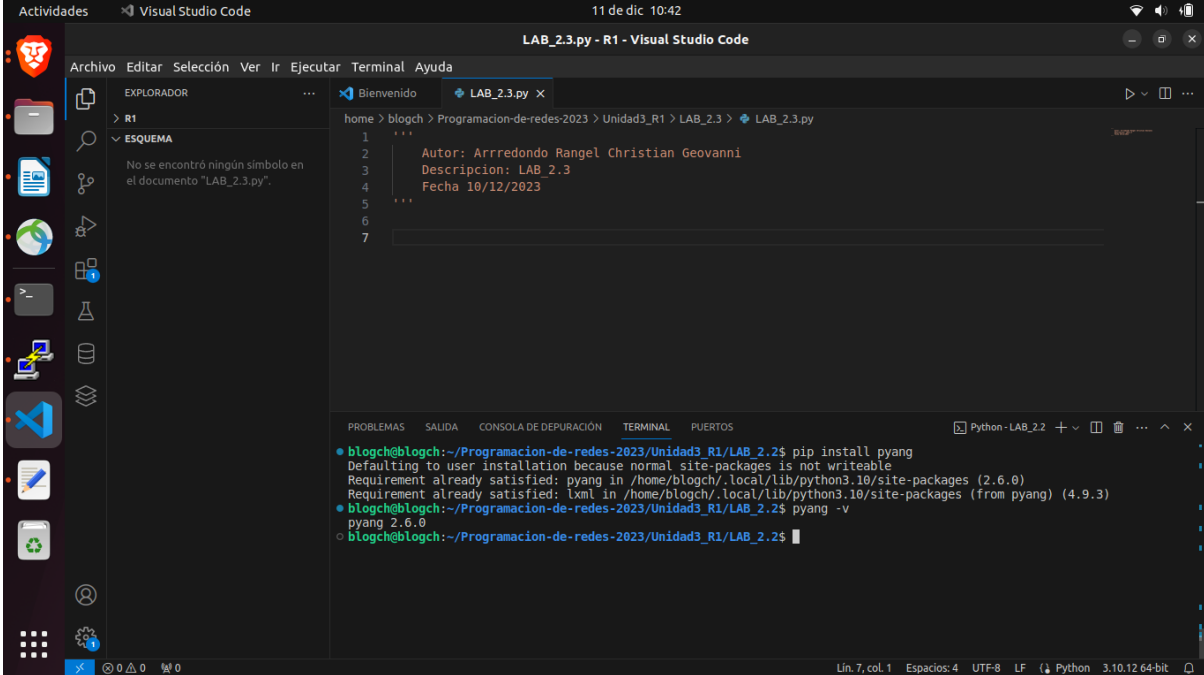


Arredondo Rangel Christian Geovanni 1222100691
LAB__2.3

Part 1: Install the pyang Python module

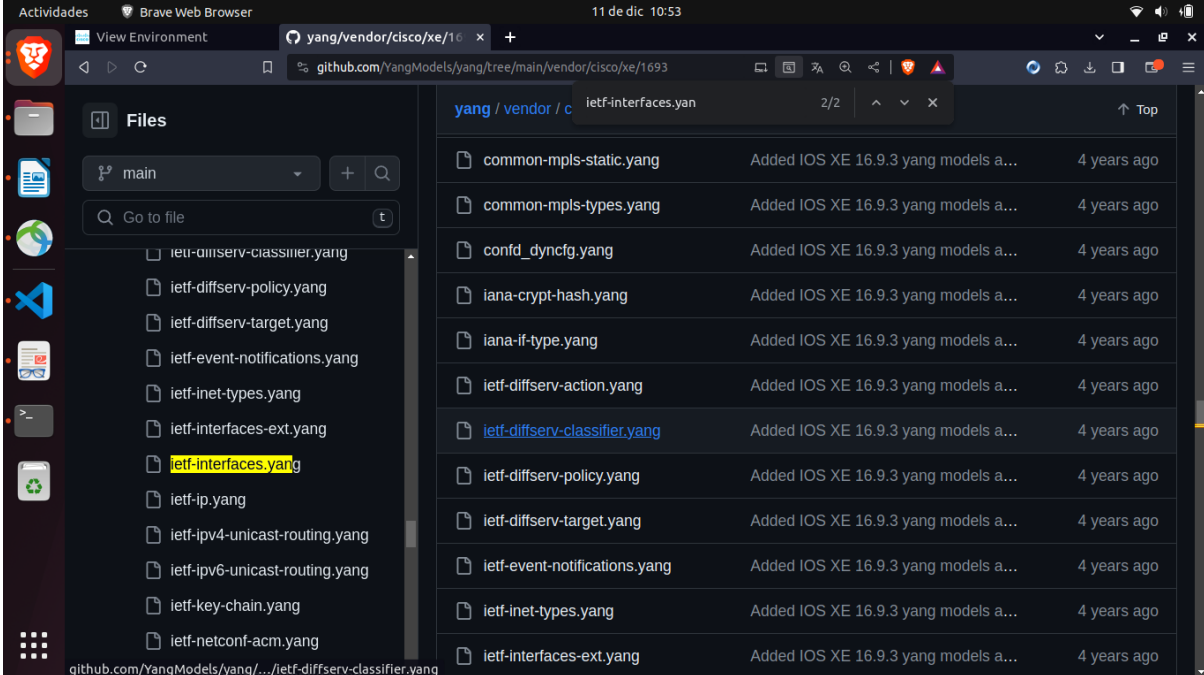


The screenshot shows the Visual Studio Code interface with a file explorer on the left and a terminal at the bottom. The file explorer shows a directory structure with a file named 'LAB_2.3.py'. The terminal displays the following commands and output:

```
home > blogch > Programacion-de-redes-2023 > Unidad3_R1 > LAB_2.3 > LAB_2.3.py
1
2
3     Autor: Arredondo Rangel Christian Geovanni
4     Descripcion: LAB 2.3
5     Fecha 10/12/2023
6
7

• blogch@blogch:~/Programacion-de-redes-2023/Unidad3_R1/LAB_2.2$ pip install pyang
Defaulting to user installation because normal site-packages is not writeable
Requirement already satisfied: pyang in /home/blogch/.local/lib/python3.10/site-packages (2.6.0)
Requirement already satisfied: lxml in /home/blogch/.local/lib/python3.10/site-packages (from pyang) (4.9.3)
pyang 2.6.0
• blogch@blogch:~/Programacion-de-redes-2023/Unidad3_R1/LAB_2.2$
```

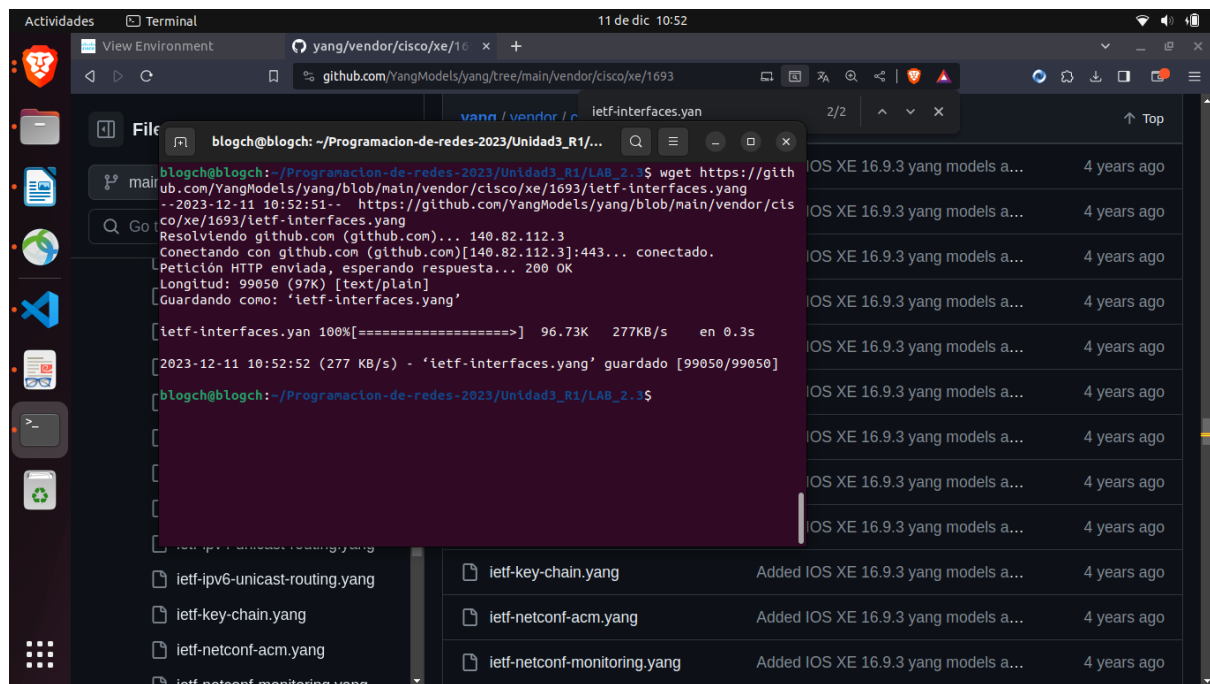
Explorando modulos yang



The screenshot shows a Brave Web Browser window displaying the GitHub repository for YANG models. The browser address bar shows the URL github.com/YangModels/yang/tree/main/vendor/cisco/xe/1693. The left sidebar shows a file explorer with a list of files, including 'ietf-interfaces.yang'. The main content area shows a list of YANG models, including 'common-mpls-static.yang', 'common-mpls-types.yang', 'confd_dynconf.yang', 'iana-crypt-hash.yang', 'iana-if-type.yang', 'ietf-diffserv-action.yang', 'ietf-diffserv-classifier.yang', 'ietf-diffserv-policy.yang', 'ietf-diffserv-target.yang', 'ietf-event-notifications.yang', 'ietf-inet-types.yang', and 'ietf-interfaces-ext.yang'. The 'ietf-interfaces.yang' file is highlighted.

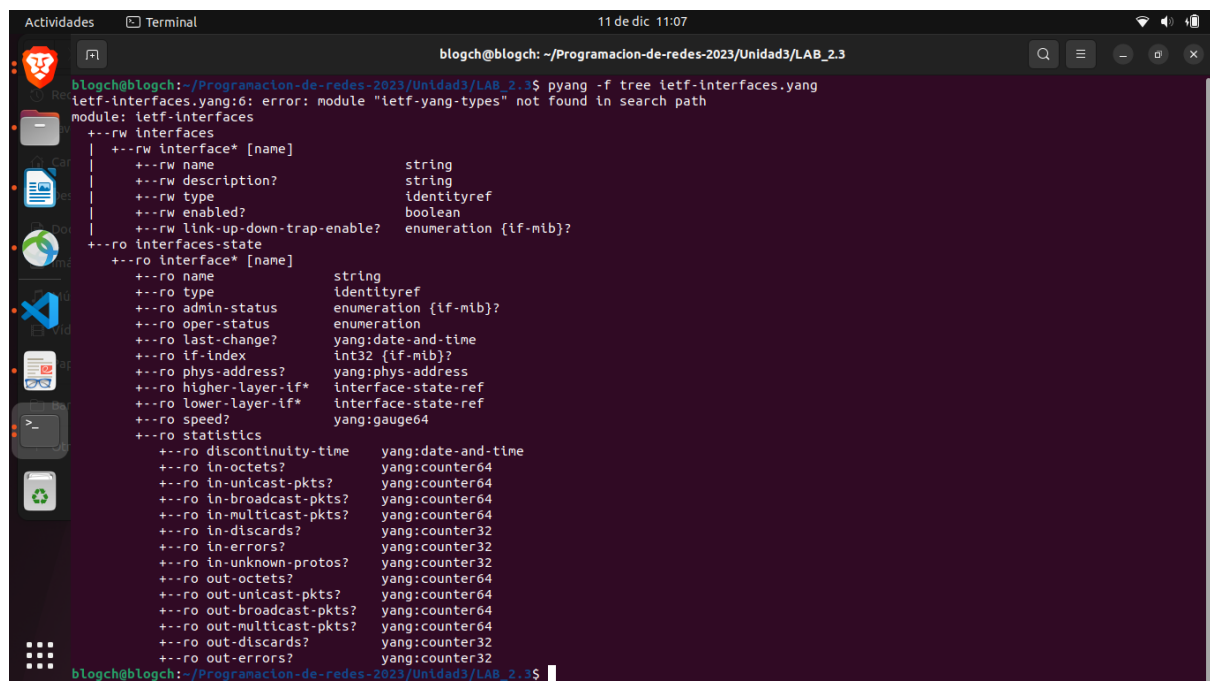
File Name	Description	Added	Age
common-mpls-static.yang	Added IOS XE 16.9.3 yang models a...	4 years ago	
common-mpls-types.yang	Added IOS XE 16.9.3 yang models a...	4 years ago	
confd_dynconf.yang	Added IOS XE 16.9.3 yang models a...	4 years ago	
iana-crypt-hash.yang	Added IOS XE 16.9.3 yang models a...	4 years ago	
iana-if-type.yang	Added IOS XE 16.9.3 yang models a...	4 years ago	
ietf-diffserv-action.yang	Added IOS XE 16.9.3 yang models a...	4 years ago	
ietf-diffserv-classifier.yang	Added IOS XE 16.9.3 yang models a...	4 years ago	
ietf-diffserv-policy.yang	Added IOS XE 16.9.3 yang models a...	4 years ago	
ietf-diffserv-target.yang	Added IOS XE 16.9.3 yang models a...	4 years ago	
ietf-event-notifications.yang	Added IOS XE 16.9.3 yang models a...	4 years ago	
ietf-inet-types.yang	Added IOS XE 16.9.3 yang models a...	4 years ago	
ietf-interfaces-ext.yang	Added IOS XE 16.9.3 yang models a...	4 years ago	

Part 2: Download YANG models for the IOS XE



Part 3: Use the pyang command line tool to transform the YANG models

Transformar el Modelo YANG ietf-interfaces



Explorar Otros Modelos YANG

```
Actividades Terminal 11 de dic 11:08
blogch@blogch: ~/Programacion-de-redes-2023/Unidad3/LAB_2.3

modules:ietf:interfaces
+--rw interfaces
|   +--rw interface* [name]
|   |   +--rw name string
|   |   +--rw description? string
|   |   +--rw type identityref
|   |   +--rw enabled? boolean
|   |   +--rw link-up-down-trap-enable? enumeration {tf-mib}?
|   +--ro interfaces-state
|   |   +--ro interface* [name]
|   |   |   +--ro name string
|   |   |   +--ro type identityref
|   |   |   +--ro admin-status enumeration {if-mib}?
|   |   |   +--ro oper-status enumeration
|   |   |   +--ro last-change? yang:date-and-time
|   |   |   +--ro if-index int32 {if-mib}?
|   |   |   +--ro phys-address? yang:phys-address
|   |   |   +--ro higher-layer-if* interface-state-ref
|   |   |   +--ro lower-layer-if* interface-state-ref
|   |   |   +--ro speed? yang:gauge64
|   |   +--ro statistics
|   |   |   +--ro discontinuity-time yang:date-and-time
|   |   |   +--ro in-octets? yang:counter64
|   |   |   +--ro in-unicast-pkts? yang:counter64
|   |   |   +--ro in-broadcast-pkts? yang:counter64
|   |   |   +--ro in-multicast-pkts? yang:counter64
|   |   |   +--ro in-discards? yang:counter32
|   |   |   +--ro in-errors? yang:counter32
|   |   |   +--ro in-unknown-protos? yang:counter32
|   |   |   +--ro out-octets? yang:counter64
|   |   |   +--ro out-unicast-pkts? yang:counter64
|   |   |   +--ro out-broadcast-pkts? yang:counter64
|   |   |   +--ro out-multicast-pkts? yang:counter64
|   |   |   +--ro out-discards? yang:counter32
|   |   |   +--ro out-errors? yang:counter32
+--ro statistics
|   +--ro discontinuity-time yang:date-and-time
|   +--ro in-octets? yang:counter64
|   +--ro in-unicast-pkts? yang:counter64
|   +--ro in-broadcast-pkts? yang:counter64
|   +--ro in-multicast-pkts? yang:counter64
|   +--ro in-discards? yang:counter32
|   +--ro in-errors? yang:counter32
|   +--ro in-unknown-protos? yang:counter32
|   +--ro out-octets? yang:counter64
|   +--ro out-unicast-pkts? yang:counter64
|   +--ro out-broadcast-pkts? yang:counter64
|   +--ro out-multicast-pkts? yang:counter64
|   +--ro out-discards? yang:counter32
|   +--ro out-errors? yang:counter32

blogch@blogch: ~/Programacion-de-redes-2023/Unidad3/LAB_2.3 $ pyang -f tree Cisco-IOS-XE-cdp.yang
Cisco-IOS-XE-cdp.yang:d: error: module "Cisco-IOS-XE-native" not found in search path
blogch@blogch: ~/Programacion-de-redes-2023/Unidad3/LAB_2.3 $
```

¿Hay algún dato de operación "solo lectura" en el modelo Cisco-IOS-XE-cdp.yang?

Sí, el modelo Cisco-IOS-XE-cdp.yang si incluye solo datos de lectura, los elementos de solo lectura se consideran datos de estado mientras que los de escritura y lectura se consideran datos de configuración.

¿Hay algún otro modelo YANG que incluya datos operativos de CDP?

Sí, existen otros modelos YANG que incluyen datos operativos de Cisco Discovery Protocol (CDP).