Lab 3 Assignment CS203……
Team 31
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GitHub URL: https://github.com/VanshOnGit/CS-203-Assignment-3

Task 1: Environment Setup

- Execute the "history -c && history -w" command. It should clear all the history of the specific user

This command clears the user's command history for the session and writes the changes to the history file.

- Execute the "history" command and take the screenshot.

This command displays the user's current command history, which should now be empty

- Execute command "sudo apt list | grep -i python3.10". If the package for Python 3.10 is installed, then it is removed.

```
                                                                    vansh@vansh: ~
vansh@vansh:~$ sudo apt list | grep -i python3.10

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

idle-python3.10/noble 3.10.16-1+noble1 all
libpython3.10-dbg/noble 3.10.16-1+noble1 amd64
libpython3.10-dev/noble 3.10.16-1+noble1 amd64
libpython3.10-minimal/noble 3.10.16-1+noble1 amd64
libpython3.10-stdlib/noble 3.10.16-1+noble1 amd64
libpython3.10-testsuite/noble 3.10.16-1+noble1 all
libpython3.10/noble 3.10.16-1+noble1 amd64
python3.10-dbg/noble 3.10.16-1+noble1 amd64
python3.10-dev/noble 3.10.16-1+noble1 amd64
python3.10-distutils/noble 3.10.16-1+noble1 all
python3.10-examples/noble 3.10.16-1+noble1 all
python3.10-full/noble 3.10.16-1+noble1 amd64
python3.10-gdbm-dbg/noble 3.10.16-1+noble1 amd64
python3.10-gdbm/noble 3.10.16-1+noble1 amd64
python3.10-lib2to3/noble 3.10.16-1+noble1 all
python3.10-minimal/noble 3.10.16-1+noble1 amd64
python3.10-tk-dbg/noble 3.10.16-1+noble1 amd64
python3.10-tk/noble 3.10.16-1+noble1 amd64
python3.10-venv/noble 3.10.16-1+noble1 amd64
python3.10/noble 3.10.16-1+noble1 amd64
vansh@vansh:~$
```

This command lists available packages matching Python 3.10 and removes it if installed.

- Download and install [Python 3.10](#) using tarball.

```
vansh@vansh:~$ wget https://www.python.org/ftp/python/3.10.16/Python-3.10.16.tgz
--2025-01-20 20:07:23--  https://www.python.org/ftp/python/3.10.16/Python-3.10.16.tgz
Resolving www.python.org (www.python.org)... 199.232.20.223, 2a04:4e42:42::223
Connecting to www.python.org (www.python.org)|199.232.20.223|: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  7.59MB/s    in 3.3s

2025-01-20 20:07:26 (7.46 MB/s) - 'Python-3.10.16.tgz' saved [25942994/25942994]

vansh@vansh:~$
```

This command downloads the tarball (compressed source code) for Python 3.10.

- This command extracts the downloaded tarball

```
vansh@vansh:~$ tar -xvzf Python-3.10.16.tgz
Python-3.10.16/
Python-3.10.16/.editorconfig
Python-3.10.16/.readthedocs.yml
Python-3.10.16/CODE_OF_CONDUCT.md
Python-3.10.16/Doc/
Python-3.10.16/Doc/Makefile
Python-3.10.16/Doc/README.rst
Python-3.10.16/Doc/about.rst
Python-3.10.16/Doc/bugs.rst
Python-3.10.16/Doc/c-api/
Python-3.10.16/Doc/c-api/abstract.rst
Python-3.10.16/Doc/c-api/allocation.rst
Python-3.10.16/Doc/c-api/apiabiversion.rst
Python-3.10.16/Doc/c-api/arg.rst
Python-3.10.16/Doc/c-api/bool.rst
Python-3.10.16/Doc/c-api/buffer.rst
Python-3.10.16/Doc/c-api/bytearray.rst
Python-3.10.16/Doc/c-api/bytes.rst
Python-3.10.16/Doc/c-api/call.rst
Python-3.10.16/Doc/c-api/capsule.rst
Python-3.10.16/Doc/c-api/cell.rst
Python-3.10.16/Doc/c-api/code.rst
Python-3.10.16/Doc/c-api/codec.rst
Python-3.10.16/Doc/c-api/complex.rst
Python-3.10.16/Doc/c-api/concrete.rst
Python-3.10.16/Doc/c-api/contextvars.rst
Python-3.10.16/Doc/c-api/conversion.rst
Python-3.10.16/Doc/c-api/coro.rst
Python-3.10.16/Doc/c-api/datetime.rst
Python-3.10.16/Doc/c-api/descriptor.rst
Python-3.10.16/Doc/c-api/dict.rst
Python-3.10.16/Doc/c-api/exceptions.rst
Python-3.10.16/Doc/c-api/file.rst
Python-3.10.16/Doc/c-api/float.rst
```

sudo make install

This command installs python

Python3.10 --version

This verifies that Python 3.10 was installed successfully

- Make Pip environment using newly installed python3.10

```
vansh@vansh: ~/Python-3.10.16

vansh@vansh:~/Python-3.10.16$ python3.10 -m ensurepip --upgrade
Defaulting to user installation because normal site-packages is not writeable
Looking in links: /tmp/tmp3ychunct
Requirement already satisfied: setuptools in /usr/local/lib/python3.10/site-packages (65.5.0)
Requirement already satisfied: pip in /usr/local/lib/python3.10/site-packages (23.0.1)
vansh@vansh:~/Python-3.10.16$ python3.10 -m pip --version
pip 23.0.1 from /usr/local/lib/python3.10/site-packages/pip (python 3.10)
vansh@vansh:~/Python-3.10.16$
```

This command ensures the pip package manager is installed for Python 3.10.

Create a virtual environment:

```
vansh@vansh: ~/Python-3.10.16

vansh@vansh:~/Python-3.10.16$ python3.10 -m venv labelstudio_env
vansh@vansh:~/Python-3.10.16$
```

This creates a virtual environment named 'labelstudio_env' using Python 3.10.

Activate the virtual environment:

```
vansh@vansh: ~/Python-3.10.16

vansh@vansh:~/Python-3.10.16$ source labelstudio_env/bin/activate
(labelstudio_env) vansh@vansh:~/Python-3.10.16$
```

This activates the virtual environment

- Install [label studio](#) using pip.

```
(labelstudio_env) vansh@vansh:~/Python-3.10.16$ sudo apt install python3.10-dev
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  libexpat1-dev libnsl2 libpython3.10 libpython3.10-dev libpython3.10-minimal libpython3.10-stdlib python3.10 python3.10-minimal
Suggested packages:
  python3.10-venv binfmt-support
The following NEW packages will be installed:
  libexpat1-dev libnsl2 libpython3.10 libpython3.10-dev libpython3.10-minimal libpython3.10-stdlib python3.10 python3.10-dev python3.10-minimal
0 upgraded, 9 newly installed, 0 to remove and 63 not upgraded.
Need to get 12.6 MB of archives.
After this operation, 48.0 MB of additional disk space will be used.
Do you want to continue? [Y/n] Y
Get:1 http://in.archive.ubuntu.com/ubuntu noble-updates/main amd64 libexpat1-dev amd64 2.6.1-2ubuntu0.2 [998 kB]
Get:2 https://ppa.launchpadcontent.net/deadsnakes/ppa/ubuntu noble/main amd64 libpython3.10-minimal amd64 3.10.16-1+noble1 [803 kB]
Get:3 http://in.archive.ubuntu.com/ubuntu noble/main amd64 libnsl2 amd64 1.3.0-3build3 [41.4 kB]
Get:4 https://ppa.launchpadcontent.net/deadsnakes/ppa/ubuntu noble/main amd64 python3.10-minimal amd64 3.10.16-1+noble1 [1,906 kB]
Get:5 https://ppa.launchpadcontent.net/deadsnakes/ppa/ubuntu noble/main amd64 libpython3.10-stdlib amd64 3.10.16-1+noble1 [1,825 kB]
Get:6 https://ppa.launchpadcontent.net/deadsnakes/ppa/ubuntu noble/main amd64 libpython3.10 amd64 3.10.16-1+noble1 [1,931 kB]
Get:7 https://ppa.launchpadcontent.net/deadsnakes/ppa/ubuntu noble/main amd64 libpython3.10-dev amd64 3.10.16-1+noble1 [4,528 kB]
Get:8 https://ppa.launchpadcontent.net/deadsnakes/ppa/ubuntu noble/main amd64 python3.10 amd64 3.10.16-1+noble1 [48.9 kB]
Get:9 https://ppa.launchpadcontent.net/deadsnakes/ppa/ubuntu noble/main amd64 python3.10-dev amd64 3.10.16-1+noble1 [500 kB]
Fetched 12.6 MB in 8s (1,504 kB/s)
Selecting previously unselected package libpython3.10-minimal:amd64.
(Reading database ... 165253 files and directories currently installed.)
Preparing to unpack .../0-libpython3.10-minimal_3.10.16-1+noble1_amd64.deb ...
Unpacking libpython3.10-minimal:amd64 (3.10.16-1+noble1) ...
Selecting previously unselected package python3.10-minimal.
Preparing to unpack .../1-python3.10-minimal_3.10.16-1+noble1_amd64.deb ...
Unpacking python3.10-minimal (3.10.16-1+noble1) ...
Selecting previously unselected package libexpat1-dev:amd64.
Preparing to unpack .../2-libexpat1-dev_2.6.1-2ubuntu0.2_amd64.deb ...
Unpacking libexpat1-dev:amd64 (2.6.1-2ubuntu0.2) ...
Selecting previously unselected package libnsl2:amd64.
Preparing to unpack .../3-libnsl2_1.3.0-3build3_amd64.deb ...
Unpacking libnsl2:amd64 (1.3.0-3build3) ...
Selecting previously unselected package libpython3.10-stdlib:amd64.
Preparing to unpack .../4-libpython3.10-stdlib_3.10.16-1+noble1_amd64.deb ...
```

The command sudo apt install python3.10-dev installs the development files and headers necessary for compiling Python modules for Python 3.10

```
(labelstudio_env) vansh@vansh:~/Python-3.10.16$ python -m 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 3.5 MB/s eta 0:00:00
Collecting attr==0.3.1
  Downloading attr-0.3.1.tar.gz (1.7 kB)
  Preparing metadata (setup.py) ... done
Collecting label-studio-sdk==1.0.8
  Downloading label_studio_sdk-1.0.8-py3-none-any.whl (365 kB)
                                    365.1/365.1 kB 11.6 MB/s eta 0:00:00
Collecting attrs>=19.2.0
  Downloading attrs-24.3.0-py3-none-any.whl (63 kB)
                                    63.4/63.4 kB 9.6 MB/s eta 0:00:00
Collecting launchdarkly-server-sdk==8.2.1
  Downloading launchdarkly_server_sdk-8.2.1-py3-none-any.whl (171 kB)
                                    172.0/172.0 kB 4.1 MB/s eta 0:00:00
Collecting urllib3<2.0.0,>=1.26.18
  Downloading urllib3-1.26.20-py2.py3-none-any.whl (144 kB)
                                    144.2/144.2 kB 8.6 MB/s eta 0:00:00
Collecting redis<4.0,>=3.5
  Downloading redis-3.5.3-py2.py3-none-any.whl (72 kB)
                                    72.1/72.1 kB 13.4 MB/s eta 0:00:00
Collecting rules==3.4
  Downloading rules-3.4-py2.py3-none-any.whl (25 kB)
Collecting azure-storage-blob>=12.6.0
  Downloading azure_storage_blob-12.24.0-py3-none-any.whl (408 kB)
                                    408.6/408.6 kB 34.3 MB/s eta 0:00:00
Collecting django-migration-linter<6.0.0,>=5.1.0
  Downloading django_migration_linter-5.1.0-py3-none-any.whl (27 kB)
Collecting humansignal-drf-yasg>=1.21.10.post1
  Downloading humansignal_drf_yasg-1.21.10.post1-py3-none-any.whl (4.3 MB)
                                    4.3/4.3 MB 3.1 MB/s eta 0:00:00
Collecting lxml[html-clean]>=4.9.4
  Downloading lxml-5.3.0-cp310-cp310-manylinux_2_28_x86_64.whl (5.0 MB)
                                    5.0/5.0 MB 3.2 MB/s eta 0:00:00
Collecting appdirs>=1.4.3
  Downloading appdirs-1.4.4-py2.py3-none-any.whl (9.6 kB)
Collecting pyyaml>=6.0.0
  Downloading PyYAML-6.0.2-cp310-cp310-manylinux_2_17_x86_64.manylinux2014_x86_64.whl (751 kB)
                                    751.2/751.2 kB 8.8 MB/s eta 0:00:00
```

This installs Label Studio in the pip environment

```
(labelstudio_env) vansh@vansh:~/Python-3.10.16$ label-studio --version
=> Database and media directory: /home/vansh/.local/share/label-studio
=> Static URL is set to: /static/
=> Database and media directory: /home/vansh/.local/share/label-studio
=> Static URL is set to: /static/
Read environment variables from: /home/vansh/.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..

Label Studio version: 1.15.0
```

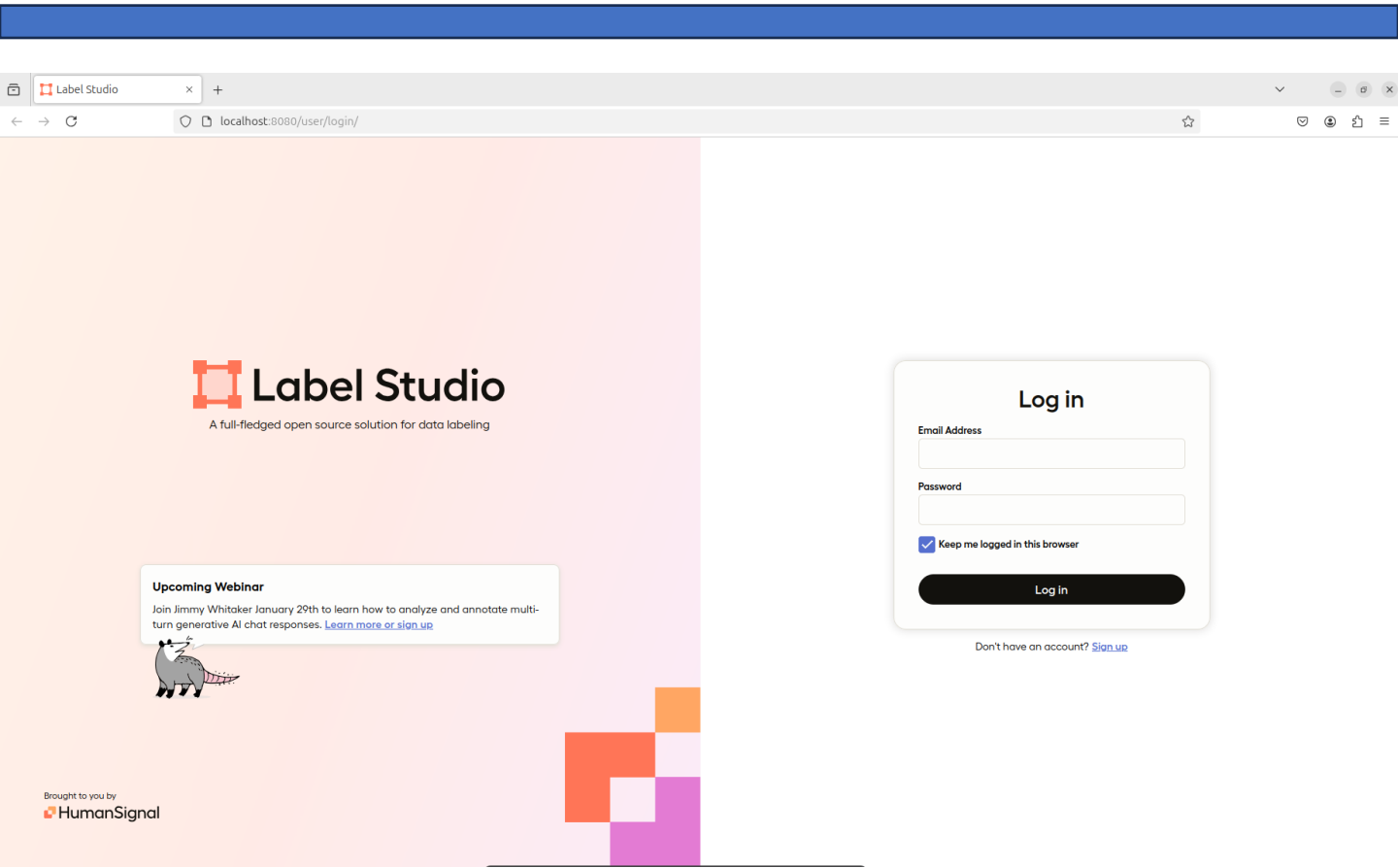This confirms that Label Studio
was installed successfully.

Open, Register, and Check Label Studio on the web browser.

1. Start Label Studio

This starts the Label Studio server

This shows Label Studio running in a web browser.

•Execute "history > user_history.txt." Upload user_history.txt file on Git Hub.

This saves the current session's command history to a file named 'user_history.txt'. It is in our GitHub Repository
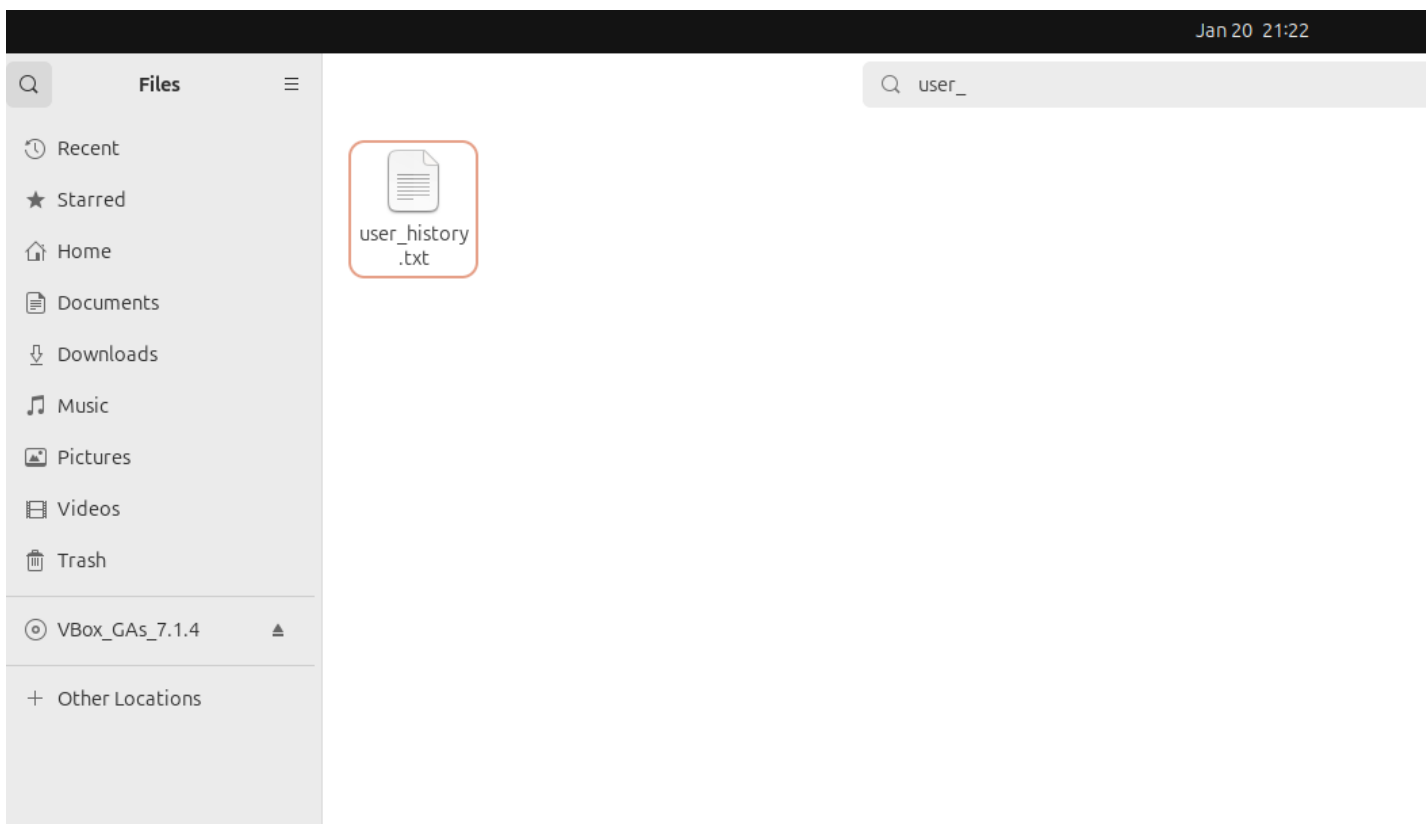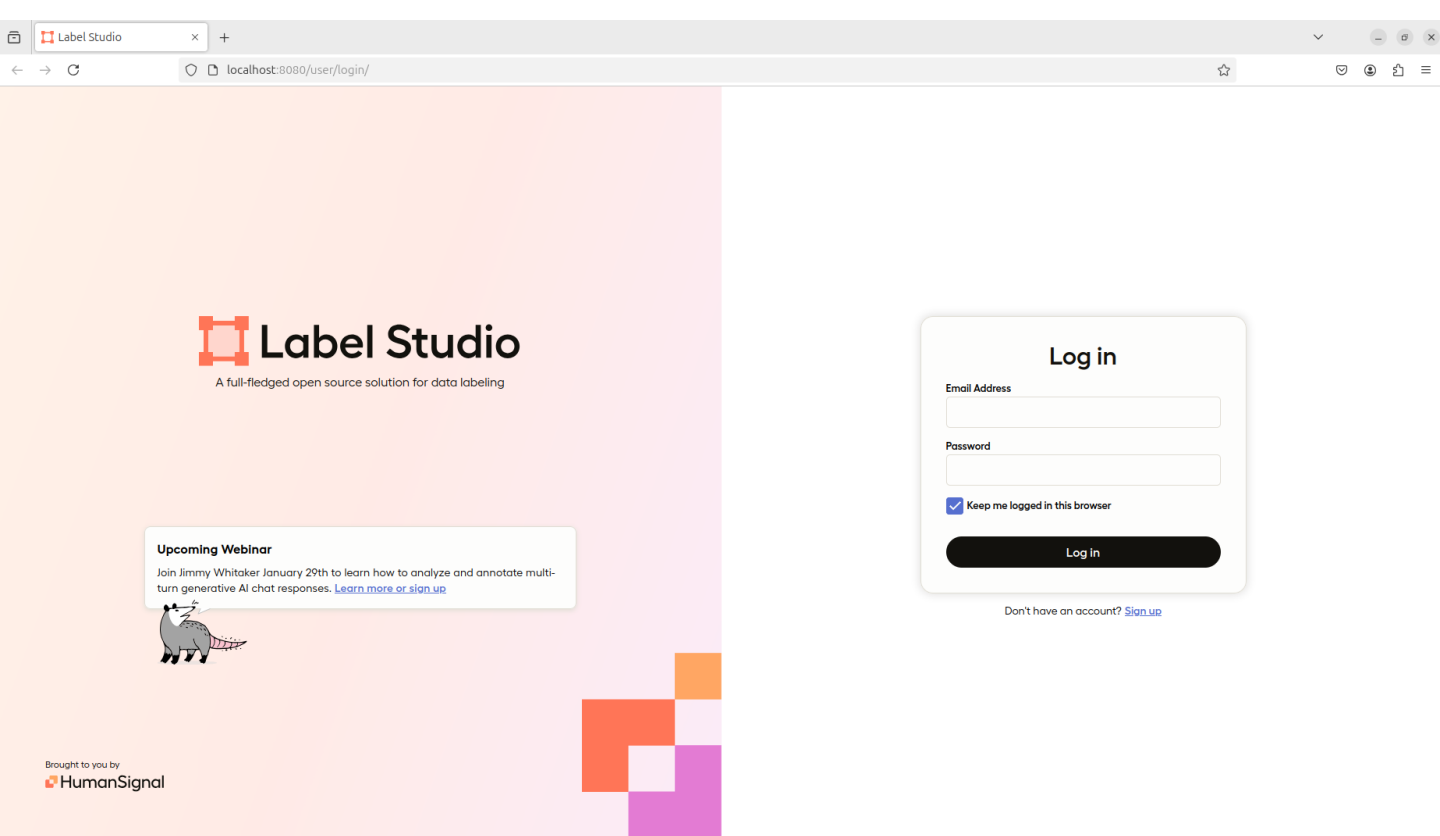
This shows Label Studio running in a web browser and now we login

Heidi doesn't see any projects here!

Create one and start labeling your data.

Create Project
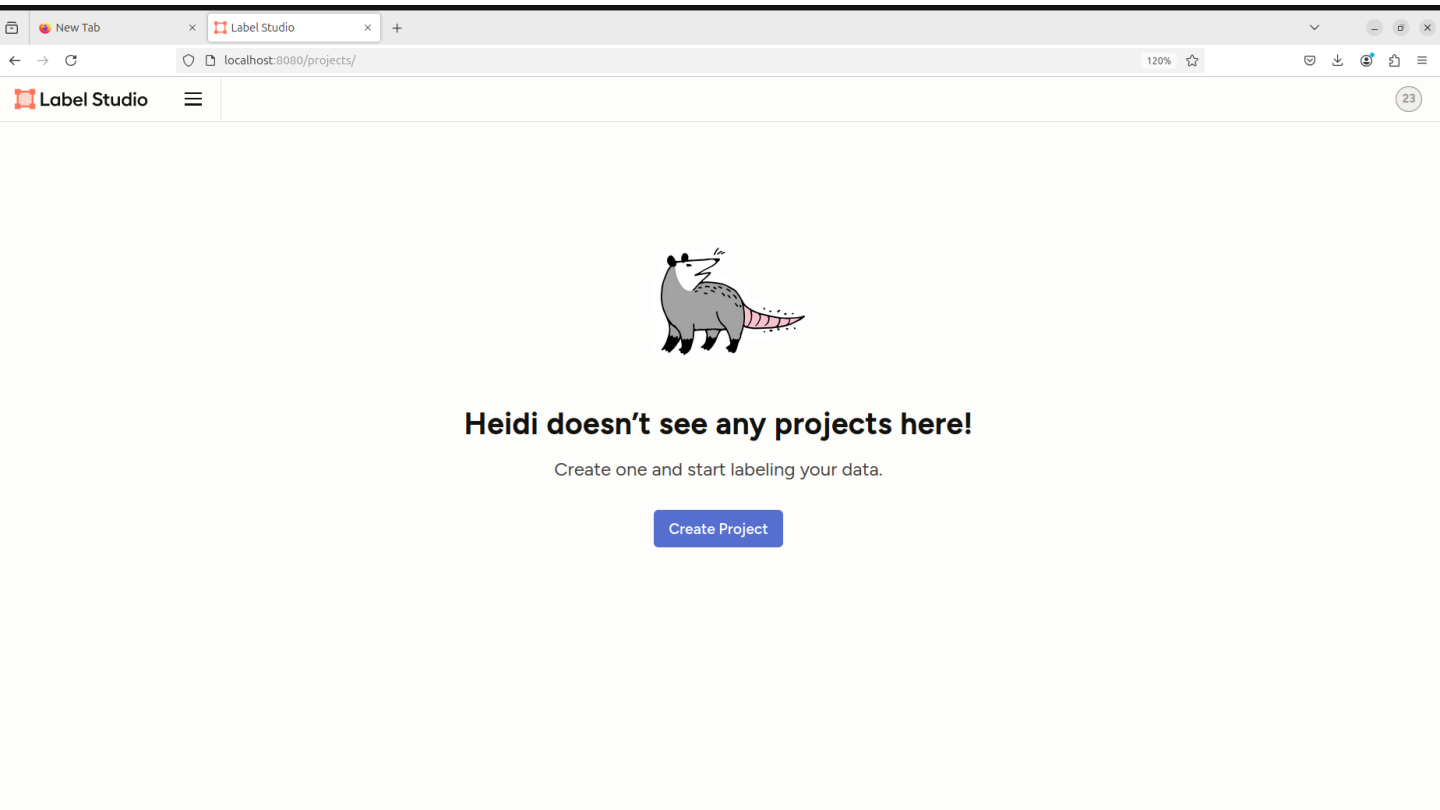
Task 2: Annotating a Dataset Using Label Studio

We are in group 31 so we need data points from 600 to 619 so we need to remove the data points we don't need so we do that using python

```python
import pandas as pd

file_path = "/home/vansh/Desktop/Assignment3/NLP.csv"

df = pd.read_csv(file_path)

filtered_df = df.iloc[600:620]

filtered_df.to_csv(file_path, index=False)

print("Data points from 600 to 619 are saved.")
```

FilterData.py
~/Desktop/Assignment3

Open

```
vansh@vansh:~/Desktop/Assignment3$ python3 FilterData.py
Data points from 600 to 619 are saved.
vansh@vansh:~/Desktop/Assignment3$
```

vansh@vansh: ~/Desktop/Assignment3

Import NLP Dataset

Create Project

Project Name | Data Import | Labeling Setup

Delete | Save

Project Name

NLP Annotation

Description

Optional description of your project

Workspace [Enterprise]

Select an option

Simplify project management by organizing projects into workspaces. Learn more

This shows the creation of a new project for annotating NLP data

Import Data

Cancel | Import

Dataset URL | Add URL | or | Upload More Files

Treat CSV/TSV as
- List of tasks
- Time Series or Whole Text File

1 files uploaded

upload/1/0e86b882-NLP.csv

Importing nlp data

Default | Tasks: 20 / 20 | Annotations: 0 | Predictions: 0

Actions | Columns | Filters | Order | not set | Label All Tasks | Import | Export | List | Grid

ID	Completed			Annotated by	text	str
1		0	0	0		Revanth Reddy Telangana CM Oath: तेलंगाना में कांग्रेस की 6 guarantee पर रेवंत रेड्डी की	</>
2		0	0	0		BJP PARLIAMENTRY MEETING: दिल्ली में BJP संसदीय दल की बैठक	BJP	</>
3		0	0	0		Sharmistha Mukherjee Book: क्या राहुल में congress को दोबारा से खड़ा करने की योग्यता	</>
4		0	0	0		Revanth Reddy Oath Ceremony: रेवंत रेड्डी आज telangana के Chief Minister	</>
5		0	0	0		India Alliance Meeting Cancel : I.N.D.I.A की बैठक टली, अब दिसंबर के तीसरे हफ्ते में	</>
6		0	0	0		Rajasthan CM पर BJP में गुटों का शक्ति प्रदर्शन, Vasundhara Raje से 30 विधायक मिले		</>
7		0	0	0		MP Election Result 2023 : BJP को दो तिहाई से ज्यादा बहुमत, CM शिवराज सिंह बोले- MP के	</>
8		0	0	0		दैनिक भास्कर का प्रेरणा उत्सव: भोपाल में वेदांता समूह के संस्थापक-चेयरमैन अनिल अग्रवाल	</>
9		0	0			Uttarkashi Tunnel Rescue: Lucknow पहुंचे UP के मज़दूर:	</>

Data imported

Labeling Interface

Browse Templates   Code | Visual

```
1   <View>
2   <!-- POS Labels -->
3   <Labels name="pos_label" toName="text">
4     <Label value="NOUN" background="#fa39e"/>
5     <Label value="PROPN" background="#fec3d"/>
6     <Label value="VERB" background="#73d13d"/>
7     <Label value="ADJ" background="#69c0ff"/>
8     <Label value="ADV" background="#ff85c0"/>
9     <Label value="ADP" background="#b7eb8f"/>
10    <Label value="PRON" background="#d3adf7"/>
11    <Label value="DET" background="#ffc069"/>
12    <Label value="CONJ" background="#40a9ff"/>
13    <Label value="PART" background="#ff9c6e"/>
14    <Label value="PRON_WH" background="#d4b106"/>
15    <Label value="PART_NEG" background="#d9d9d9"/>
16    <Label value="NUM" background="#ffadd2"/>
17    <Label value="X" background="#ffa940"/>
18  </Labels>
19
20  <!-- NER Labels -->
21  <Labels name="ner_label" toName="text" choice="multiple">
22    <Label value="PERSON" background="#ffcccc"/>
23    <Label value="ORG" background="#d3f261"/>
24    <Label value="LOCATION" background="#bae637"/>
25    <Label value="DATE" background="#69c0ff"/>
26    <Label value="EVENT" background="#ffd666"/>
27    <Label value="PRODUCT" background="#95de64"/>
28    <Label value="WORK_OF_ART" background="#ff85c0"/>
29    <Label value="LANGUAGE" background="#d9d9d9"/>
30    <Label value="MISC" background="#ffc069"/>
31  </Labels>
32
33  <!-- Text Field for Annotation -->
34  <Text name="text" value="$text" />
35  </View>
```

Configure the labeling interface with tags.
See all available tags.

Save

UI Preview

NOUN | PROPN | VERB | ADJ | ADV | ADP | PRON | DET | CONJ | PART | PRON_WH | PART_NEG | NUM | X | PERSON | ORG | LOCATION | DATE | EVENT | PRODUCT | WORK_OF_ART | LANGUAGE | MISC

Sample: Your text will go here.

Info | History

Selection Details

Regions | Relations

Manual | By Time

Regions not added

Adding POS tagging and NER functionality in the Label Setup

Default — Tasks: 20 / 20 — Annotations: 20 — Predictions: 0

Actions | Columns | Filters | Order | not set   Label All Tasks   Import | Export | List | Grid

ID	Completed				Annotated by	text (str)
1	Jan 20 2025, 22:32:19	1	0	0	23	Revanth Reddy Telangana CM Oath: तेलंगाना में कांग्रेस की 6 guarantee पर रेवंत रेड्डी की
2	Jan 20 2025, 22:32:19	1	0	0	23	BJP PARLIAMENTRY MEETING: दिल्ली में BJP संसदीय दल की बैठक	BJP
3	Jan 20 2025, 22:32:20	1	0	0	23	Sharmistha Mukherjee Book: क्या राहुल में congress को दोबारा से खड़ा करने की योग्यता
4	Jan 20 2025, 22:32:21	1	0	0	23	Revanth Reddy Oath Ceremony: रेवंत रेड्डी आज telangana के Chief Minister
5	Jan 20 2025, 22:32:22	1	0	0	23	India Alliance Meeting Cancel : I.N.D.I.A की बैठक टली, अब दिसंबर के तीसरे हफ्ते में
6	Jan 20 2025, 22:32:23	1	0	0	23	Rajasthan CM पर BJP में गुटों का शक्ति प्रदर्शन, Vasundhara Raje से 30 विधायक मिले	
7	Jan 20 2025, 22:32:23	1	0	0	23	MP Election Result 2023 : BJP को दो तिहाई से ज्यादा बहुमत, CM शिवराज सिंह बोले- MP के
8	Jan 20 2025, 22:32:24	1	0	0	23	दैनिक भास्कर का प्रेरणा उत्सव: भोपाल में वेदांता समूह के संस्थापक-चेयरमैन अनिल अग्रवाल
9	Jan 20 2025, 22:32:25	1	0	0	23	Uttarkashi Tunnel Rescue: Lucknow पहुंचे UP के मजदूर: CM योगी से मुलाकात; घर के लिए

All data points annotated
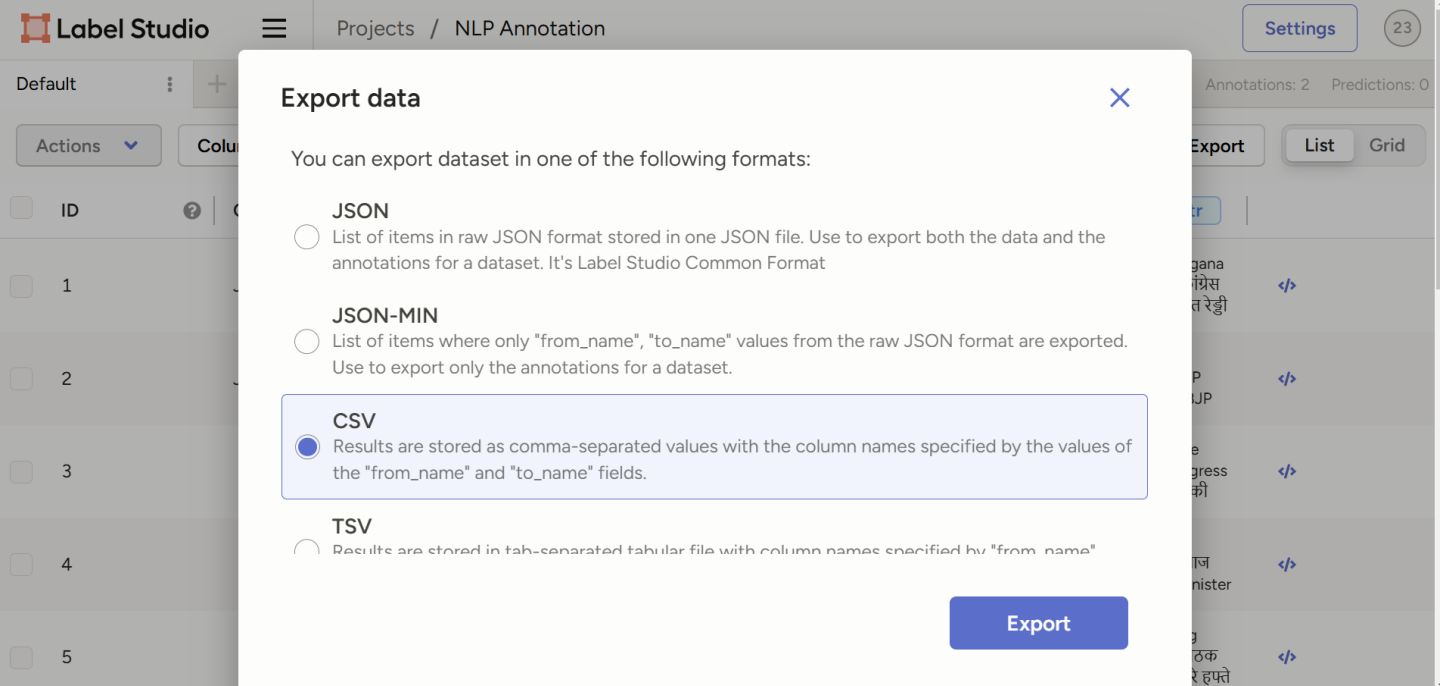
Exporting the annotations in the CSV File

Exporting Annotations to CSV
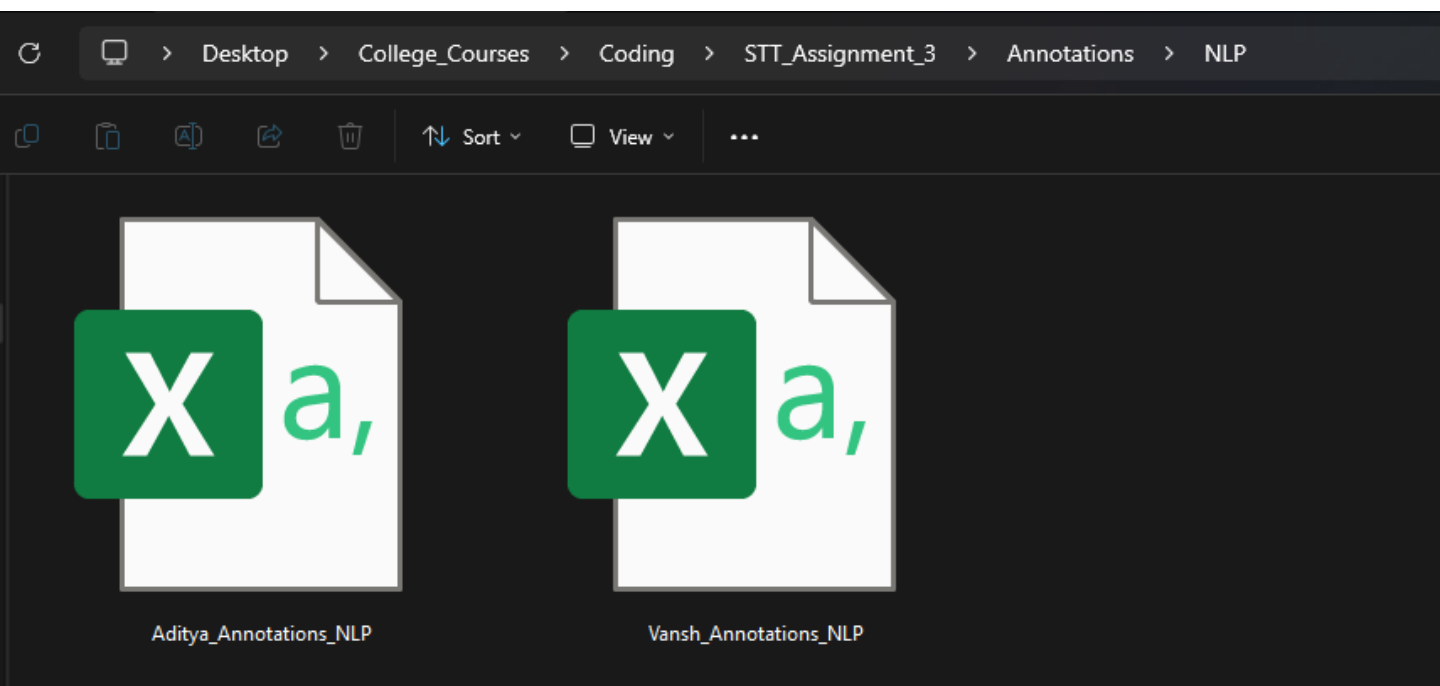
Now the annotations were done by both the teammates and they are saved in .Annotations/NLP Folder

The screenshot of annotations is not possible to show since each CSV line is too long. Please check the files.

Default ⋮ + Tasks: 20 / 20 Annotations: 0 Predictions: 0

| Actions ⌄ | Columns ⌄ | Filters ⌄ | Order | not set ⥥ | Label All Tasks ⌄ | | Import | Export | List | Grid |

	ID	Completed				Annotated by	data	str
	21		0	0	0		/data/upload/3/bd3a4129-img_600.jpg	</>
	22		0	0	0		/data/upload/3/1e2a1258-img_601.jpg	</>
	23		0	0	0		/data/upload/3/67a3d2f0-img_602.jpg	</>
	24		0	0	0		/data/upload/3/03450070-img_603.jpg	</>
	25		0	0	0		/data/upload/3/24fd1845-img_604.jpg	</>
	26		0	0	0		/data/upload/3/7b6b6c55-img_605.jpg	</>
	27		0	0	0		/data/upload/3/5cc05012-img_606.jpg	</>
	28		0	0	0		/data/upload/3/6882ea04-img_607.jpg	</>
	29		0	0	0		/data/upload/3/2e669890-img_608.jpg	</>

Now similarly importing the CV dataset of 20 images from img_600.jpg to img_619.jpg

Now Annotating the CV dataset by classifying them as Trucks or No Trucks

CV Annotations done

Exporting Annotations to CSV
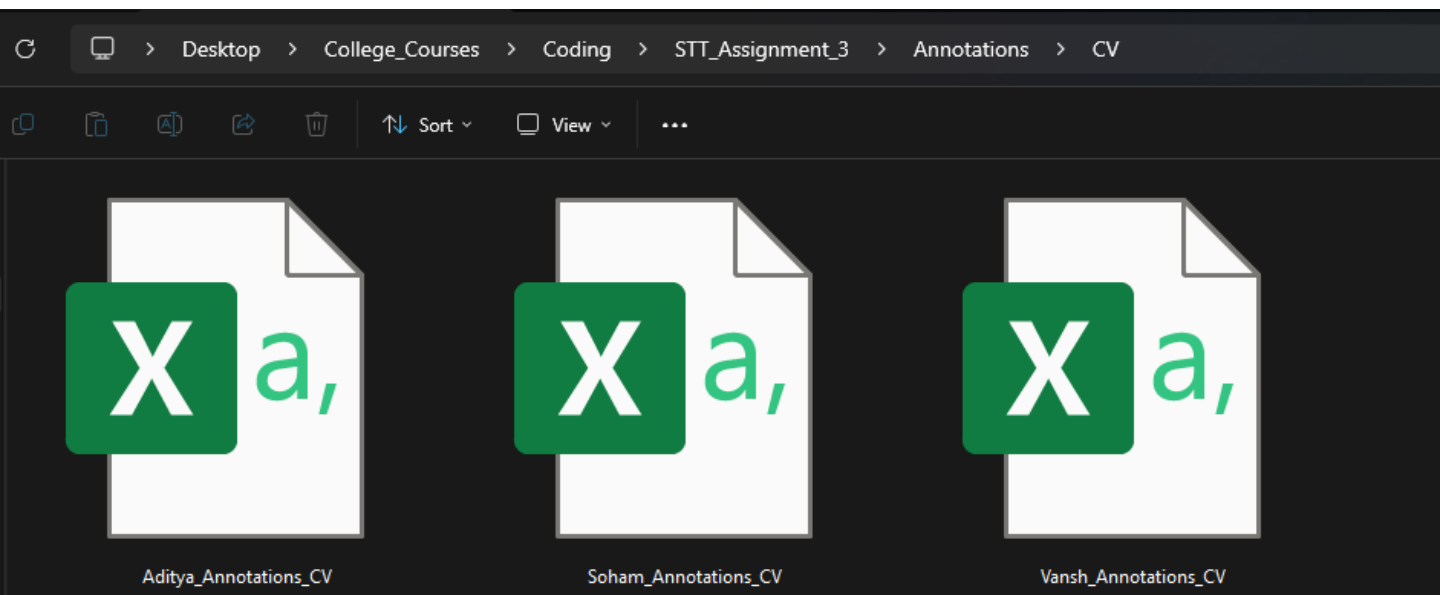
Now the annotations were done by both the teammates and another student from another team and files are saved in .Annotations/CV Folder

<u>The screenshot of annotations is not possible to show since each CSV line is too long. Please check the files.</u>

Task 3: Implementing Inter-Annotator Agreement

Please check Task_3.ipynb **Jupyter file for Task 3**

Thank You

CS203 Lab Assignment 3

Team 31

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