security/universe amd64 c-n-f Metadata [17.0 kB]
Get:14 http://security.ubuntu.com/ubuntu noble-security/restricted amd64 Packages [1041 kB]
Get:15 http://security.ubuntu.com/ubuntu noble-security/restricted Translation-en [215 kB]
Get:16 http://security.ubuntu.com/ubuntu noble-security/restricted amd64 Components [212 B]
Get:17 http://security.ubuntu.com/ubuntu noble-security/restricted amd64 c-n-f Metadata [468 B]
Get:18 http://security.ubuntu.com/ubuntu noble-security/multiverse amd64 Packages [17.7 kB]
Get:19 http://security.ubuntu.com/ubuntu noble-security/multiverse Translation-en [3792 B]
Get:20 http://security.ubuntu.com/ubuntu noble-security/multiverse amd64 Components [208 B]
```

```
rebeca@izumiHD: /mnt/c/Use x + v
Fetches 34.0 MB in 8s (4196 kB/s)
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
99 packages can be upgraded. Run 'apt list --upgradable' to see them.
rebeca@izumiHD: /mnt/c/Users/rebec/unidad3PIP$ sudo apt upgrade
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
Calculating upgrade... Done
The following packages will be upgraded:
  apparmor apport apport-core-dump-handler binutils binutils-common binutils-x86-64-linux-gnu cloud-init dirmngr
  distro-info-data dmsetup gir1.2-packagekitglib-1.0 gnupg gnupg-l10n gnupg-utils gpg gpg-agent gpg-wks-client gpgconf
  gpgsm gpgv gtk-update-icon-cache keyboxd krb5-locales landscape-client landscape-common libapparmor1 libbinutils
  libcap2 libcap2-bin libcryptsetup12 libctf-nobfd0 libctf0 libdevmapper1.02.1 libdw1t64 libelf1t64 libexpat1
  libgnutls30t64 libgprofng0 libgssapi-krb5-2 libgtk-3-0t64 libgtk-3-bin libgtk-3-common libk5crypto3 libkrb5-3
  libkrb5support0 libldap2 liblma5 libnetplan1 libnss-systemd libpackagekit-glib2-18 libpam-cap
  libpam-systemd libperl5.38t64 libpython3.12-minimal libpython3.12-stdlib libpython3.12t64 libssl3t64
  libsystemd-shared libsystemd0 libtasn1-6 libudev1 libxml2 netplan-generator netplan.io openssh-client openssl
  packagekit packagekit-tools pci.ids perl perl-base perl-modules-5.38 python3-apport python3-jinja2 python3-netplan
  python3-problem-report python3-software-properties python3.12 python3.12-minimal rsyslog snapd
  software-properties-common systemd systemd-dev systemd-resolved systemd-sysv systemd-timesyncd tzdata
  ubuntu-pro-client ubuntu-pro-client-l10n udev vim vim-common vim-runtime vim-tiny xxd xz-utils
99 upgraded, 0 newly installed, 0 to remove and 0 not upgraded.
54 standard LTS security updates
Need to get 90.8 MB of archives.
After this operation, 1277 kB of additional disk space will be used.

rebeca@izumiHD: /mnt/c/Use x + v
Processing triggers for libglib2.0-0t64:amd64 (2.80.0-6ubuntu3.2) ...
Processing triggers for dbus (1.14.10-4ubuntu4.1) ...
Setting up libgtk-3-0t64:amd64 (3.24.41-4ubuntu1.3) ...
Setting up libgtk-3-bin (3.24.41-4ubuntu1.3) ...
Processing triggers for libc-bin (2.39-0ubuntu8.4) ...
rebeca@izumiHD: /mnt/c/Users/rebec/unidad3PIP$ gcc program1.c -o program1
Command 'gcc' not found, but can be installed with:
sudo apt install gcc
rebeca@izumiHD: /mnt/c/Users/rebec/unidad3PIP$ sudo apt install gcc
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  cpp cpp-13 cpp-13-x86-64-linux-gnu cpp-x86-64-linux-gnu gcc-13 gcc-13-base gcc-13-x86-64-linux-gnu
  gcc-x86-64-linux-gnu libaom3 libasan8 libatomic1 libc-dev-bin libc-devtools libc6-dev libcc1-0 libcrypt-dev
  libde265-0 libgcc-13-dev libgd3 libgomp1 libheif-plugin-aomdec libheif-plugin-aomenc libheif-plugin-libde265
  libheif1 libhwasan0 libisl23 libitm1 liblsan0 libmpc3 libquadmath0 libtsan2 libubsan1 libxpm4 linux-libc-dev
  manpages-dev rpcsvc-proto
Suggested packages:
  cpp-doc gcc-13-locales cpp-13-doc gcc-multilib make autoconf automake libtool flex bison gdb gcc-doc gcc-13-multilib
  gcc-13-doc gdb-x86-64-linux-gnu glibc-doc libgd-tools libheif-plugin-x265 libheif-plugin-ffmpegdec
  libheif-plugin-jpegdec libheif-plugin-jpegenc libheif-plugin-j2kdec libheif-plugin-j2kenc libheif-plugin-rav1e
```

```
rebeca@IzumiHD: /mnt/c/Use
Setting up libisl23:amd64 (0.26-3build1.1) ...
Setting up libde265-0:amd64 (1.0.15-1build3) ...
Setting up libc-dev-bin (2.39-0ubuntu8.4) ...
Setting up libcc1-0:amd64 (14.2.0-4ubuntu2~24.04) ...
Setting up liblsan0:amd64 (14.2.0-4ubuntu2~24.04) ...
Setting up libitm1:amd64 (14.2.0-4ubuntu2~24.04) ...
Setting up cpp-13-x86-64-linux-gnu (13.3.0-6ubuntu2~24.04) ...
Setting up libgcc-13-dev:amd64 (13.3.0-6ubuntu2~24.04) ...
Setting up libc6-dev:amd64 (2.39-0ubuntu8.4) ...
Setting up cpp-x86-64-linux-gnu (4:13.2.0-7ubuntu1) ...
Setting up cpp-13 (13.3.0-6ubuntu2~24.04) ...
Setting up gcc-13-x86-64-linux-gnu (13.3.0-6ubuntu2~24.04) ...
Setting up gcc-13 (13.3.0-6ubuntu2~24.04) ...
Setting up cpp (4:13.2.0-7ubuntu1) ...
Setting up gcc-x86-64-linux-gnu (4:13.2.0-7ubuntu1) ...
Setting up gcc (4:13.2.0-7ubuntu1) ...
Setting up libheif-plugin-aomdec:amd64 (1.17.6-1ubuntu4.1) ...
Setting up libheif1:amd64 (1.17.6-1ubuntu4.1) ...
Setting up libgd3:amd64 (2.3.3-9ubuntu5) ...
Setting up libc-devtools (2.39-0ubuntu8.4) ...
Setting up libheif-plugin-libde265:amd64 (1.17.6-1ubuntu4.1) ...
Setting up libheif-plugin-aomenc:amd64 (1.17.6-1ubuntu4.1) ...
Processing triggers for libc-bin (2.39-0ubuntu8.4) ...
Processing triggers for man-db (2.12.0-4build2) ...
rebeca@IzumiHD:/mnt/c/Users/rebec/unidad3PIP$ gcc program1.c -o program1
rebeca@IzumiHD:/mnt/c/Users/rebec/unidad3PIP$ ls
program1  program1.c
rebeca@IzumiHD:/mnt/c/Users/rebec/unidad3PIP$ ./program1
Error al abrir el puerto serie: No such file or directory
rebeca@IzumiHD:/mnt/c/Users/rebec/unidad3PIP$
```



```
1 #include <stdio.h>
2 #include <stdlib.h>
3 #include <unistd.h>
4 #include <termios.h>
5 #include <fcntl.h>
6 #include <string.h>
7 #include <sys/types.h>
8 #include <sys/stat.h>
9 #include <sys/time.h>
10 #include <sys/ioctl.h>
11 #include <linux/serial.h>
12 #include <linux/kernel.h>
13 #include <linux/usb/lcd.h>
14 #include <linux/usb/lcd.h>
15 #include <linux/usb/lcd.h>
16 perror("Error al obtener atributos del puerto serie");
17 return 1;
18 }
19 tty.c_cflag = CS8 | CREAD | CLOCAL; // Configura el puerto serie
20 tty.c_cc[VMIN] = 1; // Lee al menos 1 carácter
21 tty.c_cc[VMIME] = 5; // Espera hasta 0.5 segundos para la entrada
22 if (tcsetattr(serial_port, TCSANOW, &tty) != 0) {
23     perror("Error al establecer atributos del puerto serie");
24     return 1;
25 }
26 char buffer[256];
27 int bytes_read;
28 int sensorValue;
29 while (1) {
30     bytes_read = read(serial_port, buffer, sizeof(buffer));
31     if (bytes_read > 0) {
32         buffer[bytes_read] = '\0'; // Termina la cadena
33         sensorValue = atoi(buffer); // Convierte la cadena a entero
34         printf("Valor del sensor: %d\n", sensorValue);
35         if (sensorValue > 500) { // Umbral para encender el LED
36             write(serial_port, "1\n", 2); // Envía "1" para encender el LED
37         } else {
38             write(serial_port, "0\n", 2); // Envía "0" para apagar el LED
39         }
40     }
41     usleep(100000); // Espera 0.1 segundos
42 }
43 close(serial_port);
44 return 0;
45 }
```



```
rebeca@IzumHD: $ lsusb
Command 'lsusb' not found, but can be installed with:
sudo apt install usbutils
rebeca@IzumHD: $ sudo apt install usbutils
[sudo] password for rebeca:
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  libusb-1.0-0
Suggested packages:
  usbutils-py
The following NEW packages will be installed:
  libusb-1.0-0 usbutils
0 upgraded, 2 newly installed, 0 to remove and 0 not upgraded.
Need to get 139 kB of archives.
After this operation, 469 kB of additional disk space will be used.
Do you want to continue? [Y/n] y
Get:1 http://archive.ubuntu.com/ubuntu noble/main amd64 libusb-1.0-0 amd64 2:1.0.27-1 [54.0 kB]
Get:2 http://archive.ubuntu.com/ubuntu noble/main amd64 usbutils amd64 1:017-3build1 [84.5 kB]
Fetched 139 kB in 2s (66.0 kB/s)
Selecting previously unselected package libusb-1.0-0:amd64.
(Reading database ... 45106 files and directories currently installed.)
Preparing to unpack .../libusb-1.0-0_2%3a1.0.27-1_amd64.deb ...
Unpacking libusb-1.0-0:amd64 (2:1.0.27-1) ...
Selecting previously unselected package usbutils.
Preparing to unpack .../usbutils_1%3a017-3build1_amd64.deb ...
Unpacking usbutils (1:017-3build1) ...
Setting up libusb-1.0-0:amd64 (2:1.0.27-1) ...
Setting up usbutils (1:017-3build1) ...
Processing triggers for man-db (2.12.0-4build2) ...
Processing triggers for libc-bin (2.39-0ubuntu8.4) ...
rebeca@IzumHD: $ lsusb
Bus 001 Device 001: ID 1d6b:0002 Linux Foundation 2.0 root hub
Bus 001 Device 002: ID 1a86:7523 QinHeng Electronics CH340 serial converter

Get:2 http://archive.ubuntu.com/ubuntu noble/main amd64 usbutils amd64 1:017-3build1 [84.5 kB]
Fetched 139 kB in 2s (66.0 kB/s)
Selecting previously unselected package libusb-1.0-0:amd64.
(Reading database ... 45106 files and directories currently installed.)
Preparing to unpack .../libusb-1.0-0_2%3a1.0.27-1_amd64.deb ...
Unpacking libusb-1.0-0:amd64 (2:1.0.27-1) ...
Selecting previously unselected package usbutils.
Preparing to unpack .../usbutils_1%3a017-3build1_amd64.deb ...
Unpacking usbutils (1:017-3build1) ...
Setting up libusb-1.0-0:amd64 (2:1.0.27-1) ...
Setting up usbutils (1:017-3build1) ...
Processing triggers for man-db (2.12.0-4build2) ...
Processing triggers for libc-bin (2.39-0ubuntu8.4) ...
rebeca@IzumHD: $ lsusb
Bus 001 Device 001: ID 1d6b:0002 Linux Foundation 2.0 root hub
Bus 001 Device 002: ID 1a86:7523 QinHeng Electronics CH340 serial converter
Bus 002 Device 001: ID 1d6b:0003 Linux Foundation 3.0 root hub
rebeca@IzumHD: $ ls/dev
-bash: ls/dev: No such file or directory
rebeca@IzumHD: $ ls /dev
autofs          full            loop-control   nvram          ram15          sdc            tty12          tty25          tty38          tty50          tty63          vcs4           vcsu4
block           fuse           loop0          ppp            ram2           serial         tty13          tty26          tty39          tty51          tty7           vcs5           vcsu5
bsg             hugepages     loop8          ptp            ram3           sg0           tty14          tty27          tty4           tty52          tty8           vcs6           vcsu6
btrfs-control  hvc0          loop1          ptmx          ram4           sg1           tty15          tty28          tty40          tty53          tty9           vcsa           vflo
bus             hvc1          loop2          ptp0           ram5           sg2           tty16          tty29          tty41          tty54          ttyS0          vcsa1          vhost-net
char           hvc2          loop3          ptp_hyperv    ram6           shm           tty17          tty3           tty42          tty55          ttyS1          vcsa2          virtio-ports
console        hvc3          loop4          pts           ram7           stderr        tty18          tty30          tty43          tty56          ttyS2          vcsa3          vport0p0
core          hvc4          loop5          ram0           ram8           stdin         tty19          tty31          tty44          tty57          ttyS3          vcsa4          vport0p1
cpu_dma_latency hvc5          loop6          ram1           ram9           stdout        tty2           tty32          tty45          tty58          ttyUSB0        vcsa5          vport0p2
cuse          hvc6          loop7          ram10          random         tty           tty0           tty20          tty33          tty46          tty59          vcsa6          vsock
disk          hvc7          mapper        ram11          rtc            tty1          tty21          tty34          tty47          tty6           vcs           vcsu           zero
dri           initctl       mem           ram12          rtc0           tty10          tty22          tty35          tty48          tty60          vcs1           vcsu1
dmg           kmsg          queue         ram13          sda            tty11          tty23          tty36          tty49          tty61          vcs2           vcsu2
fd            kvm           net           ram14          sdb            tty12          tty24          tty37          tty5           tty62          vcs3           vcsu3
```

```
rebeca@tumiHD: ~ x Windows PowerShell x + v

PS C:\Users\rebeca> usbipd list
Connected:
BUSID  VID:PID  DEVICE                                STATE
1-1    1a86:7523  USB-SERIAL CH340 (COM13)             Not shared
1-3    0408:5365  HP TrueVision HD Camera              Not shared
1-7    04f3:0c00  ELAN WBF Fingerprint Sensor          Not shared
1-10   0bda:b00e  Realtek Bluetooth 4.2 Adapter         Not shared

Persisted:
GUID                                DEVICE

PS C:\Users\rebeca> usbipd bind --busid 1-1
'--busid' was not matched. Did you mean one of the following?
--busid
'1-1' was not matched. Did you mean one of the following?
-b
-f
-i
Exactly one of the options '--busid' or '--hardware-id' is required.
Unrecognized command or argument '--busid'.
Unrecognized command or argument '1-1'.

usbipd-win 5.0.0

Description:
Registers a single USB device for sharing, so it can be attached to other machines. Unless the --force option is
used, shared devices remain available to the host until they are attached to another machine.

Exactly one of the options '--busid' or '--hardware-id' is required.

Usage:
1-7    04f3:0c00  ELAN WBF Fingerprint Sensor          Not shared
1-10   0bda:b00e  Realtek Bluetooth 4.2 Adapter         Not shared

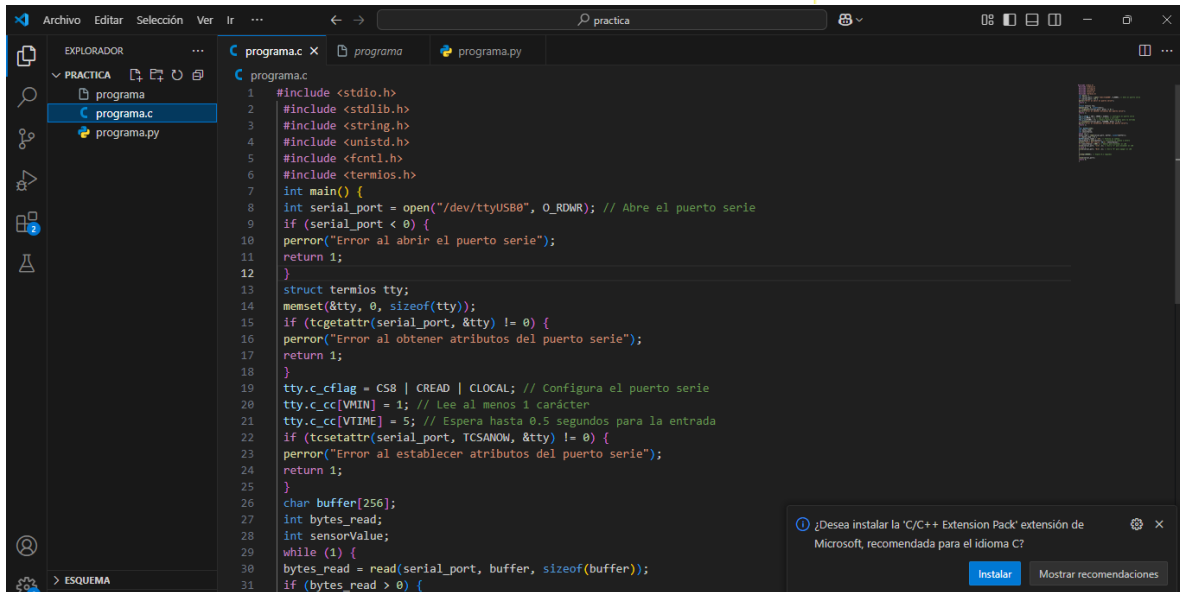
Persisted:
GUID                                DEVICE

PS C:\Users\rebeca> usbipd attach --wsl --busid 1-1
usbipd: info: Using WSL distribution 'Ubuntu' to attach; the device will be available in all WSL 2 distributions.
usbipd: info: Detected networking mode 'nat'.
usbipd: info: Using IP address 172.20.128.1 to reach the host.
PS C:\Users\rebeca> usbipd list
Connected:
BUSID  VID:PID  DEVICE                                STATE
1-1    1a86:7523  USB-SERIAL CH340 (COM13)             Attached
1-3    0408:5365  HP TrueVision HD Camera              Not shared
1-7    04f3:0c00  ELAN WBF Fingerprint Sensor          Not shared
1-10   0bda:b00e  Realtek Bluetooth 4.2 Adapter         Not shared

Persisted:
GUID                                DEVICE

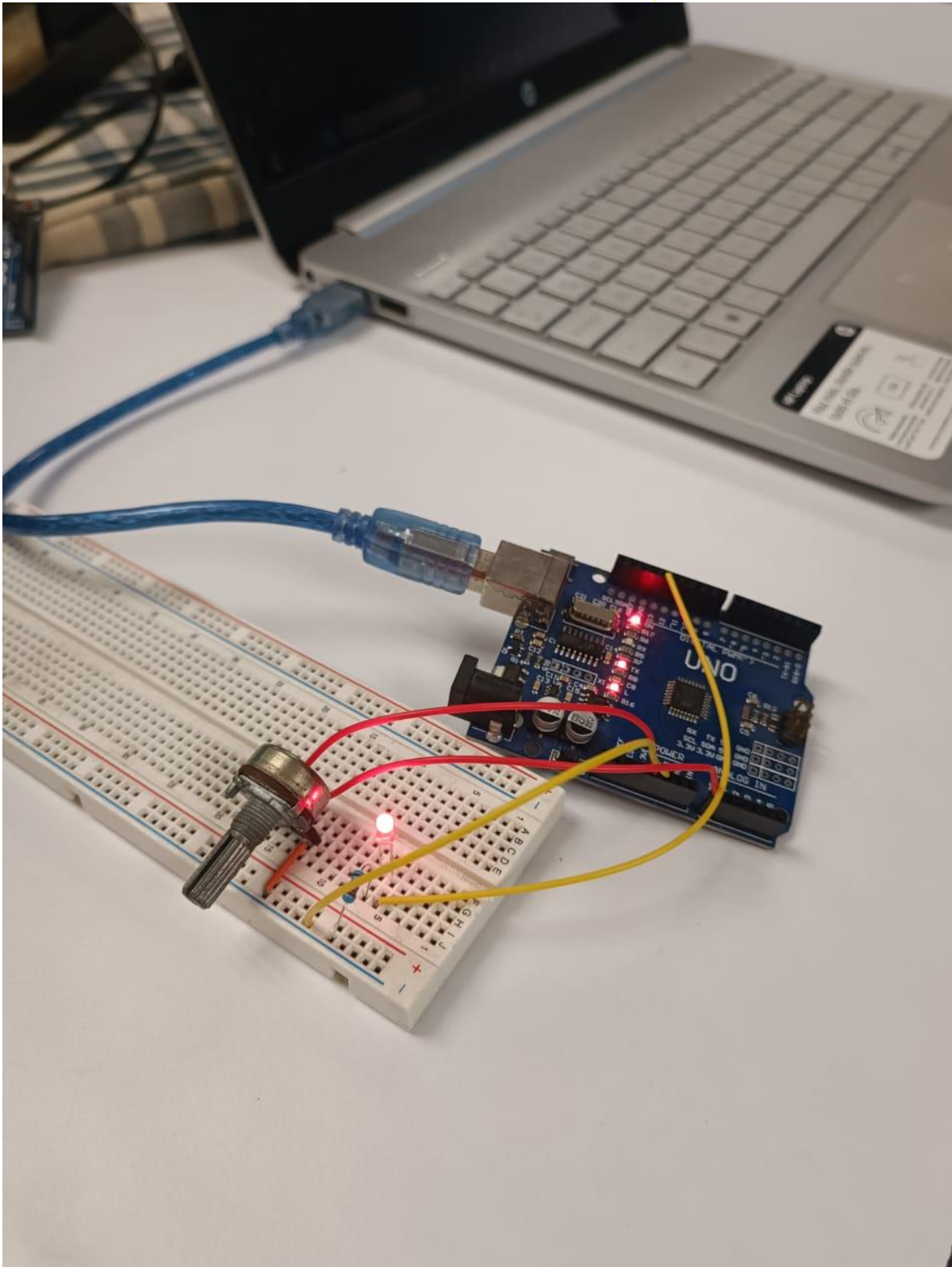
PS C:\Users\rebeca> |
```

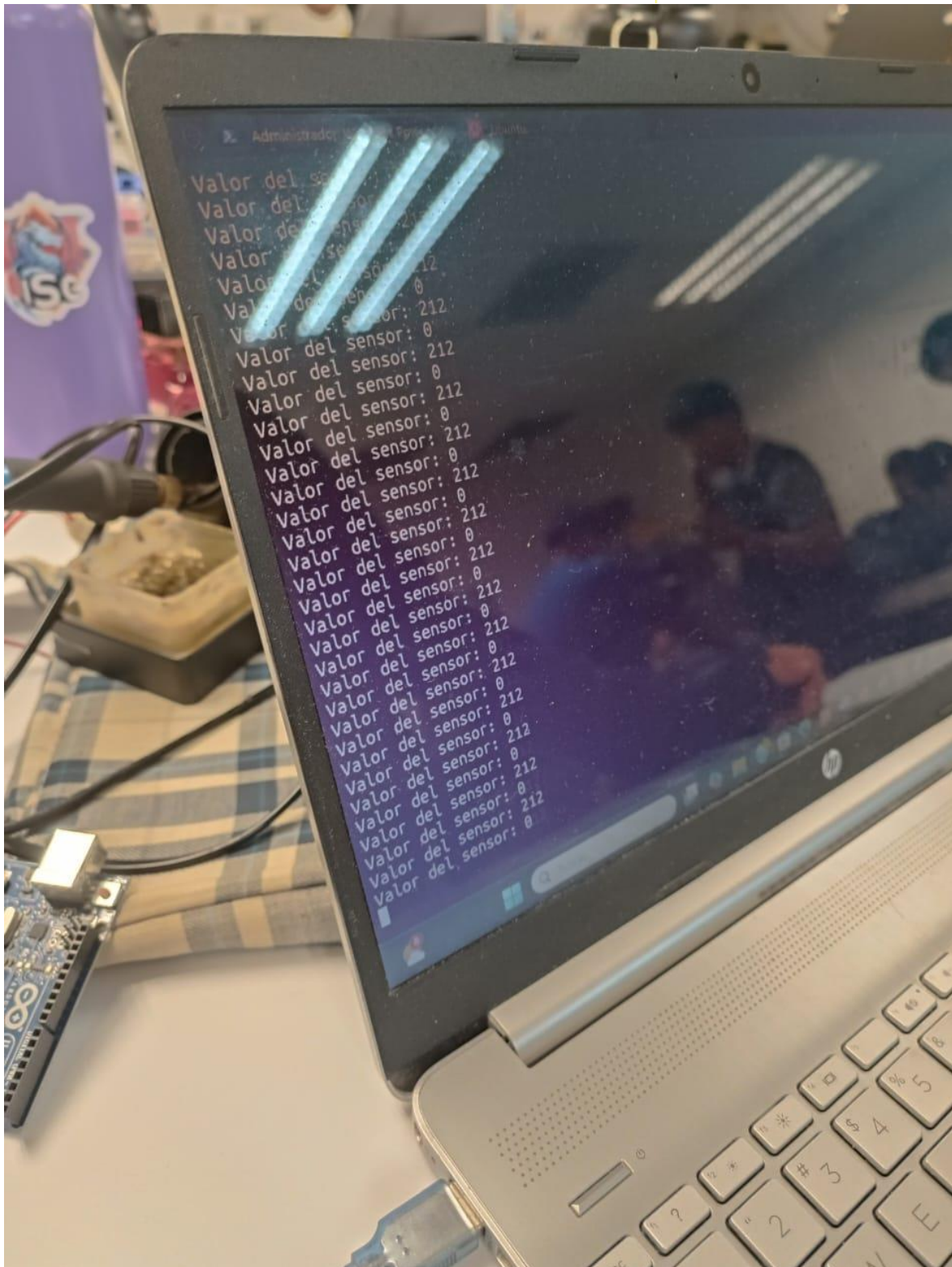
[illegible]



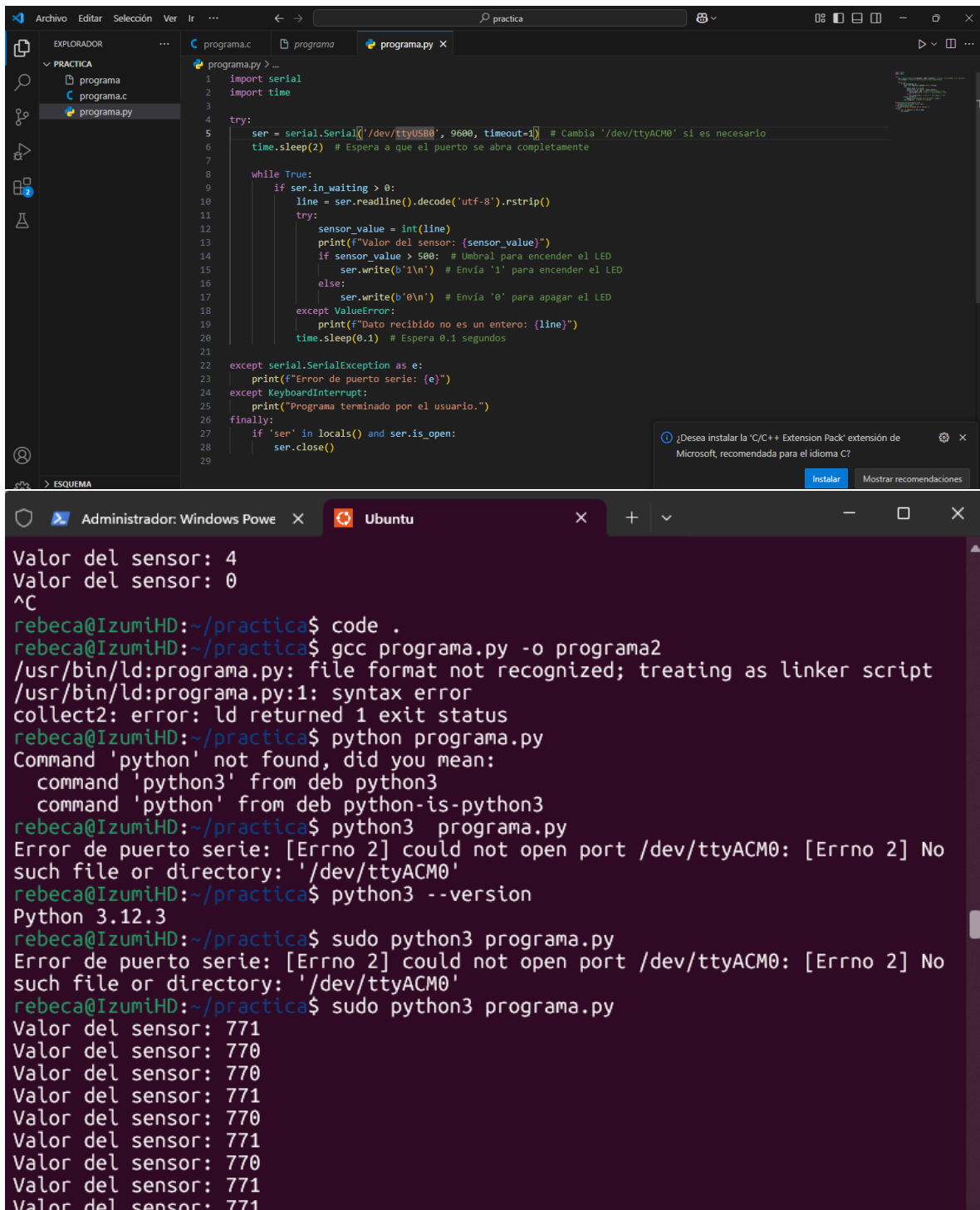
The image shows a screenshot of the Visual Studio Code editor interface. The left sidebar displays the Explorer view with a project named 'PRACTICA' containing files 'programa.c' and 'programa.py'. The main editor area shows the code for 'programa.c', which is a C program for serial communication. The code includes headers for `stdio.h`, `stdlib.h`, `string.h`, `unistd.h`, `fcntl.h`, and `termios.h`. It defines a `main` function that opens the serial port `/dev/ttyUSB0`, configures it with `CS8`, `CREAD`, and `CLOCAL` flags, and sets a baud rate of 115200. It then reads data from the port into a buffer and prints it. A notification at the bottom right suggests installing the 'C/C++ Extension Pack' by Microsoft.

```
1 #include <stdio.h>
2 #include <stdlib.h>
3 #include <string.h>
4 #include <unistd.h>
5 #include <fcntl.h>
6 #include <termios.h>
7
8 int main() {
9     int serial_port = open("/dev/ttyUSB0", O_RDWR); // Abre el puerto serie
10    if (serial_port < 0) {
11        perror("Error al abrir el puerto serie");
12        return 1;
13    }
14    struct termios tty;
15    memset(&tty, 0, sizeof(tty));
16    if (tcgetattr(serial_port, &tty) != 0) {
17        perror("Error al obtener atributos del puerto serie");
18        return 1;
19    }
20    tty.c_cflag = CS8 | CREAD | CLOCAL; // Configura el puerto serie
21    tty.c_cc[VMIN] = 1; // Lee al menos 1 carácter
22    tty.c_cc[VTIME] = 5; // Espera hasta 0.5 segundos para la entrada
23    if (tcsetattr(serial_port, TCSANOW, &tty) != 0) {
24        perror("Error al establecer atributos del puerto serie");
25        return 1;
26    }
27    char buffer[256];
28    int bytes_read;
29    while (1) {
30        bytes_read = read(serial_port, buffer, sizeof(buffer));
31        if (bytes_read > 0) {
```



PRÁCTICA 2



The image shows a Windows environment with a Visual Studio Code editor and a terminal window. The editor displays a Python script named `programa.py` that uses the `serial` library to communicate with a device. The script sets up a serial connection to `/dev/ttyUSB0` at 9600 baud and implements a loop that reads sensor data and sends control signals to an LED based on the sensor value.

The terminal window, titled "Administrador: Windows Powe" and "Ubuntu", shows the execution of the program. It starts with the user running `code .`, then `gcc programa.py -o programa2`, which results in a linker error. The user then runs `python programa.py`, which results in a "command 'python' not found" error. After running `python3 programa.py`, the user receives a "No such file or directory" error for `/dev/ttyACM0`. Finally, running `python3 --version` shows the Python version is 3.12.3. The user then runs `sudo python3 programa.py`, and the program successfully outputs sensor values: 771, 770, 770, 771, 770, 771, 770, 771, 770, 771.

```

1 import serial
2 import time
3
4 try:
5     ser = serial.Serial('/dev/ttyUSB0', 9600, timeout=1) # Cambia '/dev/ttyACM0' si es necesario
6     time.sleep(2) # Espera a que el puerto se abra completamente
7
8     while True:
9         if ser.in_waiting > 0:
10            line = ser.readline().decode('utf-8').rstrip()
11            try:
12                sensor_value = int(line)
13                print(f"Valor del sensor: {sensor_value}")
14                if sensor_value > 500: # Umbral para encender el LED
15                    ser.write(b'1\n') # Envía '1' para encender el LED
16            except ValueError:
17                ser.write(b'0\n') # Envía '0' para apagar el LED
18            except serial.SerialException as e:
19                print(f"Error de puerto serie: {e}")
20            except KeyboardInterrupt:
21                print("Programa terminado por el usuario.")
22            finally:
23                if 'ser' in locals() and ser.is_open:
24                    ser.close()
25            time.sleep(0.1) # Espera 0.1 segundos
26
27 except serial.SerialException as e:
28     print(f"Error de puerto serie: {e}")
29 except KeyboardInterrupt:
30     print("Programa terminado por el usuario.")
31 finally:
32     if 'ser' in locals() and ser.is_open:
33         ser.close()

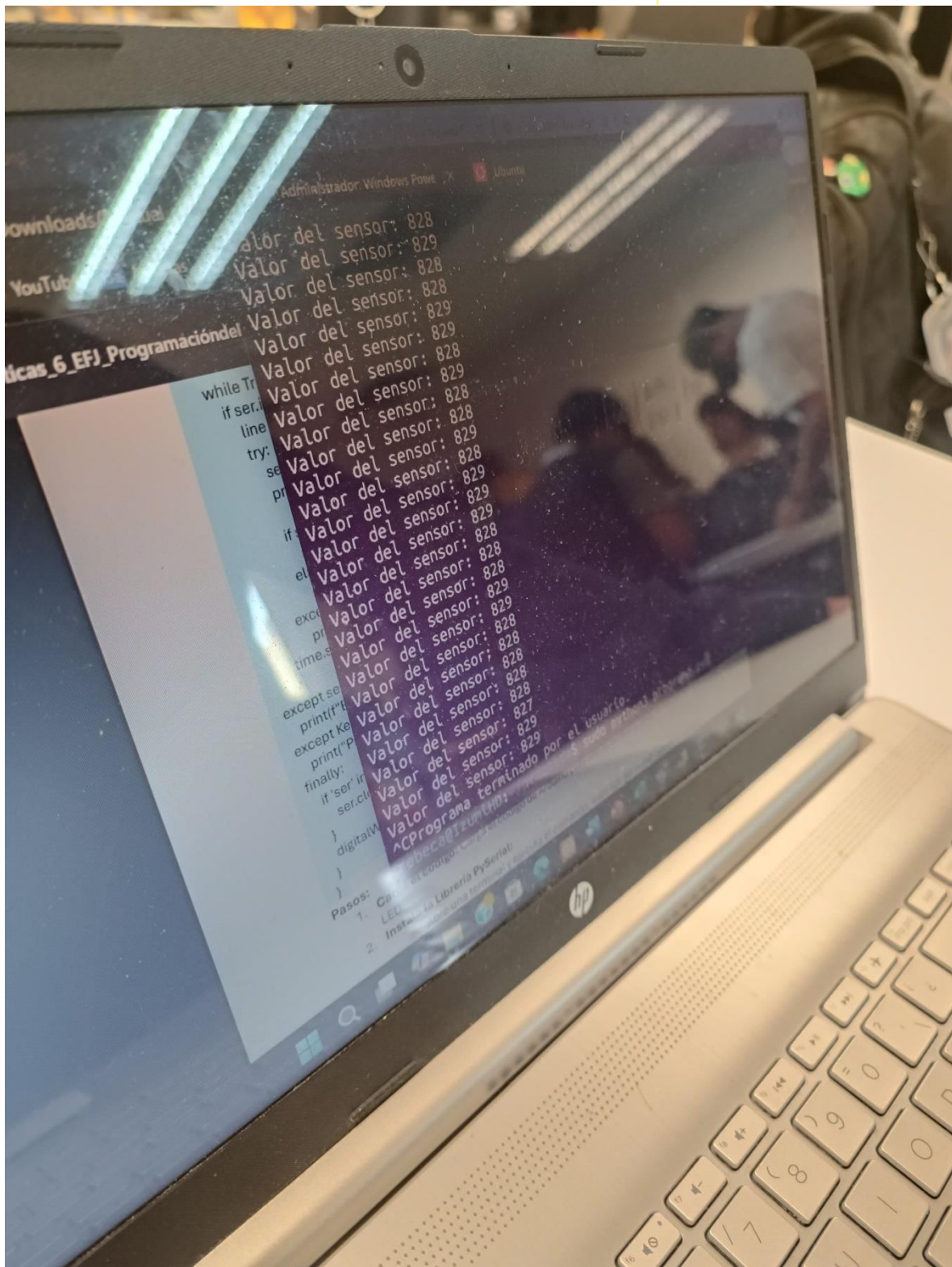
```

```

rebeca@IzumiHD:~/practica$ code .
rebeca@IzumiHD:~/practica$ gcc programa.py -o programa2
/usr/bin/ld:programa.py: file format not recognized; treating as linker script
/usr/bin/ld:programa.py:1: syntax error
collect2: error: ld returned 1 exit status
rebeca@IzumiHD:~/practica$ python programa.py
Command 'python' not found, did you mean:
  command 'python3' from deb python3
  command 'python' from deb python-is-python3
rebeca@IzumiHD:~/practica$ python3 programa.py
Error de puerto serie: [Errno 2] could not open port /dev/ttyACM0: [Errno 2] No
such file or directory: '/dev/ttyACM0'
rebeca@IzumiHD:~/practica$ python3 --version
Python 3.12.3
rebeca@IzumiHD:~/practica$ sudo python3 programa.py
Error de puerto serie: [Errno 2] could not open port /dev/ttyACM0: [Errno 2] No
such file or directory: '/dev/ttyACM0'
rebeca@IzumiHD:~/practica$ sudo python3 programa.py
Valor del sensor: 771
Valor del sensor: 770
Valor del sensor: 770
Valor del sensor: 771
Valor del sensor: 770
Valor del sensor: 771
Valor del sensor: 770
Valor del sensor: 771
Valor del sensor: 770
Valor del sensor: 771

```

```
Administrador: Windows Powe x Ubuntu x + v
Valor del sensor: 494
Valor del sensor: 490
Valor del sensor: 478
Valor del sensor: 460
Valor del sensor: 441
Valor del sensor: 423
Valor del sensor: 404
Valor del sensor: 384
Valor del sensor: 364
Valor del sensor: 345
Valor del sensor: 330
Valor del sensor: 322
Valor del sensor: 321
Valor del sensor: 320
Valor del sensor: 320
Valor del sensor: 317
Valor del sensor: 317
Valor del sensor: 317
Valor del sensor: 317
Valor del sensor: 317
Valor del sensor: 317
Valor del sensor: 317
Valor del sensor: 317
Valor del sensor: 317
Valor del sensor: 316
Valor del sensor: 317
Valor del sensor: 317
Valor del sensor: 321
Valor del sensor: 321
Valor del sensor: 321
Valor del sensor: 329
Valor del sensor: 350
Valor del sensor: 379
Valor del sensor: 412
```

PRÁCTICA 3

```
Administrador de dispositivos
rebeca@izumiHD: ~
Windows PowerShell
+ FullyQualifiedErrorId : CommandNotFoundException

PS C:\Users\rebec> usbipd list
Connected:
BUSID  VID:PID  DEVICE  STATE
-----
1-3    0408:5365 HP TrueVision HD Camera  Not shared
1-7    04f3:0c00 ELAN WBF Fingerprint Sensor  Not shared
1-10   0bda:b00e Realtek Bluetooth 4.2 Adapter  Not shared

Persisted:
GUID  DEVICE

PS C:\Users\rebec> usbipd bind --busid 1-1
'--busid' was not matched. Did you mean one of the following?
--busid
'1-1' was not matched. Did you mean one of the following?
-b
-f
-i

PS C:\Users\rebec> mkdir practica3

Directorio: C:\Users\rebec

Mode                LastWriteTime         Length Name
----                -
d-----         08/05/2025 12:00 p. m.          practica3

PS C:\Users\rebec> cd practica3
PS C:\Users\rebec\practica3> code .
PS C:\Users\rebec\practica3> python3 programa3
no se encontr Python; ejecutar sin argumentos para instalar desde el Microsoft Store o deshabilitar este acceso directo
desde Configuraci3n > Aplicaciones > Configuraci3n avanzada de aplicaciones > Alias de ejecuci3n de aplicaciones.
PS C:\Users\rebec\practica3> python3 programa3.py
no se encontr Python; ejecutar sin argumentos para instalar desde el Microsoft Store o deshabilitar este acceso directo
desde Configuraci3n > Aplicaciones > Configuraci3n avanzada de aplicaciones > Alias de ejecuci3n de aplicaciones.
PS C:\Users\rebec\practica3> py --version
No installed Python found!
PS C:\Users\rebec\practica3> python3 programa3.py
no se encontr Python; ejecutar sin argumentos para instalar desde el Microsoft Store o deshabilitar este acceso directo
desde Configuraci3n > Aplicaciones > Configuraci3n avanzada de aplicaciones > Alias de ejecuci3n de aplicaciones.
PS C:\Users\rebec\practica3> py --version
Python 3.13.3
PS C:\Users\rebec\practica3> py programa3.py
C:\Users\rebec\AppData\Local\Programs\Python\Python313\python.exe: can't open file 'C:\Users\rebec\practica3\programa3.py': [Errno 2] No such file or directory
PS C:\Users\rebec\practica3> dir
```



```
rebeca@luzmiHD: ~
Windows PowerShell

PS C:\Users\rebec\practica3> py programa3
C:\Users\rebec\AppData\Local\Programs\Python\Python313\python.exe: can't open file 'C:\Users\rebec\practica3\programa3': [Errno 2] No such file or directory
PS C:\Users\rebec\practica3> py practica3
C:\Users\rebec\AppData\Local\Programs\Python\Python313\python.exe: can't open file 'C:\Users\rebec\practica3\practica3.py': [Errno 2] No such file or directory
PS C:\Users\rebec\practica3> py practica3.py
Traceback (most recent call last):
  File "C:\Users\rebec\practica3\practica3.py", line 1, in <module>
    import serial
ModuleNotFoundError: No module named 'serial'
PS C:\Users\rebec\practica3> python3 practica3.py
no se encontró Python; ejecutar sin argumentos para instalar desde el Microsoft Store o deshabilitar este acceso directo desde Configuración > Aplicaciones > Configuración avanzada de aplicaciones > Alias de ejecución de aplicaciones.
PS C:\Users\rebec\practica3> py practica3.py
Traceback (most recent call last):
  File "C:\Users\rebec\practica3\practica3.py", line 1, in <module>
    import serial
ModuleNotFoundError: No module named 'serial'
PS C:\Users\rebec\practica3> pip install pyserial
pip : El término 'pip' no se reconoce como nombre de un cmdlet, función, archivo de script o programa ejecutable. Compruebe si escribió correctamente el nombre o, si incluyó una ruta de acceso, compruebe que dicha ruta es correcta e inténtelo de nuevo.
En línea: 1 Carácter: 1
+ pip install pyserial
+ ~~~~
+ CategoryInfo          : ObjectNotFound: (pip:String) [], CommandNotFoundException
+ FullyQualifiedErrorId : CommandNotFoundException
```

```
rebeca@luzmiHD: ~
Windows PowerShell

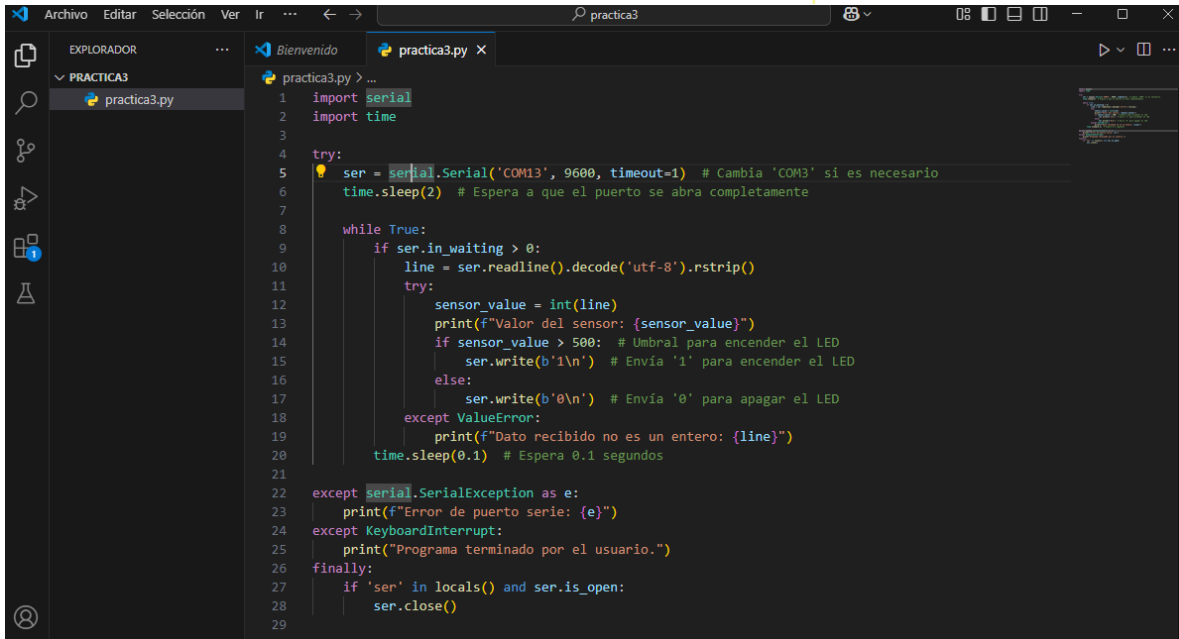
+ FullyQualifiedErrorId : CommandNotFoundException

PS C:\Users\rebec\practica3> python.exe -m pip install --upgrade pip
no se encontró Python; ejecutar sin argumentos para instalar desde el Microsoft Store o deshabilitar este acceso directo desde Configuración > Aplicaciones > Configuración avanzada de aplicaciones > Alias de ejecución de aplicaciones.
PS C:\Users\rebec\practica3> py.exe -m pip install --upgrade pip
Requirement already satisfied: pip in c:\users\rebec\appdata\local\programs\python\python313\lib\site-packages (25.0.1)
Collecting pip
  Downloading pip-25.1.1-py3-none-any.whl.metadata (3.6 kB)
  Downloading pip-25.1.1-py3-none-any.whl (1.8 MB)
    1.8/1.8 MB 6.1 MB/s eta 0:00:00
Installing collected packages: pip
  Attempting uninstall: pip
    Found existing installation: pip 25.0.1
    Uninstalling pip-25.0.1:
      Successfully uninstalled pip-25.0.1
  WARNING: The scripts pip.exe, pip3.13.exe and pip3.exe are installed in 'C:\Users\rebec\AppData\Local\Programs\Python\Python313\Scripts' which is not on PATH.
  Consider adding this directory to PATH or, if you prefer to suppress this warning, use --no-warn-script-location.
Successfully installed pip-25.1.1
PS C:\Users\rebec\practica3> pip install pyserial
pip : El término 'pip' no se reconoce como nombre de un cmdlet, función, archivo de script o programa ejecutable. Compruebe si escribió correctamente el nombre o, si incluyó una ruta de acceso, compruebe que dicha ruta es correcta e inténtelo de nuevo.
```

```
+ FullyQualifiedErrorId : CommandNotFoundException
```

```
PS C:\Users\rebec\practica> py.exe -m pip install --upgrade pip  
Requirement already satisfied: pip in c:\users\rebec\AppData\Local\Programs\Python\python313\Lib\site-packages (25.1.1)  
PS C:\Users\rebec\practica> py --version  
Python 3.13.3  
PS C:\Users\rebec\practica> python.exe -m pip install pyserial  
no se encontr Python; ejecutar sin argumentos para instalar desde el Microsoft Store o deshabilitar este acceso directo  
desde Configuraci n > Aplicaciones > Configuraci n avanzada de aplicaciones > Alias de ejecuci n de aplicaciones.  
PS C:\Users\rebec\practica> py.exe -m pip install pyserial  
Collecting pyserial  
Downloading pyserial-3.5-py2.py3-none-any.whl.metadata (1.6 kB)  
Downloading pyserial-3.5-py2.py3-none-any.whl (90 kB)  
Installing collected packages: pyserial  
WARNING: The scripts pyserial-miniterm.exe and pyserial-ports.exe are installed in 'C:\Users\rebec\AppData\Local\Progr  
ams\Python\Python313\Scripts' which is not on PATH.  
Consider adding this directory to PATH or, if you prefer to suppress this warning, use --no-warn-script-location.  
Successfully installed pyserial-3.5  
PS C:\Users\rebec\practica> py practica3.py  
Error de puerto serie: could not open port 'COM13': FileNotFound(2, 'El sistema no puede encontrar el archivo espec  
ificado.', None, 2)  
PS C:\Users\rebec\practica> py practica3.py  
Valor del sensor: 1023  
Valor del sensor: 1023  
Valor del sensor: 1023  
Valor del sensor: 1023  
Valor del sensor: 1023  
Valor del sensor: 1023  
Valor del sensor: 1023  
Valor del sensor: 1023
```

```
Valor del sensor: 1023  
Valor del sensor: 1023  
Valor del sensor: 1023  
Valor del sensor: 1023  
Valor del sensor: 989  
Valor del sensor: 957  
Valor del sensor: 930  
• Valor del sensor: 908  
Valor del sensor: 887  
Valor del sensor: 868  
Valor del sensor: 849  
Valor del sensor: 827  
Valor del sensor: 807  
Valor del sensor: 789  
Valor del sensor: 768  
Valor del sensor: 749  
Valor del sensor: 731  
Valor del sensor: 713  
Valor del sensor: 705  
Valor del sensor: 707  
Valor del sensor: 707  
Valor del sensor: 707  
Valor del sensor: 704  
Valor del sensor: 676  
Valor del sensor: 676
```

```
practica3.py > ...
1 import serial
2 import time
3
4 try:
5     ser = serial.Serial('COM13', 9600, timeout=1) # Cambia 'COM3' si es necesario
6     time.sleep(2) # Espera a que el puerto se abra completamente
7
8     while True:
9         if ser.in_waiting > 0:
10             line = ser.readline().decode('utf-8').rstrip()
11             try:
12                 sensor_value = int(line)
13                 print(f"Valor del sensor: {sensor_value}")
14                 if sensor_value > 500: # Umbral para encender el LED
15                     ser.write(b'1\n') # Envía '1' para encender el LED
16             except:
17                 ser.write(b'0\n') # Envía '0' para apagar el LED
18         except ValueError:
19             print(f"Dato recibido no es un entero: {line}")
20             time.sleep(0.1) # Espera 0.1 segundos
21
22 except serial.SerialException as e:
23     print(f"Error de puerto serie: {e}")
24 except KeyboardInterrupt:
25     print("Programa terminado por el usuario.")
26 finally:
27     if 'ser' in locals() and ser.is_open:
28         ser.close()
29
```