CS203 Lab 3 Assignnment Task 1

Arjun Anand Mallya 2310039, Venkatakrishnan E 23110357

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1 Objective

To setup the environment by installing Python3.10.16 and Label Studio without using sudo.

2 Installation Steps

The following commands were executed on SSH terminal during the installation process:

```
1  history
2  sudo apt list | grep -i python3.10
3  # Create dirs and download Python
4  mkdir -p ~/pythonbuild && cd ~/pythonbuild
5  wget https://www.python.org/ftp/python/3.10.16/Python
   -3.10.16.tgz
6  tar -xzf Python-3.10.16.tgz
7  cd Python-3.10.16
8  # Configure and install to home directory
9  ./configure --enable-optimizations --prefix=$HOME/.local
10 make -j$(nproc)
11 make install
12 # Add to PATH (append to ~/.bashrc)
13 echo 'export PATH=$HOME/.local/bin:$PATH' >> ~/.bashrc
14 source ~/.bashrc
15 # Cleanup
16 cd ~
17 rm -rf ~/pythonbuild
18 # Verify installation
19 python3 --version
20 # Create installation directories
21 mkdir -p ~/pythonbuild ~/opt/python3.10.16
22 cd ~/pythonbuild
23 # Download with SSL certificate workaround
24 wget --no-check-certificate https://www.python.org/ftp/
   python/3.10.16/Python-3.10.16.tgz
25 # Extract source
```

```
26 tar xzf Python-3.10.16.tgz
27 cd Python-3.10.16
28 # Build dependencies check
29 command -v make >/dev/null 2>&1 || { echo "Please install
    build-essential"; exit 1; }
30 command -v gcc >/dev/null 2>&1 || { echo "Please install
    gcc"; exit 1; }
31 # Configure and build
32 ./configure --prefix=$HOME/opt/python3.10.16      --enable
    -optimizations      --with-ensurepip=install
33 make -j$(nproc)
34 make install
35 # Add to PATH
36 echo 'export PATH=$HOME/opt/python3.10.16/bin:$PATH' >>
    ~/.bashrc
37 export PATH=$HOME/opt/python3.10.16/bin:$PATH
38 python3 --version
39 # Create and enter project directory
40 mkdir ~/labelstudio_project
41 cd ~/labelstudio_project
42 # Create virtual environment
43 python3.10 -m venv venv
44 # Activate virtual environment (Windows)
45 .\venv\Scripts\activate
46 # Update pip
47 python -m pip install --upgrade pip
48 # Install label studio
49 pip install label-studio
50 # Get absolute path to Python 3.10
51 PYTHON_PATH=$HOME/opt/python3.10.16/bin/python3
52 # Create project directory
53 mkdir -p ~/labelstudio_project
54 cd ~/labelstudio_project
55 # Create virtual environment with specific Python
56 $PYTHON_PATH -m venv .venv
57 # Source the virtual environment (Linux/Mac)
58 source .venv/bin/activate
59 # Ensure pip is installed in venv
60 curl https://bootstrap.pypa.io/get-pip.py -o get-pip.py
61 $PYTHON_PATH get-pip.py --user
62 # Install label studio
63 $HOME/.local/bin/pip install --user label-studio
64 # Add to PATH in bashrc if not already there
65 echo 'export PATH=$HOME/.local/bin:$PATH' >> ~/.bashrc
66 source ~/.bashrc
67 # Check installations
68 which pip
69 pip --version
70 label-studio --version
71 history > user_history.txt
```

3   SSL Error Handling

The installation process typically results in an SSL certificate verification error when downloading files via HTTPS, especially if the system does not have valid SSL certificates configured. To bypass the SSL error during the download, the `--nocheck-certificate` was used while downloading the tarball file, which disables the SSL certificate verification.

4   Pip Error

To resolve pip erorrs, `get-pip.py` was downloaded and executed manually, installing pip successfully.

5   SSH Environment

The entire installation process was carried out over an `SSH` connection on windows. This setup allowed for remote installation and troubleshooting without direct physical access to the machine. It was also easier to take screenshots and helped in documentation.

6   Conclusion

Python 3.10.16 was successfully installed without `sudo` by following the outlined steps. By using the `--no-check-certificate` option with `wget`, SSL errors were avoided, although pip-related issues were still encountered.