

CS 203 - Assignment - 3

Group 26

SHAH HARSHIL HARDIK (23110132)

SHAH TIRTH (23110295)

1. Clear the history present and print it

```
harshil@harshil:~$ history -c && history -w
harshil@harshil:~$ history
  1  history
harshil@harshil:~$ _
```

2. Check if python3.10 is already present. The WARNING indicates that it is not present.

```
harshil@harshil:~$ sudo apt list | grep -i python3.10
[sudo] password for harshil:

WARNING: apt does not have a stable CLI interface. Use with caution in scripts.

harshil@harshil:~$
```

3. Download tarball using wget.

```
harshil@harshil:~$ wget https://www.python.org/ftp/python/3.10.16/Python-3.10.16.tgz
--2025-01-24 18:16:55-- https://www.python.org/ftp/python/3.10.16/Python-3.10.16.tgz
Resolving www.python.org (www.python.org)... 151.101.64.223, 151.101.128.223, 151.101.192.223, ...
Connecting to www.python.org (www.python.org)|151.101.64.223|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 25942994 (25M) [application/octet-stream]
Saving to: 'Python-3.10.16.tgz'

Python-3.10.16.tgz      100%[=====] 24.74M  6.58MB/s  in 3.7s
2025-01-24 18:16:59 (6.62 MB/s) - 'Python-3.10.16.tgz' saved [25942994/25942994]

harshil@harshil:~$ ls
Python-3.10.16.tgz
harshil@harshil:~$
```

4. Extract tarball.

```
harshil@harshil:~$ tar -xvf Python-3.10.16
```

5. Extracted files from tarball.

```
Python-3.10.16/Tools/stringbench/stringbench.py
Python-3.10.16/Tools/test2to3/
Python-3.10.16/Tools/test2to3/README
Python-3.10.16/Tools/test2to3/maintest.py
Python-3.10.16/Tools/test2to3/setup.py
Python-3.10.16/Tools/test2to3/test/
Python-3.10.16/Tools/test2to3/test/runtests.py
Python-3.10.16/Tools/test2to3/test/test_foo.py
Python-3.10.16/Tools/test2to3/test2to3/
Python-3.10.16/Tools/test2to3/test2to3/_init_.py
Python-3.10.16/Tools/test2to3/test2to3/hello.py
Python-3.10.16/Tools/tz/
Python-3.10.16/Tools/tz/zdump.py
Python-3.10.16/Tools/unicode/
Python-3.10.16/Tools/unicode/Makefile
Python-3.10.16/Tools/unicode/comparecodecs.py
Python-3.10.16/Tools/unicode/genjckcodecs.py
Python-3.10.16/Tools/unicode/gencodec.py
Python-3.10.16/Tools/unicode/genmap_japanese.py
Python-3.10.16/Tools/unicode/genmap_korean.py
Python-3.10.16/Tools/unicode/genmap_schinese.py
Python-3.10.16/Tools/unicode/genmap_support.py
Python-3.10.16/Tools/unicode/genwincodecs.py
Python-3.10.16/Tools/unicode/genwincodecs.bat
Python-3.10.16/Tools/unicode/listcodecs.py
Python-3.10.16/Tools/unicode/makeunicodedata.py
Python-3.10.16/Tools/unicode/mkstringprep.py
Python-3.10.16/Tools/unicode/python-mappings/
Python-3.10.16/Tools/unicode/python-mappings/CP1140.TXT
Python-3.10.16/Tools/unicode/python-mappings/CP273.TXT
Python-3.10.16/Tools/unicode/python-mappings/GB2312.TXT
Python-3.10.16/Tools/unicode/python-mappings/KOI8-U.TXT
Python-3.10.16/Tools/unicode/python-mappings/TIS-620.TXT
Python-3.10.16/Tools/unicode/python-mappings/diff/
Python-3.10.16/Tools/unicode/python-mappings/diff/jisx0213-2000-std.txt.diff
Python-3.10.16/Tools/unicode/python-mappings/diff/jisx0213-2004-std.txt.diff
Python-3.10.16/Tools/unicode/python-mappings/gb-18030-2000.xml
Python-3.10.16/Tools/unicode/python-mappings/jisx0213-2004-std.txt
Python-3.10.16/Tools/unittestgui/
Python-3.10.16/Tools/unittestgui/README.txt
Python-3.10.16/Tools/unittestgui/unittestgui.py
Python-3.10.16/aclocal.m4
Python-3.10.16/config.guess
Python-3.10.16/config.sub
Python-3.10.16/configure
Python-3.10.16/configure.ac
Python-3.10.16/install.sh
Python-3.10.16/pyconfig.h.in
Python-3.10.16/setup.py
```

6. Libffi was not present. To resolve error, build libffi using tarball.

```
make build_all CFLAGS_NODIST="" -fprofile-use -fprofile-correction" LDFLAGS_NODIST=""
make[1]: Entering directory '/home/harshil/Python-3.10.16'
  CC="gcc" LD=shared="gcc -shared" -fno-semantic-interposition ' OPT="-DDEBUG -g -fwrapv -O3 -Wall" _TCLTK_INCLUDES="" _TCLTK_LIBS="" ./python -E ./se
  tup.py build
running build
running build_ext
INFO: Can't locate Tcl/Tk libs and/or headers
building '_ctypes' extension
gcc -fPIC -Wno-unused-result -Wsign-compare -DDEBUG -g -fwrapv -O3 -Wall -fno-semantic-interposition -std=c99 -Wextra -Wno-unused-result -Wno-unused-parameter
-Wno-missing-field-initializers -Werror=implicit-function-declaration -fvisibility=hidden -fprofile-use -fprofile-correction -I./Include/INTERNAL -I./Include -I
./usr/include/x86_64-linux-gnu -I/usr/local/include -I/home/harshil/Python-3.10.16/Include -I/home/harshil/Python-3.10.16 -c /home/harshil/Python-3.10.16/Mod
ules/_ctypes/_ctypes.c -o build/temp.linux-x86_64-3.10/home/harshil/Python-3.10.16/Modules/_ctypes/_ctypes.o -DPy_BUILD_CORE_MODULE
/home/harshil/Python-3.10.16/Modules/_ctypes/_ctypes.c:107:10: fatal error: ffi.h: No such file or directory
   107 | #include <ffi.h>
       |          ^~~~~~
compilation terminated.

The necessary bits to build these optional modules were not found:
_bz2          _curses          _curses_panel
_dbm          _gdbm           _hashlib
_lzma        _sqlite3         _ssl
_tkinter     _uuid            nis
readline     zlib

To find the necessary bits, look in setup.py in detect_modules() for the module's name.

The following modules found by detect_modules() in setup.py, have been
built by the Makefile instead, as configured by the Setup files:
_abc          pwd              time

Failed to build these modules:
_ctypes

Could not build the ssl module!
Python requires a OpenSSL 1.1.1 or newer

running build_scripts
copying and adjusting /home/harshil/Python-3.10.16/Tools/scripts/pydoc3 -> build/scripts-3.10
copying and adjusting /home/harshil/Python-3.10.16/Tools/scripts/idle3 -> build/scripts-3.10
copying and adjusting /home/harshil/Python-3.10.16/Tools/scripts/2to3 -> build/scripts-3.10
changing mode of build/scripts-3.10/pydoc3 from 664 to 775
changing mode of build/scripts-3.10/idle3 from 664 to 775
changing mode of build/scripts-3.10/2to3 from 664 to 775
renaming build/scripts-3.10/pydoc3 to build/scripts-3.10/pydoc3.10
renaming build/scripts-3.10/idle3 to build/scripts-3.10/idle3.10
renaming build/scripts-3.10/2to3 to build/scripts-3.10/2to3.10
make[1]: Leaving directory '/home/harshil/Python-3.10.16'
harshil@harshil:~/Python-3.10.16$
```

7. Zlib not present. To resolve, install it using tarball.

```
esac; \
    ./python -E -m ensurepip \
        $ensurepip --root=/ ; \
fi
Traceback (most recent call last):
  File "<frozen zipimport>", line 570, in _get_decompress_func
ModuleNotFoundError: No module named 'zlib'

During handling of the above exception, another exception occurred:

Traceback (most recent call last):
  File "<frozen zipimport>", line 618, in _get_data
  File "<frozen zipimport>", line 573, in _get_decompress_func
zipimport.ZipImportError: can't decompress data; zlib not available

During handling of the above exception, another exception occurred:
```

8. Python --version

```
harshil@harshil:~$ python3.10/bin/python3.10 --version
Python 3.10.6
```

9. Pip version

```
harshil@harshil:~$ python3.10/bin/python3.10 -m pip --version
pip 22.2.1 from /home/harshil/python3.10/lib/python3.10/site-packages/pip (python 3.10)
harshil@harshil:~$ _
```

10. SSL was not present. So pip cannot download label-studio. Install openssl using tarball.

```
changing mode of /home/harshil/python3.10/bin/pydoc3.10 to 775
changing mode of /home/harshil/python3.10/bin/idle3.10 to 775
changing mode of /home/harshil/python3.10/bin/2to3-3.10 to 775
rm /home/harshil/python3.10/lib/python3.10/lib-dynload/_sysconfigdata__linux_x86_64-linux-gnu.py
rm -r /home/harshil/python3.10/lib/python3.10/lib-dynload/_pycache__
/usr/bin/install -c -m 644 ./Misc/python.man \
/home/harshil/python3.10/share/man/man1/python3.10.1
if test "xupgrade" != "xno" ; then \
    case upgrade in \
        upgrade) ensurepip="--altinstall --upgrade" ;; \
        install*) ensurepip="--altinstall" ;; \
        *) \
            esac; \
        ./python -E -m ensurepip \
            ensurepip --root=/ ; \
    fi
Looking in links: /tmp/tmpmdbcxqjv
Processing /tmp/tmpmdbcxqjv/setupools-63.2.0-py3-none-any.whl
Processing /tmp/tmpmdbcxqjv/pip-22.2.1-py3-none-any.whl
Installing collected packages: setupools, pip
WARNING: The script pip3.10 is installed in '/home/harshil/python3.10/bin' 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-22.2.1 setupools-63.2.0
harshil@harshil:~/Python-3.10.6$ cd ../
harshil@harshil:~$ ls
bin  lib64  python3.10  python310  Python-3.10.6  Python-3.10.6.tgz  zlib
harshil@harshil:~$ python3.10/bin/python3.10
Python 3.10.6 (main, Jan 26 2025, 12:08:18) [GCC 13.3.0] on linux
Type "help", "copyright", "credits" or "license()" for more information.
>>> exit()
harshil@harshil:~$ python3.10/bin/python3.10 -m pip install label-studio
WARNING: pip is configured with locations that require TLS/SSL, however the ssl module in Python is not available.
WARNING: Retrying (Retry(total=4, connect=None, read=None, redirect=None, status=None)) after connection broken by 'SSLError("Can't connect to
(the SSL module is not available.)")': /simple/label-studio/
WARNING: Retrying (Retry(total=3, connect=None, read=None, redirect=None, status=None)) after connection broken by 'SSLError("Can't connect to
(the SSL module is not available.)")': /simple/label-studio/
WARNING: Retrying (Retry(total=2, connect=None, read=None, redirect=None, status=None)) after connection broken by 'SSLError("Can't connect to
(the SSL module is not available.)")': /simple/label-studio/
WARNING: Retrying (Retry(total=1, connect=None, read=None, redirect=None, status=None)) after connection broken by 'SSLError("Can't connect to
(the SSL module is not available.)")': /simple/label-studio/
WARNING: Retrying (Retry(total=0, connect=None, read=None, redirect=None, status=None)) after connection broken by 'SSLError("Can't connect to
(the SSL module is not available.)")': /simple/label-studio/
Could not fetch URL https://pypi.org/simple/label-studio/: There was a problem confirming the ssl certificate: HTTPSConnectionPool(host='pypi.o
x retries exceeded with url: /simple/label-studio/ (Caused by SSLError("Can't connect to HTTPS URL because the SSL module is not available.))
ERROR: Could not find a version that satisfies the requirement label-studio (from versions: none)
ERROR: No matching distribution found for label-studio
WARNING: pip is configured with locations that require TLS/SSL, however the ssl module in Python is not available.
Could not fetch URL https://pypi.org/simple/pip/: There was a problem confirming the ssl certificate: HTTPSConnectionPool(host='pypi.org', port
s exceeded with url: /simple/pip/ (Caused by SSLError("Can't connect to HTTPS URL because the SSL module is not available.)) - skipping
WARNING: There was an error checking the latest version of pip.
harshil@harshil:~$
```

11. Extracting files from openssl

```
openssl-1.1.1w/util/dofile.pl
openssl-1.1.1w/util/echo.pl
openssl-1.1.1w/util/find-doc-nits
openssl-1.1.1w/util/find-unused-errs
openssl-1.1.1w/util/fix-includes
openssl-1.1.1w/util/fix-includes.sed
openssl-1.1.1w/util/indent.pro
openssl-1.1.1w/util/libcrypto.num
openssl-1.1.1w/util/libssl.num
openssl-1.1.1w/util/local_shlib.com.in
openssl-1.1.1w/util/mkbuildinf.pl
openssl-1.1.1w/util/mkdef.pl
openssl-1.1.1w/util/mkdir-p.pl
openssl-1.1.1w/util/mkerr.pl
openssl-1.1.1w/util/mkrc.pl
openssl-1.1.1w/util/openssl-format-source
openssl-1.1.1w/util/openssl-update-copyright
openssl-1.1.1w/util/opensslwrap.sh
openssl-1.1.1w/util/perl/
openssl-1.1.1w/util/perl/OpenSSL/
openssl-1.1.1w/util/perl/OpenSSL/Glob.pm
openssl-1.1.1w/util/perl/OpenSSL/Test.pm
openssl-1.1.1w/util/perl/OpenSSL/Test/
openssl-1.1.1w/util/perl/OpenSSL/Test/Simple.pm
openssl-1.1.1w/util/perl/OpenSSL/Test/Utils.pm
openssl-1.1.1w/util/perl/OpenSSL/Util/
openssl-1.1.1w/util/perl/OpenSSL/Util/Pod.pm
openssl-1.1.1w/util/perl/OpenSSL/copyright.pm
openssl-1.1.1w/util/perl/TLSProxy/
openssl-1.1.1w/util/perl/TLSProxy/Alert.pm
openssl-1.1.1w/util/perl/TLSProxy/Certificate.pm
openssl-1.1.1w/util/perl/TLSProxy/CertificateRequest.pm
openssl-1.1.1w/util/perl/TLSProxy/CertificateVerify.pm
openssl-1.1.1w/util/perl/TLSProxy/ClientHello.pm
openssl-1.1.1w/util/perl/TLSProxy/EncryptedExtensions.pm
openssl-1.1.1w/util/perl/TLSProxy/Message.pm
openssl-1.1.1w/util/perl/TLSProxy/NewSessionTicket.pm
openssl-1.1.1w/util/perl/TLSProxy/Proxy.pm
openssl-1.1.1w/util/perl/TLSProxy/Record.pm
openssl-1.1.1w/util/perl/TLSProxy/ServerHello.pm
openssl-1.1.1w/util/perl/TLSProxy/ServerKeyExchange.pm
openssl-1.1.1w/util/perl/TLSProxy/checkhandshake.pm
openssl-1.1.1w/util/perl/with_fallback.pm
openssl-1.1.1w/util/private.num
openssl-1.1.1w/util/process_docs.pl
openssl-1.1.1w/util/shlib_wrap.sh.in
openssl-1.1.1w/util/su-filter.pl
openssl-1.1.1w/util/unlocal_shlib.com.in
openssl-1.1.1w/wycheproof/
harshil@harshil:~$ cd openssl-1.1.1w_
```

12. Make in openssl.

```
harshil@harshil:~$ cd openssl-1.1.1w
harshil@harshil:~/openssl-1.1.1w$ ./config --prefix=$HOME/openssl --openssldir=$HOME/openssl
Operating system: x86_64-unknown-linux2
Configuring OpenSSL version 1.1.1w (0x1010117fL) for linux-x86_64
Using os-specific seed configuration
Creating configdata.pm
Creating Makefile

***
*** OpenSSL has been successfully configured
***
***
*** If you encounter a problem while building, please open an
*** issue on GitHub <https://github.com/openssl/openssl/issues>
*** and include the output from the following command:
***
***     perl configdata.pm --dump
***
*** (If you are new to OpenSSL, you might want to consult the
*** 'Troubleshooting' section in the INSTALL file first)
***
harshil@harshil:~/openssl-1.1.1w$
```

13. Installing label-studio.

```
(n1) harshil@harshil:~$ pip install label-studio
Collecting label-studio
  Downloading label_studio-1.15.0-py3-none-any.whl (60.6 MB)
    60.6/60.6 MB 3.8 MB/s eta 0:00:00
```

14. SQLite not present

```
ModuleNotFoundError: No module named '_sqlite3'
```

15. Download SQLite tarball

```
(n1) harshil@harshil:~$ wget https://sqlite.org/2025/sqlite-autoconf-3480000.tar.gz
--2025-01-26 14:15:29-- https://sqlite.org/2025/sqlite-autoconf-3480000.tar.gz
Resolving sqlite.org (sqlite.org)... 45.33.6.223, 2600:3c00::f03c:91ff:fe96:b959
Connecting to sqlite.org (sqlite.org)|45.33.6.223|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 3337615 (3.2M) [application/x-gzip]
Saving to: 'sqlite-autoconf-3480000.tar.gz'

sqlite-autoconf-3480000.tar.gz      100%[=====] 3.18M  781KB/s
2025-01-26 14:15:35 (781 KB/s) - 'sqlite-autoconf-3480000.tar.gz' saved [3337615/3337615]
```

16. Build SQLite

```
(n1) harshil@harshil:~$ cd sqlite-autoconf-3480000/
(n1) harshil@harshil:~/sqlite-autoconf-3480000$ ./configure --prefix=$HOME/sqlite
```

17. After all installations, label-studio is working.

```
[notice] A new release of pip available: 22.2.1 -> 25.0
[notice] To update, run: pip install --upgrade pip
(final_env) harshil@harshil:~$ label-studio
=> Database and media directory: /home/harshil/.local/share/label-studio
=> Static URL is set to: /static/
=> Database and media directory: /home/harshil/.local/share/label-studio
=> Static URL is set to: /static/
Read environment variables from: /home/harshil/.local/share/label-studio/.env
get 'SECRET_KEY' casted as '<class 'str'>' with default ''
Starting new HTTPS connection (1): pypi.org:443
https://pypi.org:443 "GET /pypi/label-studio/json HTTP/1.1" 200 33651
Initializing database..
```


18. Forward port from linux to access label-studio in windows browser.

